



L-Università
ta' Malta

10th MALTA MEDICAL SCHOOL CONFERENCE

Westin Dragonara Resort, St Julian's



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Conference Abstract book

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Malta Medical Journal

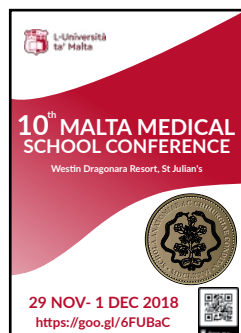
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Front Cover Logo of the 10th Malta Medical School Conference The conference logo features the seal of the Malta Medical School, commemorating the founding of the Medical School (as the School of Anatomy) in 1676.

The obverse, as depicted, shows the cotton plant (in reference to the founder of the School, Grand Master Nicholas Cottoner, along with the two serpents, traditionally a symbol of medicine. The inscription reads 'SCHOLAAANATOMIAEACCHIRURGIAECONDITA MDCLXXVI, meaning 'School of Anatomy and Surgery -Founded 1676'.

10th Malta Medical School Conference

29th November – 1st December 2018

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Foreword

Conference Chairperson

Once again, it is my privilege and pleasure as Chairman of the 10th Malta Medical School Conference to extend a very warm welcome to all the international and local participants.

This triennial conference has become a regular, major academic activity feature in the Malta Medical School calendar and is now in its 10th edition. Since its inception in 1988, it has evolved and its success and popularity have increased due to the tireless work and dedication of many people.

The importance of this medical conference, in our local scenario, is once again evident with over 800 abstracts submitted. This certainly confirms the extent and quality of ongoing academic research taking place locally in the various disciplines, as well as the growing popularity of this triennial event. It is the responsibility of our profession towards our patients to keep abreast of new developments in the various medical fields, and this conference will certainly contribute towards this.

The Scientific Committee, most ably chaired by Professor P. Schembri Wismayer, has produced a vibrant and exciting scientific programme, which I am sure, will generate a lot of interest. This programme will follow the general format of the previous conferences in that it will consist of a compilation of multi-disciplinary sessions and plenary lectures. Five parallel sessions will be running concurrently throughout the whole three-day programme to be able to give adequate exposure to all our participants. Two poster sessions will also be organised.

This is my third time as Chairman of the Malta Medical School Conference and once again, I was extremely fortunate to have a dedicated team of colleagues who worked assiduously together. Their enthusiasm and fervent support has made this event possible. I would like to take this opportunity to thank them all for their excellent work and support throughout. Invaluable help was provided by Ms Christianne Mizzi and Ms Zvetlana Zerafa, the Conference Secretaries, the staff at the Medical School, competently lead by Ms Doris Mangion and various other individuals who supported and helped us with organising this event. For this I thank them all.

I must also thank all the Pharmaceutical Exhibitors and Conference Sponsors without whose financial support this event would not have been possible.

A particular word of thanks goes to Professor Godfrey LaFerla, the Dean of the Faculty of Medicine and Surgery for his continuous support and encouragement and for entrusting me with the organisation of this important conference.

Last but certainly not least, I would like to thank you, the participants, who will be participating in this event. May I wish you all an enjoyable and successful conference.



Professor Raymond Galea

M.D., F.R.C.O.G., Acc. Spec.O&G (Lev.), PhD.,K.M.
Chairman, Organising Committee

Foreword

Chairperson, Scientific Committee

It is an unmitigated pleasure, despite the hard work involved, to have been appointed Chair of the Scientific Committee for this special 10th Anniversary Malta Medical School Conference. At this point, 30 years after the first such conference, when I was still a medical student, I must thank our Chairman Prof Ray Galea and the rest of the Organising Committee of the conference for the trust placed in me.

Many hours of work, were required to assess and categorise the 800 or so submitted abstracts (a slight reduction over the amount 3 years ago). I cannot but thank all the unsung heroes who make this possible every three years; many of the administrative support staff and in particular Ms Zvetlana Zerafa without whose support, this would be impossible. The work of the scientific committee could also never have been done without the help of esteemed expert colleagues, who vetted and helped rank the different abstracts in their field. Furthermore, the multiples sessions at the conference cannot proceed without the additional help of the numerous chairpersons for every particular session. Amongst these we will be aided by a number of our distinguished visiting guests, who themselves contribute to the different parallel sessions.

This 10th conference, successful elements from previous conferences were retained, such as the short poster discussions which give colleagues and students not selected for the main oral presentations to give a brief insight into their equally appealing research.

A feature which was tried three conferences ago but had faded away recently was once again tried out. This was the method of not having separate sessions for basic science, as in genetics, molecular sciences and anatomy. Therefore presentations in the basic sciences relating to different clinical aspects of medicine, be it surgery, oncology, neuroscience or paediatrics, were included in sessions of the clinical specialities.

It is hoped that by so doing, colleagues in the basic sciences and the clinical sciences in similar fields get to learn about each other's research and hopefully kick-start future collaborations.

As well as the 5 sets of parallel sessions, 5 plenary session will be held, covering a wide range of topical subjects of interest including robotic surgery and medical marijuana. One will be given by a fellow Maltese clinician who has made a name for himself as a foremost expert in European oncology.

It is a pleasure to see that our sister faculty of Dentistry within the the Medical School has been more involved than three years ago and that dentists together with colleagues from the Faculty of Health sciences are amongst the experts chairing the different sessions.

In conclusion I hope you will all enjoy these three days of learning and sharing, find new opportunities for collaboration and further research. Lets help continue to build on the illustrious history of our Alma Mater and its predecessor school of anatomy and surgery, such that our school be famed not only for its past but also for its present and future.



Professor Pierre Schembri Wismayer

M.D.,Ph.D.(Glas.)

Chairperson, Scientific Committee

Welcome from the Dean

Thirty years have passed since the first triennial Malta Medical School Conference was held in 1988. A lot has changed since then and we should be having a snapshot of these changes in this, the tenth Malta Medical School Conference.

As in previous conferences, and given the restrictions of a small island, it is most satisfying to see the wide spectrum of medical and surgical specialties represented over the three days of the Conference.

May I take this opportunity to extend a warm welcome to all our international guests who are here to share their experiences in their respective fields with us.

Our profession has seen great strides during the past decades - a pace that is continually gaining pace. However, we must not rest on our laurels, and Conferences such as ours serve not only to keep our Medical Community abreast of developments but allow clinicians and scientists to engage in meaningful discussion to promote further research.

Such an event would not take place without the determined and often zealous work put in by all the members of the Organising Committee. They, together with our administrative staff, have put in long hours to make this coming together of such a large number of the medical fraternity possible.

I end this short note by wishing the tenth Malta Medical School Conference every success.



Professor Godfrey LaFerla

M.O.M., M.D.(Melit.), Ph.D.(Glas.), M.R.C.S.(Eng.), L.R.C.P.(Lond.),
F.R.C.S.(Edin.), F.R.C.S.R.C.P.S.(Glas.), F.R.C.S.(Eng.), Hon.F.E.B.S.

Dean, Faculty of Medicine and Surgery

Scientific Programme

Thursday 29th November

7:30	Registration
08:45 - 09:00	Welcome Ray Galea <i>Chairman 10th Malta Medical School Conference</i>
	H.E. Mary Louise Coleiro Preca President of the Republic of Malta
9:00 - 9:45	Plenary I: Changing the future of hepato-biliary-pancreatic surgery through robotics <i>Long Jiao</i>
Chairpersons:	<i>Godfrey LaFerla, Charles Cini</i>
9:45 - 10:15	Coffee Break and Exhibitors
10:15 - 11:30	Parallel Session 1
Session 1A:	Spinola Conference Room – Cardiology
Session 1B:	St Julian Conference Room- Hepatology and Pancreatic Disorders
Session 1C:	Carthaginian Conference Room - Dentistry
Session 1D:	Castillian Conference Room - Gynaecology
Session 1E:	Phoenician Conference Room - Psychiatry and Neurology
11:30 - 12:45	Parallel Session 2

Session 2A:	St Julian Conference Room - General and Vascular Surgery
Session 2B:	Castillian Conference Room - Paediatrics
Session 2C:	Spinola Conference Room- Pharmaceutical Sciences
Session 2D:	Phoenician Conference Room - Oncology
Session 2E:	Carthaginian Conference Room - Family Medicine and Geriatrics
12:45 - 14:00	Lunch
14:00 – 14:45	Plenary 2 Evidence Based Approach to Pleural Disease in 2018 <i>Najib Rahman</i>
Chairpersons:	<i>Stephen Montefort, Joseph Galea</i>
14:45 - 15:15	Coffee Break and Exhibitors
15:15 - 16:30	Parallel Session 3
Session 3A:	Castillian Conference Room - Pleural Disease
Session 3B:	St Julian Conference Room - Urology and Nephrology
Session 3C:	Carthaginian Conference Room - Obstetrics and Foetal Medicine
Session 3D:	Phoenician Conference Room - Paediatrics and Genetics
Session 3E:	Spinola Conference Room - Emergency Medicine and Intensive Care
15:15 - 16:30	Discussed Poster Presentations

Poster Session 1: Phoenician Conference Room - Specialities including Dentistry

Poster Session 2: Carthaginian Conference Room - Accident and Emergency and Plastic Surgery

Poster Session 3: St Julian Conference Room - Pharmacy and Pharmacology

Poster Session 4: Spinola Conference Room - Cardio Respiratory Medicine

Poster Session 5: Castillian Conference Room - Obstetrics and Gynaecology

Non Discussed Posters: P.001 – P.119

Friday 30th November

9:00 - 9:45 **Plenary III: Preparing learners to inherit the earth**
Valerie Wass

Chairpersons: *Philip Sciortino, Josanne Vassallo*

9:45 - 10:15 **Coffee Break and Exhibitors**

10:15 - 11:30 **Parallel Session 4**

Session 4A: **St Julian Conference Room - Paediatrics and Neonatology**

Session 4B: **Castillian Conference Room - Orthopaedics and Musculoskeletal Conditions**

Session 4C: **Carthaginian Conference Room - Anaesthesia and Physiology**

Session 4D: **Phoenician Conference Room - Public Health and Infectious Diseases**

Session 4E: **Spinola Conference Room - Endocrinology**

11:30 - 12:45 **Parallel Session 5**

Session 5A: **Castillian Conference Room - Rheumatology and General Medicine**

Session 5B: **Carthaginian Conference Room - Gynaecological Oncology and Breast Disease**

Session 5C: **Phoenician Conference Room - Psychiatry and Family Medicine**

Session 5D: **Spinola Conference Room - Respiratory Medicine**

Session 5E: **St Julian Conference Room - Upper Gastrointestinal Tract Disease**

12:45 - 14:00

Lunch

14:00 - 14:45

Plenary IV: Cannabinoids as recreational or therapeutic drugs

Jorge Manzanares Robles

Chairpersons:

Anthony Serracino Inglott, Charmaine Gauci

14:45 - 15:15

Coffee Break and Exhibitors

15:15 - 16:30

Parallel Session 6

Session 6A:

St Julian Conference Room - Thoracic Surgery and Medicine

Session 6B:

Carthaginian Conference Room - Emergency Medicine and Paediatrics

Session 6C:

Spinola Conference Room - Colorectal Disease

Session 6D:

Phoenician Conference Room - Medical Education

Session 6E:

Castillian Conference Room - Obstetrics

16:30 - 18:30

Poster Sessions 6-10

Poster Session 6: Carthaginian Conference Room - Neuromuscular

Poster Session 7: Phoenician Conference Room - Paediatrics

Poster Session 8: Castillian Conference Room - Hematology and Oncology

Poster Session 9: Spinola Conference Room - Gastrointestinal Disease

Poster Session 10: St Julian Conference Room - Endocrine and Renal Disease

Saturday 1st December

9:00 - 9:45	Plenary V: Optimising the treatment of metastatic prostate cancer <i>Gerhardt Attard</i>
Chairpersons:	<i>Alexander Gatt, Nicholas Refalo</i>
9:45 - 10:15	Coffee Break and Exhibitors
10:15 - 11:30	Parallel Session 7
Session 7A:	Spinola Conference Room - Cardiology and Cardiac Surgery
Session 7B:	Phoenician Conference Room - Haematology
Session 7C:	Castillian Conference Room - Oncology Therapeutics
Session 7D:	St Julian Conference Room - Pharmacy Practice
Session 7E:	Carthaginian Conference Room - Translational Neurosciences
11:30 - 12:45	Parallel Session 8
Session 8A:	Castillian Conference Room - Vascular Surgery
Session 8B:	Spinola Conference Room - Diabetes
Session 8C:	St Julian Conference Room - Midgut and Inflammatory Bowel Disease
Session 8D:	Phoenician Conference Room - Surgical Specialities
Session 8E:	Carthaginian Conference Room - Experimental Neurosciences
12:45 - 13:20	Closing Ceremony

Thursday 29th November

Parallel Session 1

10:15 - 11:30 **Session 1A: Cardiology**
Chairpersons: *Robert Xuereb, Alexander Borg*

OP1.001

Prescribing proton pump inhibitors in patients with acute coronary syndrome on dual anti platelet therapy
Julia Tua, Julian Delicata, Maria Farrugia, Maryanne Caruana

OP1.002

The Maltese acute myocardial infarction (MAMI) study
Ritienne Attard, Philip Dingli, Doggen JM Carine, Karen Cassar, Rosienne Farrugia, Stephanie Bezzina Wettinger

OP1.003

Predictors of outcome at medium-term follow-up in subjects following myocardial Perfusion Scintigraphy
Sara Xuereb, Caroline J. Magri, Rachel Xuereb, Dillon Mintoff, Robert G. Xuereb, Stephen Fava, Joseph Galea

OP1.004

BEAT-IT Project: screening for causes of sudden cardiac death in Maltese Adolescents
Mark Abela, Maria Farrugia, John Bonello, Lisa Buttigieg, Estelle Abela, Adrian Callus, Jeremy Fleri Soler, William Camilleri, Sara Xuereb, Melanie Burg, Tiziana Felice, Mark Adrian Sammut, Robert George Xuereb

OP1.005

Physiological assessment of coronanry artery disease using instantaneous wave-free ratio and fractional flow reserve
William Camilleri, Elton Pllaha, Jeremy Fleri Soler, Matthew Mercieca Balbi, Elyse Balzan, Andrea Brincat, Diandra Vassallo, Tahira Waheed

OP1.006

Outcomes of Percutaneous Mitral Valve Repair at Mater Dei Hospital, Malta
Sara Xuereb, Rachel Xuereb, Elton Pllaha, Robert G Xuereb

OP1.007

An echocardiographic comparison of sutureless and conventional aortic valve replacement

Aaron R Casha, Liberato Camilleri, Alexander Manche, Kentaro Yamagata, Stephanie Santucci, Marilyn Casha Gauci, Joseph F Galea

10:15 - 11:30 **Session 1B: Hepatology and Pancreatic Disorders**

Chairpersons: *Long Jiao, Mario Vassallo*

OP1.008

Cytological analysis by endoscopic ultrasound-guided fine needle biopsy in sampling solid gastrointestinal lesions: a feasibility study

Maria Grazia Grech, Gerardine Saliba, Neville Azzopardi, Jurgen Gerada

OP1.009

Should patients with an intraductal papillary mucinous neoplasia of the pancreas be screened for an underlying extra-pancreatic malignancy?

Trevor Tabone, Kelvin Cortis, Neville Azzopardi

OP1.010

The role of endoscopic ultrasound in the management of pancreatic cancer: reviewing the local practise

Ruth Attard, Kurt Carabott, Clifford Caruana, Jo Etienne Abela, Neville Azzopardi, Jurgen Gerada

OP1.011

A single center analysis of pre-, intra- and post-operative thrombotic events in a cohort of 470 orthotopic whole liver transplantations

Nicoletta Riva, Alex Gatt, Rajiv Pruthi, William Nichols, James Findlay, Charles Rosen, Patrick Kamath, Aneel Ashrani

OP1.012

The incidence and treatment of post-operative pancreatic fistula after distal pancreatectomy

Sarah Xuereb, Neil Grech, Kurt Carabott, Jo-Etienne Abela

OP1.013

Liver-related hospitalisation rates, readmissions rates, length of stay, hospitalisation costs and in-hospital and peri-hospital mortality in patients with liver cirrhosis

Martina Papa, Jessica Sammut, Julian Cassar, Jurgen Gerada

OP1.014

Hepatitis B virus infection in the Maltese islands

Maria Angela Grima, James Gauci, Graziella Zahra, Karl Galea, Christopher Barbara, Pierre Ellul

10:15 - 11:30 **Session 1C: Dentistry**

Chairpersons: *Farida Fortune, Gabriella Gatt*

OP1.015

Behçet's Disease: a model for multidisciplinary clinical care and research

Farida Fortune

OP1.016

Noise-induced hearing loss in dental surgeons; the Maltese perspective

Amanda Bartolo, Helen Grech

OP1.017

The oral health status of the Gozitan community

Anne-Marie Agius, Nikolai Attard, Gabriella Gatt, Ethel Vento Zahra, Maria Luisa Gainza-Cirauqui, Emad Eddin Alzoubi

OP1.018

An evaluation of oral health related quality of life in orthodontic patients treated with fixed & twin blocks appliances

Emad Eddin M Alzoabi¹, Racha Hariri², Nikolai Attard, Kevin Mulligan

OP1.019

On treatment outcomes of immediately loaded narrow and conventional diameter implant-supported overdentures in the edentulous jaw

David Paul Mifsud

10:15 - 11:30 **Session 1D: Gynaecology**

Chairpersons: *Mark Brincat, Yves Muscat Baron*

OP1.020

Determining the *in vitro* effect of the extract of padina pavonica on human osteoblast primary cell lines

Sarah Sultana Grixti, Mark P Brincat, Raymond P Galea, Jean Calleja-Agius, Pierre Schembri Wismayer, Nikolai Paul Pace, Charles Savona-Ventura

OP1.021

Uterine fibroid embolisation: initial experience in our local population

Nathania Bonanno, Kieran Chircop

OP1.022 Identifying genetic factors for

osteoporosis in Malta: a family-based study

Chanelle Cilia, Melissa Marie Formosa, Josanne Vassallo, Angela Xuereb-Anastasi

OP1.023

The role of interventional radiology in the treatment of chronic pelvic pain in women

Nathania Bonanno, Kieran Chircop

OP1.024

Are IVF pregnancies high risk pregnancies after 28 weeks?

Silvaine Marie Dalli, Olivia Anne Cassar, Eleanor Borg, Mark Brincat

OP1.025

Measurement of biomarkers for PE in pregnant women: PIGF, sFLT, ADMA and HSP70 mono-methyl lysine

Maria Portelli, Viktor I Cassar, Yves Muscat-Baron, Byron Baron

OP1.026

Exploring maltese womens' attitudes on incontinence in pregnancy and the puerperium

Joanna Ghigo

10:15 - 11:30 **Session 1E: Psychiatry and Neurology**

Chairpersons: Josanne Aquilina, David Mamo

OP1.027

Demographic and clinical profile of multiple sclerosis in? Malta, including auditing documentation of the EDSS (expanded disability status scale): A report

Marija Cauchi, Janice Borg, Maria Farrugia, Valentina Fenech, Gillian Pace Moore

OP1.028

Establishing safe transfers between acute medical and psychiatric in-patient facilities

Jonathan Mamo

OP1.029

Audit 2018: renal tract ultrasonography surveillance in spinal cord injury patients

Peter Cassar, Andrei Agius Anastasi

OP1.030

An assessment of outpatient management of transient ischaemic attacks through the specialised neurovascular clinic in Malta

Russel Tilney, Valentina Fenech, Amy Lomax, Malcolm Vella

OP1.031

Bridging the Gap between Primary and Secondary Health Care for Cerebral Ischaemia

Matthew Zammit, Abigail Mula, Amy Lomax, Nicola Dingli

OP1.032

Incidence of brain tumours in the Maltese Islands: a population based study

Maria-Alessandra Zammit, Ruth Galea, Maria Antoinette Zammit, James Mark Debono, Mark Gruppeta, Maria Mallia

OP1.033

The Paceville project: adolescent exposure to drugs of abuse - transgenerational and long term effects on motivational and emotional state of rats

Erika Mifsud, Massimo Pierucci, Giuseppe Di Giovanni

Parallel Session 2

11:30 - 12:45 **Session 2A: General and Vascular Surgery**

Chairpersons: *Gordon Caruana Dingli, Kevin Cassar*

OP2.034

Perioperative management of warfarin
Audrey Aquilina, Daniel Farrugia

OP2.035

Malignant disease after kidney transplantation in Malta: a 10-year analysis
Justine Camilleri, Jesmar Buttigieg, James Mark Debono, Emanuel Farrugia

OP2.036

A retrospective analysis of the complication and patency rates in first-time arteriovenous fistulas and grafts fashioned in Malta
Thomas Gatt, Adriana Grech, Kevin Cassar

OP2.037

Long-term outcomes after carotid endarterectomy
Ruth Scicluna, Denise Hili, Kevin Cassar

OP2.038

The impact of renal disease on survival rates after lower limb amputations in Malta
Marika Borg, Kevin Cassar, Karen Borg, Alexandra Distefano, Sandra Buttigieg

OP2.039

Prophylaxis of deep vein thrombosis in surgical patients: is our practice following the guidelines?
Matthew Scicluna, Nicholas Fava, Maria Mallia

OP2.040

Using thiel embalmed cadavers for training in transoral endoscopic thyroidectomy vestibular approach (TOETVA): Is it feasible?
Christian Camenzuli, Andee Agius, Pierre Schembri Wismayer, Jean Calleja Agius

11:30 - 12:45 **Session 2B: Paediatrics**

Chairpersons: *Victor Grech, Simon Attard Montalto*

OP2.041

Functional outcomes in Hirschsprung's disease: a retrospective analysis of the Maltese paediatric patients
Joseph Galea, Colin Mizzi, John Cauchi

OP2.042

Regional differences in childhood BMI data - the Malta childhood national body mass index study
Samuel Aquilina, Karl Spiteri, Maria Louisa Busuttil, Victoria Farrugia Sant'Angelo, Neville Calleja, Victor Grech

OP2.043

Paediatric minimal invasive surgery: current practice and future challenges
Jessica Schembri Higgans, Colin Mizzi, Mohamed Shoukry

OP2.044

Congenital syphilis in Malta
Melanie Grima, Luke Sultana, David Pace

OP2.045

Transitioning youth from paediatric to adult care: knowledge, practice and perceptions of paediatricians and adult physicians in Malta
Silvana Zammit

OP2.046

Are blood cultures in paediatric oncology patients with central venous lines being taken according to current guidelines?
Michelle - Marie Boffa, John Borg, David Pace

OP2.047

Henoch schonlein purpura in Maltese children - clinical characteristics and outcomes over an 8 year period
Ramon Bondin, Charles Joseph Borg, Valerie Said Conti

11:30 - 12:45 **Session 2C: Pharmaceutical Sciences**

Chairpersons: *Sam Salek, Lilian Azzopardi*

OP2.048 Quality decision making in everyday life: can it improve outcomes?
Sam Salek

OP2.049

Gentamicin levels in low-birthweight infants
Paul Torpiano, David Pace

OP2.050

Prioritising patients for long-acting muscarinic antagonist therapy
Jessica Spiteri, Louise Grech, Stephen Montefort, Lilian Azzopardi

OP2.051

Analysis of efficacy parameters used in clinical trials for anti-leukaemic therapy
Dylan Said, John Joseph Borg, Maresca Attard Pizzuto, Anthony Serracino-Inglott

OP2.052

Forensic pharmacy: drug testing
Michaela Cini, Gilbert Mercieca, Anthony Serracino-Inglott

11:30 - 12:45 **Session 2D: Oncology**

Chairpersons: Christian Scerri, Janabel Said

OP2.053

Malta's national cancer plan 2011-2015
- an implementation analysis
Alexander Clayman

OP2.054

Catheter related blood stream infections in haemato-oncology patients: a retrospective study
Daniel Farrugia, Sarah Ward, David James Camilleri

OP2.055

The immunohistochemical and molecular profiling of primary lung adenocarcinoma – a local perspective
Tiffany Buhagiar, Ian Said Huntingford

OP2.056

Effects of low-dose combinations of chromatin-modifying agents with retinoic acid on the terminal differentiation of leukaemia
Analisse Cassar, Pierre Schembri-Wismayer

OP2.057

Screening and functional analysis of genetic alterations in the G-protein receptor 101 (GRP101) gene in local pituitary adenoma (PA) patients
Ryan Sultana, Robert Formosa, Josanne Vassallo

11:30 - 12:45 **Session 2E: Family Medicine and Geriatrics**

Chairpersons: Glorianne Pullicin, Antoine Vella

OP2.058

Full cycle audit: polypharmacy in the elderly at KGRH
Samuel Zahra, Diandra Mifsud, Nader El-Nahhal, Peter Ferry

OP2.059

Study – frailty and rehabilitation outcome prediction
Doriella Galea, Claire Callus, Peter Ferry

OP2.060

Management of falls in the elderly presenting to the emergency department
Sarah Debattista, Daniel Debattista

OP2.061

Management of health problem in general practice: an insight into patient demographics and reasons for encounter at the Floriana health centre
Gabriel Borg, Monica Camilleri, Dylan Attard, Gabriel Gauci, Martina Agius, Christian Borg, Michaela Agius

OP2.062

Patient awareness on warfarin use and its interactions in a primary health care setting
Ramona Camilleri, Anton Bugeja

OP2.063

An evaluation of the tele-consultation and triage system at a primary health care centre
Martha Grima

OP2.064

Cardiac rehabilitation for heart failure patients – a service long overdue
Lisa Buttigieg, Mark Abela, Joanne Vella, Jeanine Micallef, Raissa Abela, Marilyn Gauci, Josette Desira, Sheldon Attard, Janet Caruana, Alice May Moore, Robert George Xuereb

15:15 - 16:30 **Session 3A: Pleural Disease**
Chairpersons: Najib Rahman, Peter Fsadni

OP3.065

Retrospective analysis of whether prior talc pleurodesis attempt affects subsequent IPC-related autopleurodesis or not
Rachelle Asciak, Maged Fayed Hassan, David McCracken, Rachel Mary Mercer, Eihab Bedawi, Robert John Hallifax, Nikolaos Kanellakis, John Matthew Wrightson, Ioannis Psallidas, Nicky Russell, Najib M Rahman

OP3.066

The management of spontaneous and iatrogenic pneumothorax (PTX) at Mater Dei Hospital in 2017
Michael Pace-Bardon, Claire Vella, Julian Cassar, Malcolm Mintoff, Catriona Zammit, Sarah Galea, Daniela Tonna, Christopher Zammit, Stephen Montefort

OP3.067

Is mesothelioma associated with increased risk of indwelling pleural catheter-related septated pleural effusion?
Rachelle Asciak, Rachel Mary Mercer, Maged Fayed Hassan, Robert John Hallifax, David McCracken, Eihab Bedawi, Nikolaos Kanellakis, Nicky Russell, John Matthew Wrightson, Ioannis Psallidas, Najib M Rahman

OP3.068

Success rate of talc pleurodesis
Yanika Farrugia, James Farrugia, Joanna Grech, Christopher Zammit

OP3.069

Ultrasound-guided pleural biopsy at Mater Dei: auditing a new service
Claire Vella, Sara Xuereb, Nicola Mallia, Michael Pace Bardon, Tiffany Buhagiar, Ian Said Huntingford, Christopher Zammit, Stephen Montefort

OP3.070

Prospective analysis of the predictive value of sonographic pleural fluid echogenicity for the diagnosis of exudative effusion
Rachelle Asciak, Maged Fayed Hasan, Rachel Mary Mercer, Robert John Hallifax, John Matthew Wrightson, Ioannis Psallidas, Najib M Rahman

OP3.071

“Microbiological data on pleural effusions – the bugs that count”: a retrospective review of local experience in a secondary hospital.
Kyra Bartolo, Manwel Fenech, Rodianne Abela, Gabriel Galea, Christopher Zammit, Stephen Montefort

15:15 - 16:30 **Session 3B: Urology and Nephrology**

Chairpersons: Karl GermaN, Emmanuel Farrugia

OP3.072

Trends in prostate cancer incidence and age distribution – 2011-2016
Dominic Agius, Ester Jurecková, Maciej Kucharski

OP3.073

Emergency admissions following kidney transplantation: a local perspective
Roberta Callus, Lara Delicata, Julian Delicata, Emanuel Farrugia

OP3.074

The kidney transplant program in Malta: a 10 year report
Jesmar Buttigieg, Justine Camilleri, James M Debono, Emanuel Farrugia

OP3.075

Long-term survival outcomes in chronic kidney disease requiring dialysis in the Maltese islands
Ian Baldacchino, Sarah Debattista, Daniel Debattista, Gabriella Balzan, Emanuel Farrugia, Liberato Camilleri, Lisa Baldacchino, Sacha Buttigieg, Thelma Xerri, Whitney Sciberras Buhagiar, Gabriel Borg, Karl Cutajar

OP3.076

Trial without catheter - a 4-year retrospective audit

Kirk Attard, Giulia Maria Magro, Alethea JB Nair, Wei Li Chan, Nader El-Nahhal, Kenneth Falzon, Mai Khanh Kieu Xuan, Devang Patel, Choon Yee Wang, Kevin J Holmes

OP3.077

A comparison of outcomes following percutaneous ablation versus partial nephrectomy for renal tumours

Karl Spiteri, Kelvin Cortis, Simon Gatt, Gerald Busuttil

OP3.078

Audit of oncological and functional outcomes post radical prostatectomy for localised prostate cancer

Christine Mizzi, Keith Pace, Santosh Kumar Rajasekaran, Karl Spiteri, Gerald Busuttil

15:15 - 16:30 **Session 3C: Obstetrics and Foetal Medicine**

Chairpersons: *John Huntriss, Mark Formosa*

OP3.079

Epigenetic regulation of early human development: molecular biology of preimplantation development

John Huntriss

OP3.080

Outcomes of women referred to the perinatal mental health clinic during pregnancy over a three-year period

Ethel Felice

OP3.081

Optimal gestational age for delivery in uncomplicated dichorionic twin pregnancies: a population-based review

Mark R Brincat, Mark Sant, Neville Calleja

OP3.082

Preterm birth in the Maltese cohort

Silvaine Dalli, Andres Lopez Bernal

OP3.083

Obstetric and infant outcomes in mothers of Maltese and non-Maltese nationality – are there inequalities?

Miriam Gatt, Yves Muscat Baron, Neville Calleja

15:15 - 16:30 **Session 3D: Paediatrics and Genetics**

Chairpersons: *Valerie Said Conti, Alex Felice*

OP3.084

Long-term survival of Maltese patients with repaired secundum atrial septal defects

John Bonello, Maria Farrugia, Sophie Degiorgio, Kyle Cilia, Maryanne Caruana

OP3.085

Neuromuscular junction defects in Models of motor neuron disease

Rebecca Cacciottolo, Remy Bordonne, Ruben Cauchi

OP3.086

Genetic testing for granular corneal dystrophy type1 in Malta uncovers the causative variant in the transforming growth factor beta induced gene

Gabriella Maria Guo Sciriha, Joseph Borg

OP3.087

Array-CGH analysis in patients with developmental delay, intellectual disability and congenital malformations

Mario Frank Farrugia, Edith Said

OP3.088

The Malta NGS Project: identifying local disease-causing variants using high throughput sequencing

Rosienne Farrugia, Francesca Borg Carbott, Ritiene Attard, Karen Cassar, Stephanie Bezzina Wettinger

OP3.089

Progress report on familial hypercholesterolaemia in Malta 2018: the current situation and what needs to be done to improve it

Myra Tilney, Conrad Azzopardi

OP3.090

A novel mutation in the human PDHA1 gene as a cause for X-linked hereditary episodic ataxia
Mark Briffa, Graziella Zahra, Malcolm Vella, Thérèse Hunter, Gary Hunter, Joseph Borg

15:15 - 16:30 **Session 3E: Emergency Medicine and Intensive Care**

Chairpersons: *Agnes Portelli, Carmel Abela*

OP3.091

Bystander CPR and outcome from out-of-hospital cardiac arrest in Malta
Simon Attard Montalto, Christopher Giordimaina, Dorianne Zammit, Jonathan Joslin

OP3.092

Quality of chest compressions by the emergency department staff at Mater Dei Hospital
Pierre Agius, Mark Anthony Attard Biancardi, Giulia Maria Magro, Bernard Gatt, Anna Spiteri

OP3.093

Managing septic shock in the mater dei hospital emergency department (ed) – are we following international guidelines?
Sarah Vella, Sarah Micallef, Francesca Spiteri, Manuel Fenech, Charles Mallia Azzopardi

OP3.094

Analysis of cardiopulmonary resuscitation (CPR) at Mater Dei Hospital: preliminary results
Christabel Mizzi, Michael Micallef, Tanya Esposito, Duncan Briffa

OP3.095

Assessing risk factors for carbapenem-resistant enterobacteriaceae colonisation and infection in critically ill patients
Kristina Bartolo, Lauren Abela, Deborah Maria Pace, Carmel Abela

OP3.096

A retrospective analysis of outcome after tracheostomy insertion in ITU at Mater Dei Hospital
Christabel Mizzi, Imed Ben Moussa, Stephen C Sciberras, Ryan William Grech, Kenneth Muscat, Kirsten Caruso

OP3.097

Opuntia ficus-indica a prickly situation during summer
Samuel Zahra, Matthew Sammut, Joseph Debono

15:15 - 16:30 **Discussed Poster Presentations**

Poster Session 1: Specialities including Dentistry

Chairpersons: *Nikolai Attard, John Agius*

Poster Session 2: Accident and Emergency and Plastic Surgery

Chairpersons: *Agnes Portelli, Francis X. Darmanin*

Poster Session 3: Pharmacy and Pharmacology

Chairpersons: *Francesca Wirth, Maria Cordina*

Poster Session 4: Cardio Respiratory Medicine

Chairpersons: *Brandon Caruana Montalto, Andrew Cassar Maempel*

Poster Session 5: Obstetrics and Gynaecology

Chairpersons: *John Mamo, Isabelle Saliba*

Non Discussed Posters: P.001 – P.119

Friday 30th November

Parallel Session 4

10:15 - 11:30 **Session 4A: Paediatrics and Neonatology**

Chairpersons: *Simon Attard Montalto, David Pace*

OP4.098

The effect of maternal opioids on guardianship and development of neonates in the first three years of life
Anna Maria Vella, Charles Savona Ventura, Liberato Camilleri, Kim Wolff

OP4.099

Neonatal acute kidney injury and follow-up for subsequent chronic kidney disease

Daniela Grima, Simon Attard Montalto, Raymond Parascandalo, Paul Soler, Valerie Said Conti

OP4.100

Clinical presentation of neonates admitted to intensive care for suspected sepsis

Janine Mifsud, Christine Grech, David Pace

OP4.101

Screening for developmental dysplasia of the hip in Malta

Anne Marie Bonello, Simon Attard Montalto, Andre S Gatt, Jessica Muscat, Massimo Abela, Thomas Azzopardi, Mark Grech

OP4.102

BCG vaccination in babies born to parents coming from high risk countries

Elena Saliba, David Pace

OP4.103

Blood culture sensitivity in neonates with suspected sepsis

Sophie Degiorgio, Daniela Tonna, John Xuereb, Ryan Farrugia, David Pace

OP4.104

Hospital acquired bacterial conjunctivitis in neonates needing intensive care.

Jessica Calleja, David Pace

10:15 - 11:30 **Session 4B: Orthopaedics and Musculoskeletal Conditions**

Chairpersons: *Ryan Giordmaina, Jean Calleja Agius*

OP4.105

An evaluation of the conservative management of fractures with plaster in primary care

Martha Grima, Jurgen Abela

OP4.106

Acetabular liners with focal constraint in revision total hip replacement

Sharon Zammit, Marie-Caroline Nogaro, Hemant Pandit, Peter McLardy-Smith

OP4.107

The centre of rotation of the femoral head being below the tip of the greater trochanter on the Pre-Op AP radiograph is an independent risk factor for leg length discrepancy

Kurstein Nicholas Sant, James Duncan, Oliver Pearce

OP4.108

Adjacent joint arthritis progression and arthrodesis risk after first metatarsophalangeal joint arthrodesis, a 10 year follow-up study

Gianluca Gonzi, Wales Deanery, Karrhao Teoh

OP4.109

Negative Poisson's ratios in tendons: an unexpected mechanical response

Ruben Gatt, Michelle Vella Wood, Alfred Gatt, Francis Zarb, Cynthia Formosa, Keith M Azzopardi, Aaron R Casha, Tonio P Agius, Pierre Schembri Wismayer, Lucienne Attard, Nachiappan Chockalingam, Joseph N Grima

OP4.110

An evaluation of infection rates after spinal surgery in Malta – a 7-year audit

Kay Vanhear, Darren Micallef, Stephan Grech, John Borg

OP4.111

Guided growth using “eight-Plates” (Orthofix) for knee coronal plane deformity correction

Simon Aquilina, Keith Sammut, Liberato Camilleri, Massimo Abela

10:15 - 11:30 **Session 4C: Anaesthesia and Physiology**

Chairpersons: *David Gatt, Gary Hunter*

OP4.112

L-glutamate delays aspirin-induced apoptosis of redox-compromised yeast cells by restoring the GSH/GSSG ratio and the mitochondrial respiratory rate

Maria Azzopardi, Gianluca Farrugia, Christian Saliba, Angelina S Gross, Neville Vassallo, Godfrey Grech, Joseph Borg, Frank Madeo, Tobias Eisenberg, Rena Balzan

OP4.113

Tracing Maltese genetic origins

Joanna Vella, Martin Bodner, Nicole Huber, Maria Geppert, Bettina Zimmermann, Joseph Borg, Alex Felice, Lutz Roewer, Walther Parson

OP4.114

Demographic data on chronic pain referrals in Mater Dei Hospital, Malta

Muriel Bellizzi, Marilyn Casha, Gabriel Gauci

OP4.115

The influence of anaesthesia and genetic factors on the outcomes following total knee arthroplasty

Stephen C Sciberras, Bernice Vella, Adrian Paul Vella, Jessica Antoinette Spiteri, Christabel Mizzi, Keith Borg Xuereb, Godfrey Laferla, Godfrey Grech

OP4.116

Investigation of renal colic using CT KUB: an audit on local practice

Eloise Caruana, Andrei ` Agius Anastasi

OP4.117

Audit on surgical admissions to Intensive Therapy Unit (ITU)

Anthony Dimech, Carmel Abela, Gordon Caruana Dingli

OP4.118

Intensive Therapy Unit discharge and follow-up audit, 2016

Stephanie Mifsud, Carl Tua, Greta Mattocks, Maria Deguara, Michael Buttigieg

10:15 - 11:30 **Session 4D: Public Health and Infectious Diseases**

Chairpersons: Charmaine Gauci, Claudia Fsadni

OP4.119

The importance of oral health education in patients receiving orthodontic treatment in Malta

Valentina Tabone Borg

OP4.120

The Malta HIV cohort

Denise Borg, Tonio Piscopo

OP4.121

Establishment of a home antibiotic therapy service at mater dei hospital – a description of the service and its users

Manuel Fenech, Sonia Chetcuti, Charles Mallia Azzopardi

OP4.122

Primary health care reform in Malta: an analysis of the policy process

Naomi Cini Sarreo, Natasha Azzopardi Muscat, Edward Warrington

OP4.123

Structured physical education – an answer to obesity crisis?

Amanda Fenech, Nachiappan Chockalingam, Cynthia Formosa, Alfred Gatt

10:15 - 11:30 **Session 4E: Endocrinology**
Chairpersons: Sudesh Kumar, Sandro Vella

OP4.124

Managing the obese diabetic patient

Sudhesh Kumar

OP4.125

An analysis of hypocalcaemia post total thyroidectomy: diagnosis and predictors

Sarah Craus, Lianne Camilleri, Miriam Giordano Imbroli, Matthew Cassar, Alexander Attard, Mark Gruppeta

OP4.126

Functional adrenal tumours in Malta

Miriam Giordano Imbroli, Maria Farrugia, Mark Gruppeta, Josanne Vassallo

OP4.127

Expression of cell cycle regulators and biomarkers of proliferation and regrowth in human pituitary adenomas

Mark Gruppeta, Robert Formosa, Sharon Falzon, Sabrina Ariff Scicluna, Edward Falzon, James DeGaetano, Josanne Vassallo

OP4.128

Ultrasonographic features and management of thyroid nodules undergoing ultrasound-guided fine needle aspiration

Carol Cardona Attard, Alison Psaila, Lisa Buttigieg, Matthew Valentino, Sandro Vella, Mario Joseph Cachia, Josanne Vassallo, Stephen Fava, Mark Gruppetta

Parallel Session 5

11:30 - 12:45 **Session 5A: Rheumatology and General Medicine**

Chairpersons: Michela Frendo, Cynthia Jones

OP5.129

In-patient falls at Mater Dei Hospital

James Clark, David Cassar, Melanie Grima, Denise Hili, Nicola Mallia, Darren Rodgers

OP5.130

Vitamin D supplementation in systemic lupus erythematosus patients with vitamin D deficiency and insufficiency: the effect on disease activity, fatigue and interferon signature gene expression

Rosalie Magro, Christian Saliba, Liberato Camilleri, Christian Scerri, Andrew A Borg

OP5.131

Structural and biochemical analyses of human xanthine oxidoreductase

Brandon Charles Seychell, Arwen Pearson, Gary Hunter, Thérèse Hunter

OP5.132

Polyhedral oligomeric silsesquioxane poly(carbonate-urea) urethane (POSS-PCU) - it's use in regenerative medicine.

Kurt Wismayer, Nazia Mehrban, James Bowen, Martin Birchall

OP5.133

Assessing patients' compliance to biologics and their beliefs towards rheumatic disease progression

Erika Cefai, Daniela Balzan, Cecilia Mercieca, Andrew Borg

OP5.134

Factors related to fatigue in systemic lupus erythematosus: a cross-sectional cohort study

Rosalie Magro, Liberato Camilleri, Andrew A Borg

OP5.135

Hypertension in Malta - A tackled disease?

Sarah Cuschieri, Josanne Vassallo, Julian Mamo

11:30 - 12:45 **Session 5B: Gynaecological Oncology and Breast Disease**

Chairpersons: James Degaetano, Christian Scerri

OP5.136

Clinical outcomes of trastuzumab treatment in HER2-positive breast cancer patients

Jeanesse Scerri, Donika Metaraku, Godfrey Grech, Christian Scerri

OP5.137

Charting the endometrial cancer care pathway – a baseline audit

Jason Attard, Mark R Brincat, Charmaine Tanti, Nicole Buhagiar, Marie Claire Farrugia, Jean Claude Farrugia, Stefan Laspina, Yves Muscat Baron, Rachel Micallef, Danika Marmarà

OP5.138

Ovarian survival rates in Malta between 2008-2016

Viktor Ivan Cassar, Marie Claire Farrugia, Alison Micallef Fava, Yves Muscat Baron

OP5.139

A ten-year review of vulval malignancies in the Maltese islands

Mark R. Brincat, Charmaine Tanti, Alberto Vella

OP5.140

Adding tumour size to the risk malignancy index improves its area under the curve performance

Marlon Harmsworth, John Thake, Mark Cordina

OP5.141

Prevalence and type distribution of Human papilloma (HPV) in Maltese women: an updated estimate

Graziella Zahra, Christopher Barbara, Rebecca Borg, Mark Briffa, Owen Zammit, Julia-Anne Camilleri

OP5.142

Breast cancer audit: a histopathological perspective
Shawn Baldacchino, Karl Dalli, Sharon Falzon, Godfrey Grech, James DeGaetano

11:30 - 12:45 **Session 5C: Psychiatry and Family Medicine**

Chairpersons: *David Cassar, Philip Sciortino*

OP5.143

Cognitive impairment on the elderly presenting to the Emergency Department
Sarah Debattista, Daniel Debattista

OP5.144

A qualitative study assessing parents' perspective on young people with autism spectrum disorder in relation to the benefits of sport; comparing individual to group sport
Daniel Vella Fondacaro, Nigel Camilleri

OP5.145

Depression in type 2 diabetes patients in Maltese primary care
Tania Cardona, Glorianne Pullicino

OP5.146

Evidence that the urban environment moderates the level of familial clustering of positive psychotic symptoms
Anton Grech

OP5.147

The prevalence of problematic internet use in Malta among young persons aged 13 – 16 years
Anna Maria Vella, Marilyn Clark, Janet Mifsud, Mario Mifsud, Maria Brown

OP5.148

Translation of the clinical outcomes in routine evaluation outcome measure (CORE-OM) into Maltese
Marija Farrugia, Chris Evans, Ivan Zammit

OP5.149

Improving health monitoring of psychiatric inpatients through augmentation of physical health check for- an audit cycle
Thalia Massa, Tim Hardie

11:30 - 12:45 **Session 5D: Respiratory Medicine**

Chairpersons: *Simon Maxwell, Roger Ellul-Micallef*

OP5.150

Preparing to prescribe medicines: Delivering better training to the next generation of doctors
Simon Maxwell

OP5.151

The contemporary adult Maltese smoker phenotype
Sarah Cuschieri, Josanne Vassallo, Neville Calleja, Julian Mamo

OP5.152

Plethysmography and its relationship with biochemical parameters among the Maltese population
Theresia Dalli, Sara Xuereb, Peter Fsadni

OP5.153

Beta-Blocker induced asthma in Malta
Jonathan Gauci, Yanika Farrugia, Stephanie Vella, Valentina Fenech, Bernice Sophie Spiteri, Josef Micallef

OP5.154

Environmental factors effecting the incidence of spontaneous pneumothorax
Joseph Galea, Kimberley Grech, Tiziana Parnis, Liberato Camilleri

11:30 - 12:45 **Session 5E: Upper Gastrointestinal Tract Disease**

Chairpersons: *John Schembri, Josephine Psaila*

OP5.155

The outcome of a group of patients post-bariatric surgery in Malta
Gianluca Fava, Sarah Borg Grech, Benedict Axisa

OP5.156

Surgery for upper gastrointestinal cancer: an individual surgeon's outcomes
Anthony Dimech, Jessica Busuttil, Benedict Axisa

OP5.157

Endoscopic ultrasound: a new diagnostic and therapeutic tool at Mater Dei Hospital
Neville Azzopardi, Jurgen Gerada

OP5.158

A study of antibiotic resistance patterns in helicobacter pylori strains isolated from gastric biopsies at Mater Dei Hospital Malta
Juanita Ann Spiteri, Graziella Zahra, John Schembri, Anthea Pisani, Elaine Borg, Neville Spiteri, Eliezer Zahra Bianco, Paul Caruana, Christopher Barbara, Pierre Ellul

OP5.159

Endoscopic submucosal dissection (ESD) for minimally invasive management of gastric and rectal neuroendocrine tumours (NETs): an international collaboration
Edward John Despott, Alberto Murino, Andrea Telese, Nikolaos Koukias, Nikolaos Lazaridis, Erasmia Vlachou, Christos Toumpanakis, Dalvinder Mandair, Martyn Caplin, Yoshikazu Hayashi

OP5.160

Practice patterns for the management of concomitant gallstones and choledocholithiasis
Ylenia Abdilla

OP5.161

Diagnostic yield of Endoscopic Ultrasound-guided fine needle biopsy in solid gastrointestinal lesions
Jurgen Gerada, Gerardine Saliba, Neville Azzopardi

Parallel Session 6

15:15 - 16:30

Session 6A: Thoracic Surgery and Medicine**Chairpersons:**

Alexander Manche, Martin Balzan

OP6.162

The influence of roflumilast combinatory treatment on molecular targets related to chronic obstructive pulmonary disease
Francesca Camilleri, Anthony Fenech, Vanessa Petroni Magri

OP6.163

Re-auditing concordance to guideline recommendations in chronic obstructive pulmonary disease at Mater Dei Hospital
Jonathan Gauci, Emma Louise Schembri, Neil Grech, David Bilocca, Peter Fsadni, Stephen Montefort

OP6.164

Completing the audit. Have oxygen prescription patterns improved with the introduction of the oxygen prescription chart?
Kyra Bartolo, Michael Micallef, Maria Andria Barbara, Emma Camilleri, Elyse Balzan, Peter Fsadni

OP6.165

Endobronchial ultrasound transbronchial needle aspiration (EBUS-TBNA) – a new diagnostic service at Mater Dei Hospital
Michael Pace-Bardon, David Bilocca, Christopher Zammit, Gerardine Saliba, Sharon Psaila-Balzan, Ian Said-Huntingford, Stephen Montefort

OP6.166

Safety and diagnostic accuracy of CT-guided lung biopsies in Malta
Gabriel Galea, Iyad Mohamad Almobaied, Nathan Edwards, Adrian Mizzi

OP6.167

Development and testing of the RiBridge artificial rib
Aaron R Casha, Philip Farrugia, Quinton Calleja, Daniel Micallef

OP6.168

Lung cancer resection in 2015 and 2016 at Mater Dei Hospital
Maria Angela Grima, Jeremy Fleri Soler, Caroline Gouder, Darlene Muscat, Ian Said Huntingford, Gabriel Galea, Aaron Casha, Stephen Montefort, David Bilocca

15:15 - 16:30 **Session 6B: Emergency Medicine and Paediatrics**

Chairpersons: *Michael Spiteri, Paul Soler*

OP6.169

Assessment of Head Injury (HI) Management in the Paediatric Population at Mater Dei Hospital
Sarah Ellul, Mayokun Taiwo, Stefan Zammit, Colin Mizzi, John Cauchi, Muhammed Choudhry

OP6.170

Time to fluid administration in paediatric diabetic ketoacidosis
Ruth Farrugia, Maria Micallef, Francesca Grech, John Vella

OP6.171

An audit of first afebrile seizure management in Maltese children reviewed in Mater Dei Hospital after professional development was given to paediatric department staff
Amaris Spiteri, Charles Joseph Borg, Stephen Attard, Doriette Soler

OP6.172

Inhalant allergens in Maltese children with allergic rhinitis
Jessica Pace, Jonathan Sammut, Patrick Sammut, Stephen Montefort

OP6.173

Implications of a mixed methods study on the behaviours and perceptions of paediatricians in Malta towards child protection work
Kevin Borg, Mariella Mangion, Tania Borg, Jane Barlow

OP6.174

Underlying diagnoses in neonates admitted to intensive care with tachypnoea
Christine Grech, Janine Mifsud, David Pace

OP6.175

A study of the public knowledge on the management of jellyfish stings
Gerd Xuereb, Kurt Apap, Malcolm Falzon

15:15 - 16:30 **Session 6C: Colorectal Disease**

Chairpersons: *Thomas Cecil, Joseph Debono*

OP6.176

Cytoreductive surgery and multivisceral small bowel transplantation. A technically feasible option for patients with end-stage pseudomyxoma peritonei
Thomas Cecil

OP6.177

Molecular approach to familial breast and colon cancer
Jessica Debattista, Jeanesse Scerri, Christian Scerri

OP6.178

The role of computed tomography colonography (CTC) in detecting colonic and extra-colonic pathologies
Catriona Scicluna, Sara Busuttil, Naomi Piscopo, Kristian Micallef, Pierre Ellul

OP6.179

Incidence of low anterior resection syndrome and its impact on quality of life
Svetlana Doris Brincat, Charles Cini

OP6.180

Heat shock protein expression in patients with rectal carcinoma: is it a good predictive biomarker for response to neo-adjuvant therapy?
Neville Spiteri, Jeffrey Dalli, Sharon Cassar, Jason Attard, Joseph Debono

15:15 - 16:30 **Session 6D: Medical Education**
Chairpersons: *Valerie Wass, Josanne Vassallo*

OP6.181

Compliance to Driving Regulations amongst Epileptic Patients in Malta
Neil Grech, Jessica Sammut, Charmaine Chircop, Norbert Vella

OP6.182

Antimicrobial Resistance in the Medical Curriculum - A European-wide Study
Gerd Xuereb, Kurt Apap

OP6.183

Developing a Trustworthy Quality Improvement Framework within a Community-Based NHS Trust
Jonathan Mamo

OP6.184

CPR training in Malta: the role of the Malta Resuscitation Council

Simon Attard-Montalto, Mark Attard Biancardi, Marthese Bartolo, Anne Marie Camilleri Podesta, Marius Caruana, Tanya Esposito, Ryan Farrugia, Mark Gauci, Christopher Giordimaina, Daniel Varnai, Mario Zerafa

OP6.185

Together we learn: a 3 year study of near peer clinical teaching and learning

Alexander Treadgold, Halima Iqbal, Rebecca Stoner, Isabel Stabile

OP6.186

A study on the attitudes of Foundation doctors towards general practice and their experience during the three-month rotation at health centres

Marilyn Baldacchino, Jurgen Chris Abela

OP6.187

Setting up a liver retrieval service in Malta

Noel Cassar, Hector Vilca-Melendez, Nigel Heaton

15:15 - 16:30 **Session 6E: Obstetrics**

Chairpersons: *Raymond Galea, Albert Scerri*

OP6.188

Male urology infertility clinic – an adjunct to assisted reproductive technology. Adapting to a rapidly changing cultural, familial, legal and social national scenario

Andrew John Mercieca, Olivia Anne Cassar, David Farrugia, Mario Farrugia, Dorianne Coleiro, Mark Debrincat, Gregory Apap Bologna, Martha Anne Zammit, Josephine Xuereb

OP6.189

ART clinic - the Maltese experience

Eleanor Borg, Olivia-Anne Cassar, Silvaine Dalli, Andrew Mercieca, Mark Sant, Mark Brincat

OP6.190

Pregnant Maltese women on opioids

Anna Maria Vella, Charles Savona Ventura, Liberato Camilleri, Kim Wolff

OP6.191

Thyroid dysfunction in pregnancy - an observational analysis of a Maltese cohort

Katia Vella, Sandro Vella, Charles Savona Ventura, Josanne Vassallo

OP6.192

Induction of labour in Mater Dei Hospital, Malta

Martina Francesca Papa, Mandy Collicot, Yves Muscat Baron

OP6.193

Gestational dysglycaemia & future cardiometabolic risk at medium-term follow-up

Rachel Xuereb, Caroline J. Magri, Sara Xuereb, Robert G. Xuereb, Joseph Galea, Stephen Fava

OP6.194

The workload in obstetric anaesthesia at Mater Dei Hospital - a clinical governance exercise

Petramay Attard Cortis, Glenn Paul Abela
16:30 - 18:30

Discussed Poster Presentation**Poster Session 6: Neuromuscular**

Chairpersons: *Giuseppe Di Giovanni, Maria Mallia*

Poster Session 7: Paediatrics

Chairpersons: *Victor Calvagna, Patrick Sammut*

Poster Session 8: Hematology and Oncology

Chairpersons: *David James Camilleri, Godfrey Grech*

Poster Session 9: Gastrointestinal Disease

Chairpersons: *Neville Azzopardi, James Gauci*

Poster Session 10: Endocrine and Renal Disease

Chairpersons: *Roberta Callus, David Coppini*

Non-Discussed Posters – P.120 – P.267

Saturday 1st December

Parallel Session 7

10:15 - 11:30 **Session 7A: Cardiology and Cardiac Surgery**

Chairpersons: *Philip Dingli, Walter Busuttill*

OP7.195

Effect of sternal wire twisting on sternotomy closure rigidity

Aaron R Casha, Liberato Camilleri, Alexander Manche, Marilyn Casha Gauci, Andee Agius, Lang Yang

OP7.196

Can age adjusted D-dimer be used to decrease the CTPA burden in a general hospital?

Kyra Bartolo, Christine Jo Cannataci, Joelle Azzopardi, Julian Cassar, Christopher Zammit, Paula Grech, Gabriel Borg, Gabriel Degiorgio, Brendan Caruana Montaldo

OP7.197

Sleep deprivation & cardiovascular disease in Type 2 diabetes mellitus

Caroline J. Magri, Sara Xuereb, Rachel Xuereb, Robert G. Xuereb, Stephen Fava, Joseph Galea

OP7.198

Outcomes of percutaneous left atrial appendage Occlusion at Mater Dei Hospital, Malta

Sara Xuereb, Rachel Xuereb, Elton Pllaha, Robert G Xuereb

OP7.199

A long-term comparative survival study after aortic valve replacement: Mitroflow versus other bioprostheses

Alexander Manché

OP7.200

A retrospective analysis of ICD therapies in Malta

Lisa Lauren Buttigieg, Samuel Bonnici, Samuel Meilak, Melanie Burg, Oscar Aquilina, Mark Sammut

OP7.201

Assessment of intravascular ultrasound and angiography co-registration's influence on percutaneous intervention strategy

Philip Francis Dingli, William Camilleri

10:15 - 11:30 **Session 7B: Haematology**

Chairpersons: *Stefan Laspina, Alexander Gatt*

OP7.202

Venous thromboembolism in multiple myeloma

Sarah Borg Savona, Melanie Debono, Alexander Gatt, David James Camilleri, Mark Grech

OP7.203

An audit regarding appropriateness of platelet transfusions in Mater Dei Hospital

Denise Borg Aquilina, Stefan Laspina, Dorianne Attard, Nicola Bonello, Adriano Buontempo, Jessica Busuttill, Alicia Dimech, Maria Grazia Grech, Melise Mifsud, Adrienne Zerafa Simler

OP7.204

Tyrosol as a leukaemia differentiation inducing agent

Lucienne Vassallo Gatt, David Saliba, Pierre Schembri-Wismayer, Marion Zammit-Mangion

OP7.205

Validation of age-adjusted d-dimer values

Mark Grech, Melanie Debono, Sarah Borg Savona, Kevin Vella, David James Camilleri, Alexander Gatt

OP7.206

Core lymph node biopsies and the implications on tissue diagnosis

Tiffany Buhagiar, David Pisani, Alexandra Betts

OP7.207

Point-of-care haemoglobin measurement

Martina Scicluna, Lilian M Azzopardi, Francesca Wirth

OP7.208

Differential expression of KLF1 in family studies and their role in globin gene switching

Laura Grech, Jeremy Cutajar, Mary Rose Caruana, Chris Scerri, Ruth Galdies, Robert Formosa, Joseph Borg, Alex Felice

OP7.209 Surviving with cancer and thromboembolism

Abigail Attard, Joanna Grech, Clarissa-Marie Zehlicke, Rachel A Micallef, Alexander Gatt

10:15 - 11:30 **Session 7C: Oncology Therapeutics**
Chairpersons: Gerhardt Attard, Nicholas Refalo

OP7.210

The use of neoadjuvant chemoradiotherapy in rectal cancer - a local experience

Maria Angela Grima, Malcolm Buhagiar, Abigail Attard, Claude Magri

OP7.211

Improved therapy for non-small cell lung cancer

Vanessa Petroni Magri, Joseph Galea, Palma Rocchi, Anthony G Fenech

OP7.212

Outcomes in elderly patients with diffuse Large B-Cell lymphoma treated with R-CEOP

Mark Grech, Krystle-Blair Theuma, Jessica Gauci, Alexander Gatt, David-James Camilleri

OP7.213

Bioactivity of natural products – credible science or fiction?

Joseph A Buhagiar, Marie-Therese Camilleri-Podesta, Karl Anthony Buhagiar

OP7.214

Development of a pharmaceutical care model at a paediatric- adolescent cancer ward

Sephorah Falzon, Louise Grech, Lilian Azzopardi

OP7.215

Aspirin disrupts acetyl-CoA metabolism in redox-compromised yeast cells – implications for its role in cancer chemoprevention

Gianluca Farrugia, Maria Azzopardi, Christian Saliba, Godfrey Grech, Angelina Gross, Jelena Pistolich, Vladimir Benes, Neville Vassallo, Joseph Borg, Frank Madeo, Tobias Eisenberg, Rena Balzan

OP7.216

Inhibition of Wnt-suppressing genes regulates non-Canonical Wnt signalling in Pituitary Adenomas (PA)

Robert Formosa, Joseph Borg, Josanne Vassallo

10:15 - 11:30 **Session 7D: Pharmacy Practice**
Chairpersons: Louise Grech, Anthony Fenech

OP7.217

Pharmacogenetic testing in precision medicine for statin use

Judith Cerda Inesta, Francesca Wirth, Graziella Zahra, Robert G. Xuereb, Chirstopher Barbara, Anthony Serracino-Inglott

OP7.218

Pharmaceutical care probleacross transitional care: from hospital to community

Ivan Debono, Louise Grech, Lilian M Azzopardi

OP7.219

Setting up a 24-hour drug information service

Jeffrey Cassar, Lilian M Azzopardi, Louise Grech

OP7.220

Approaching a pharmacy-led interdisciplinary medication safety service

Dustin Balzan, Stephen Falzon, Carmel Abela, Louise Grech, Lilian M Azzopardi

OP7.221

The ePrescription system in development in the Maltese healthcare system – step 1: the general practitioner perspective

Mauro Sacco, Gianluca Bezzina, Sacha Buttigieg, Jan Stage, Hide Bastiaens, Myra Tilney

OP7.222

Forensic pharmacy: drugs and driving

Abigail Calleja, Anthony Serracino-Inglott

OP7.223

The use of pharmacogenetic testing in a clinical setting for a patient with multiple allergic reactions

Karen Borg, Joseph Borg

10:15 - 11:30 **Session 7E: Translational Neurosciences**

Chairpersos: Robert Fern, Richard Muscat

OP7.224

The axon, its sheath, and the value of basic science for drug discovery

Robert Fern

OP7.225

The Serotonin 5-HT_{2C} receptors as new therapeutic avenue to control absence seizures
Gabriele Deidda, Cristiano Bombardi, Vincenzo Crunelli, Giuseppe Di Giovanni

OP7.226 Novel treatment strategies to protect cerebral white matter in vascular and metabolic disorders

Mario Valentino, Jasmine Vella, Robert Zammit, Christian Zammit

OP7.227

Benchmarking stroke practice at Mater Dei Hospital
Sarah Craus, Valentina Fenech, Julian Cassar, Maria Mallia

OP7.228

Cannabinoids/Serotonin interaction in temporal lobe epilepsy
Giuseppe Di Giovanni

Parallel Session 8

11:30 - 12:45 **Session 8A: Vascular Surgery**

Chairpersons: Mark Schembri, Kevin Cassar

OP8.229

Audit on discharge handover documentation at diabetic foot ward
Anthony Pio Dimech, Benjamin Thornton, Kevin Cassar

OP8.230

A decade of abdominal aortic aneurysm (AAA) repair in Malta
Matthew Joe Grima, Kathleen England, Sandra Distefano, Adrian Mizzi, Kevin Cassar

OP8.231

Morbidity and mortality after open revascularisation lower limb surgery
Francesca Theuma, Ruth Scicluna, Kevin Cassar

OP8.232

Radiofrequency ablation for truncal lower limb venous reflux
Francesca Theuma, Denise Hili, Nebojsa Petrovic, Sinisa Pejkcic, Kevin Cassar

OP8.233

Mortality in a five-year cohort of patients undergoing major lower extremity amputation in Malta
Keith Pace, Maria Elena Croucher, Nebojsa Petrovic, Kevin Cassar, Sinisa Pejkcic

OP8.234

Management of abdominal aortic aneurysm in the endovascular era
Ruth Scicluna, Adrian Mizzi, Kevin Cassar

OP8.235

Incidence of early complications and one-year amputation-free survival rate post-endovascular treatment of infra-inguinal arterial disease in Malta
Kay Vanhear, Maria Ciantar, Mahmoud Hamido, Esther Otukoya, Kevin Cassar, Adrian Mizzi

11:30 - 12:45 **Session 8B: Diabetes**

Chairpersons: Stephen Fava, Mario Cachia, Mark Grupetta

OP8.236

Metabolic health and different body composition phenotypes in a Maltese cohort
Rachel Agius, Stephen Fava

OP8.237

All-cause mortality in patients on sulphonylurea monotherapy compared to metformin monotherapy in a national-wide cohort
Sascha Reiff, Stephen Fava

OP8.238

Prevalence of maturity onset diabetes of the young (MODY) in Malta
Ruth Caruana, Benjamin Thornton, Gillian Pace Moore, Lauren Abela, Keith Borg Xuereb, Ian Baldacchino, Nikolai Pace, Josanne Vassallo

OP8.239

Diabetes mellitus type 2 - the Maltese epidemic
Sarah Cuschieri, Josanne Vassallo, Neville Calleja, Julian Mamo

OP8.240

Vitamin D & diabetes- associated complications
Rachel Xuereb, Caroline J. Magri, Sara Xuereb, Robert G. Xuereb, Stephen Fava, Joseph Galea

OP8.241

Genetic characterisation of a Maltese cohort with atypical non-autoimmune diabetes
Nikolai Paul Pace, Ruth Caruana, Johann Craus, Josanne Vassallo

OP8.242

Incidence of type 1 diabetes in childhood and distance from sea
Alexia-Giovanna Abela, Stephen Fava

11:30 - 12:45 **Session 8C: Midgut and Inflammatory Bowel Disease**
Chairpersons: Jurgen Gerada, Jo-Etienne Abela

OP8.243

30-day surgical site infections and mortality after abdominal surgery at Mater Dei Hospital
Elaine Borg, Stefan Zammit, Alexia Farrugia

OP8.244

A study on fatigue and levels of physical activity in patients with inflammatory bowel disease
Kelly Gatt, John Schembri, Konstantinos Katsanos, Konstantinos Karmiris, Uri Kopllov, Ioannis Koutrobakis, Anna Fabian, Daniela Zammit, Gerassimos Mantzaris, Pierre Ellul

OP8.245

Inflammatory bowel disease in the Maltese islands
Julia Tua, Naomi Piscopo, John Schembri, Martina Sciberras, Tiffany Buhagiar, Noel Gatt, Pierre Ellul

OP8.246

Genome wide association study (GWAS) and phenotypic characterisation of a Maltese Inflammatory bowel disease cohort
John Schembri, Nikolai Pace, Chris Saliba, Sarah Vella, Pierre Ellul, Godfrey Laferla

OP8.247

Comparison of length of stay and readmission rates between laparoscopic and open appendicectomy - a single-centre retrospective study
Kelly Iles, Mark Portelli, Kiara Gascon, Jantess Calleja, Jo-Etienne Abela

OP8.248

The sensitivity and specificity of Ultrasound and CT in diagnosing acute appendicitis – A single centre retrospective study
Kelly Iles, Mark Portelli, Kiara Gascon, Jo-Etienne Abela

OP8.249

Endoscopic submucosal dissection (ESD) for minimally invasive management of gastric and rectal neuroendocrine tumours (NETs): an international collaboration
Alberto Murino, Andrea May, Nikolaos Lazaridis, Nikolaos Koukias, Erasmia Vlachou, Katie Planche, David Patch, Yoshikazu Hayashi, Edward John Despott

11:30 - 12:45 **Session 8D: Surgical Specialities**
Chairpersons: Mario Vella, Franco Mercieca

OP8.250

Assessing the validity of mobile thermographic cameras in the assessment of patients with vascular disease
Samuel Anthony Galea, Kevin Cassar

OP8.251

A retrospective audit on lid malposition surgery
David Agius, Daniel Cassar, Maria De Bono

OP8.252

Comparison of three skin graft meshing techniques
Aaron R Casha, Ruben Gatt, Daphne Attard, Jeffrey Dalli, Marilyn Casha Gauci, Joseph Briffa, Joseph N Grima

OP8.253

Can olfactory function improve after nasal surgery?
Amanda Bartolo, Lepa Lazarova, Samuel C. Leong

OP8.254

A survey of the referrals from the dermatology department to the plastic surgery department (2015-2016)
Daniel Micallef, Clarissa-Marie Zehlicke, Kristen Buhagiar, Janice Azzopardi, Joseph Emanuel Briffa, Francis Xavier Darmanin, Lawrence Scerri

OP8.255

The referral incidence of otitis media in Maltese children with the developmental difficulties
Helen Grech, Monique Borg Inguanez, Snezana aivoric-filipovic

OP8.256

Single-surgeon series of the Ahmed FP7 valve in a mixed glaucoma population: outcomes with one year follow-up
James Vassallo, Francis Carbonaro

11:30 - 12:45 **Session 8E: Experimental Neurosciences**

Chairpersons: *Harry Steinbusch, Mauro Pessia*

OP8.257

Brainstem dysfunction in neuropsychiatric disorders – AD/PD/Depression
Harry W.M. Steinbusch

OP8.258

A gain-of-function mutation in the potassium channel Kir4.1 induces behavioural abnormalities in rodents relevant to autistic-like phenotype
Lorena Coretti, Sana Mubashir, Francesca Elliott, Lorenzo Chiariotti, Francesca Lembo, Mauro Pessia, Maria Cristina D'Adamo

OP8.259

Elevated levels of nitric oxide during hypoglycaemia cause structural and functional injury to callosal white matter axons in the rodent brain
Christian Zammit, Jasmine Vella, Robert Zammit, Daniel Borg, Mario Valentino

OP8.260

Role of the lateral habenula in modulating the rewarding effects of nicotine
Massimo Pierucci, Giuseppe Di Giovanni

OP8.261

Management of spontaneous intracranial haemorrhage – the local experience
Sarah Micallef, Andrei Agius Anastasi, Eloise Caruana, Maria Mall

Guest Speaker

Professor Jorge Manzanares Robles PhD

*Professor of Pharmacology
Dean of the School of Pharmacy
Universidad Miguel Hernandez*

Professor Najib M Rahman BM BCh MA (oxon)

*DPhil MSc FRCP
Professor of Respiratory Medicine
Director, Oxford Respiratory Trials Unit,
Nuffield Department of Medicine,
University of Oxford
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Professor Farida Fortune, CBE, BDS, MBBS, MRCP, FRCP, FDS RCSeng, FGDP, PhD, Dip Ed teachers Med/Dent
Head of Clinical and Diagnostic Oral Sciences

Professor Gerhardt Attard MD FRCP PhD

*John Black Charitable Foundation Endowed
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ORAL PRESENTATIONS

OP1.001

Prescribing proton pump inhibitors in patients with acute coronary syndrome on dual anti-platelet therapy

J. Tua, J. Delicata, M. Farrugia, M. Caruana

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Introduction: Gastrointestinal haemorrhage is the most common serious bleeding complication from the use of long-term anti-platelet therapy. Proton pump inhibitors have been shown to reduce the rate of this complication. Despite *in-vitro* pharmacodynamic studies showing an inhibitory interaction between clopidogrel and omeprazole, randomised controlled trials did not support this finding, and the European Cardiology Society now recommend the use of proton pump inhibitors (PPIs) in all patients on dual anti-platelet therapy (DAPT). The aim of this study is to audit the prescription of PPIs in those patients who were discharged home on DAPT from cardiology wards after an admission with acute coronary syndrome (ACS) under the care of cardiology team.

Methods: Data was collected from January till March 2018. 183 patients were discharged from cardiology wards by the cardiology team on DAPT after an ACS. Patients on warfarin, dipyridamole or prasugrel were not included. Treatment on discharge was reviewed on Electronic Case Summaries (ECS).

Results: Of the total 183 patients, 64% ($n=118$) were not discharged home on a PPI. In the patients who were prescribed a PPI ($n=65$), 90% were prescribed omeprazole, 8% were prescribed esomeprazole and 2% prescribed pantoprazole. In the patients above the age of 65 ($n=102$), 54% ($n=55$) were not discharged on a PPI.

Conclusion: PPIs are being under-prescribed in patients on DAPT in all age groups. The results were presented in a departmental audit day and posters were placed in doctors' offices to raise awareness of this issue. There shall be a re-audit in August-September 2018 to assess the efficacy of the quality improvement project.

OP1.002

The Maltese acute myocardial infarction (MAMI) study

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Introduction: Cardiovascular disease is one of the major causes of death in developed countries. Myocardial infarction (MI) is influenced by genetic, environmental and lifestyle factors. The Maltese Acute Myocardial Infarction (MAMI) Study was designed to assess the effect of these factors.

Methods: The research population consists of 423 cases with a first MI recruited upon admission to Mater Dei Hospital or Gozo General Hospital, of which 301 came at follow-up after at least 6 months from their event; 465 healthy subjects; and 210 relatives of cases, all of Maltese

origin. Controls were gender- and frequency-matched to the cases in five-year age groups. Data on known and suspected risk factors for MI was collected through an extensive interviewer-led questionnaire, review of the medical history and list of medications. Several measurements were taken. Morning fasting blood samples were collected. Various haematological, biochemical, immunological, coagulation and genetic tests were conducted along with RNA analyses. An electrocardiogram was done for all research subjects. Samples for DNA, RNA, protein and biochemical analysis were banked for future use.

Results: A collection of samples and data from the Maltese population is now available for the study of MI. The impact of various conventional and novel risk factors for MI was assessed.

Conclusion: Uncontrolled diabetes and smoking are important risk factors in the Maltese population. Socioeconomic factors also help identify groups that would benefit from preventive measures. Further research on this collection would help identify novel preventive strategies.

Disclosures: This work was carried out as part of a collaboration between the University of Malta and the Malta Department of Health. It was supported by national funding through the R&I 2008 and 2012 programmes (MAMI Study and NGS Project) administered by the Malta Council for Science and Technology.

OP1.003

Predictors of outcome at medium-term follow-up in subjects following myocardial perfusion scintigraphy

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Introduction: Myocardial perfusion scintigraphy (MPS) is a well-established tool in the diagnosis of ischaemic heart disease (IHD). The aim was to assess the predictors of outcome in a population undergoing MPS at 7-years follow-up.

Methods: The study comprised 1,346 subjects who underwent MPS during 2011. Patient demographics, baseline blood investigations and semiquantitative parameters derived from MPS were noted. Patients were followed up through 1st June 2018. All-cause mortality was the primary outcome. The secondary outcome was combination of all-cause mortality and major adverse cardiovascular events (MACE). Cox regression analyses were performed to assess for independent predictors of the primary and secondary outcomes.

Results: The mean age of the participants was 63.2 years. At a median follow-up of 6.89 years, 15.9% of the study population exhibited MACE while 9.7% of the subjects died. Multivariate analyses revealed that increasing age, male gender, increased STS score, low haemoglobin, low eGFR as well as inability to perform a maximal stress test during MPS were independent predictors of all-cause mortality. With regards to the secondary combined end-

point of all-cause mortality and MACE, again increasing age, male gender, low eGFR and inability to perform a maximal stress test were independent predictors together with smoking status, ejection fraction, increased RDW and SDS scores.

Conclusion: Limited exercise capacity during MPS is an independent marker of outcomes in a general population. In addition, semi-quantitative parameters obtained during MPS, mainly STS and SDS scores, were important predictors of all-cause mortality and the composite endpoint of MACE and mortality, respectively.

OP1.004

BEAT-IT project: screening for causes of sudden cardiac death in Maltese adolescents

M. Abela, M. Farrugia, J. Bonello, L. Buttigieg, E. Abela, A. Callus, J. Fleri Soler, W. Camilleri, W. Xuereb, M. Burg, T. Felice, M.A. Sammut, R.G. Xuereb

Departement of Cardiology, Mater Dei Hospital, Msida Malta.

Introduction: Screening for Sudden Cardiac Death (SCD) in athletes is expanding and is now mandated by a number of sporting organisations. Identifying high-risk individuals early on can allow physicians to institute better patient care.

Methods: Year 11 school students in Malta and Gozo were all offered cardiovascular screening with a questionnaire and electrocardiogram (ECG). Data protection clearance together with the necessary permissions were obtained from all relevant bodies. Approval and endorsement was also obtained from the Ministry of Education. The questionnaire looked into demographics, symptoms, family history of sudden cardiac death and athletic ability. ECGs were carried out on-site in schools. Subject and parental consent was obtained.

Results: A total of 4155 students were eligible for participation in 49 schools, with 2708 [68%] students agreed to undergo evaluation. A total of 120 individuals [4.4%] were referred for secondary evaluation, with 41% of the latter group classified as athletic individuals, highlighting the importance of PPS in athletes. ECG proved to be the strongest reason for referral, with 92% of those referred having an abnormal ECG. Of those screened, 24 [20%] need long term follow up, 36 [30%] need a follow up in 1 year, with 37 [31%] reassured and discharged after secondary evaluation. In total, 13 [15.7%] have/might have a genetic element to their history.

Conclusion: To our knowledge, this is the first reported project of widespread national screening of a specific age group. This project has helped assess the feasibility of introducing a nationwide adolescent screening program to detect rare potentially malignant cardiac disease.

Disclosures: Project was funded by the Research Innovation and Development Trust and supported by the Department of Cardiology.

OP1.005

Physiological assessment of coronary artery disease using instantaneous wave-free ratio and fractional flow reserve

W. Camilleri, E. Pllaha, J. Fleri Soler, M. Mercieca Balbi, E. Balzan, A. Brincat, D. Vassallo, T. Waheed

Introduction: FFR (Fractional Flow Reserve) is a technique used in coronary catheterization to measure pressure differences across stenosed coronary arteries. IFR (instantaneous wave-free ratio) is a physiologic index used to assess the severity of coronary artery disease (CAD). In this study we assessed whether the use of IFR/FFR had an impact in the management of patients with coronary artery disease. We also assessed the all cause mortality and revascularization at 1 year based on the results of the IFR/FFR.

Methods: Retrospective analysis reviewing procedures performed between 2013 and 2017. Indication and outcome of procedures were documented using data taken from MDH computer systems iClinical Manager, Cardio Vascular Information System and Electronic Case Summary.

Results: Total of 238 patients underwent physiological assessment with the use of IFR/FFR between 2013-2017. Out of 238 procedure 32% were found to have a positive IFR/FFR and 68% were found to have a negative IFR/FFR. From the positive IFR/FFR 83.3% of patients underwent percutaneous coronary intervention, 10% were referred to Coronary artery bypass grafting and 7% underwent medical therapy. 3.75% of patients who had a negative IFR/FFR at index procedure were revascularized at 1 year. There was no statistical significance (p value 0.79) in all cause mortality at 1 year between negative and positive IFR/FFR.

Conclusion: The use of coronary physiology to guide revascularization has been found to improve patient outcomes and defer stenting of non-ischemic lesions compared with angiographic assessment. The rate of revascularisation and all-cause mortality is not increased in patients with negative physiology (high negative predictive value).

OP1.006

Outcomes of percutaneous mitral valve repair at Mater Dei hospital, Malta

S. Xuereb, R. Xuereb, E. Pllaha, R.G. Xuereb

Introduction: Percutaneous mitral valve repair (PMVR) was locally introduced in August 2017. It is indicated for symptomatic mitral regurgitation (MR) unsuitable for surgery.

Methods: All PMVRs performed between August 2017 and March 2018 were retrospectively analyzed. Previous coronary artery bypass graft (CABG), chronic kidney disease (CKD), pre-procedure New York Heart Association (NYHA) Class, serum NTpro-BNP, pre- and post-procedure left ventricular ejection fraction (LVEF) were recorded. MR severity before and after PMVR was noted. Peri-procedural, 30-day and 6-month complications, length of hospital stay, and 1-year all-cause mortality were recorded. Data was gathered from hospital

systems according to the Data Protection Act, and was analysed using Microsoft Excel.

Results: Six patients, mean age 71 years (range 65-79 years), underwent PMVR. All had moderate or severe MR on trans-oesophageal echocardiogram, NYHA of >2, and raised serum NTpro-BNP (mean 2668, range 135-11946). Two patients had prior CABG. Three patients had moderate or severe CKD, three had moderately or severely reduced LVEF. Two patients sustained intra-procedural hypotension which resolved on inotrope administration. Average inpatient stay was 4 nights. There were no complications at 30 days and 6 months, and no procedure-related deaths. All patients had a significant improvement in degree of MR (nil or mild on follow-up echocardiogram), as well as in dyspnoea.

Conclusion: PMVR at MDH has a low complication rate and requires a short in-patient stay. A marked improvement in MR severity and symptoms was seen in all patients.

OP1.007

An echocardiographic comparison of sutureless and conventional aortic valve replacement

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Introduction: Patients at a high operative risk for conventional aortic valve replacement (AVR) may be offered sutureless valve implantation. Sutureless valves resemble conventional valves but incorporate an anchoring mechanism and other features to circumvent para-valvular leaks without requiring annular sutures.

Methods: Pre-operative and one-month post-operative echocardiography data from our first year, single centre experience of sutureless valves was compared to conventional aortic valve replacements matched for operative risk. Left ventricular ejection fraction, mean and peak AV gradients and inter-ventricular septal thickness, effective orifice area (EOA) and indexed effective orifice area (iEOA) were measured.

Results: The drop in mean and peak pre- to post-operative gradients decreased more in the sutureless group, $p=0.039$ and $p=0.001$ respectively. Post-operative EOA was 1.69 cm² and 1.26 cm² ($p=0.001$) in the sutureless and conventional groups. Similarly iEOA was 0.93 cm² and 0.74 cm² ($p=0.001$) in the sutureless and conventional groups. There was also a reduced patient-prosthesis mismatch (PPM) in the sutureless group as compared to the conventional group, $p<0.001$. Post-operative inter-ventricular septal thickness was 1.13 cm² in the sutureless and 1.35 cm² in the conventional groups ($p=0.011$).

Conclusion: Absent sewing rings in sutureless valves resulted in larger EOA and iEOA and decreased PPM,

caused significant decreases in mean and peak post-operative aortic valve gradients and lead to statistically significant faster regression in inter-ventricular septal thickness. This is important as the rate and extent of left ventricular hypertrophy regression after AVR is considered to be an important determinant of long term survival.

OP1.008

Cytological analysis by endoscopic ultrasound-guided fine needle biopsy in sampling solid gastrointestinal lesions: a feasibility study

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Introduction: Anecdotal results suggest FNB (fine needle biopsy) needles, used for tissue acquisition during endoscopic ultrasound (EUS), yield just as good results when cytological evaluation was performed, as it does with histological analysis. We studied the feasibility of FNB needle (ProCore[®], Cook) to obtain samples for cytology analysis.

Methods: Twenty-nine randomly selected patients who underwent EUS-guided FNB of a solid gastrointestinal lesion, with sampling taken for both cytological and histological analysis, between 2016 and 2018, were retrospectively enrolled. Positive cytology was defined as adequate material for interpretation, following either of these cytological techniques: rapid on-site evaluation, sample in fixative or cell block. Data was collected through the medical notes.

Results: Twenty-nine patients (59% males, mean age 66) had EUS-FNB of a gastrointestinal lesion (pancreas 80%; others 20%). Positive cytology was obtained in 24/29 cases (83% sensitivity), 23 of which had correct diagnosis (23/24; 96% specificity). Positive histology was obtained in 20/29 cases (69% sensitivity), 19 of which had correct diagnosis (19/20; 95% specificity). Analysing malignant cases only (20), sensitivity was 90% (18/20) and 65% (13/20) for cytology and histology respectively. 5 cases were diagnosed cytologically but not histologically.

Conclusion: This small feasibility study confirms that EUS-FNB needle samples can be sent for cytological analysis. The high sensitivity and specificity of cytology, which in this cohort were even higher than histology, suggests that cytology should be included when EUS-FNB is performed. Sending samples for cytology and histology using 1 needle would increase the yield, while remaining cost-effective. Larger studies are however needed to confirm this.

OP1.009

Should patients with an intraductal papillary mucinous neoplasms of the pancreas be screened for an underlying extra-pancreatic malignancy?

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Introduction: The association between the presence of an intraductal papillary mucinous neoplasm (IPMN) of the pancreas and the prevalence of extra-pancreatic malignancies (EPM) remains unclear.

Methods: This single-centre, retrospective study aims to determine whether the prevalence of all EPMs or one specific EPM is higher in IPMN patients as compared to the general Maltese population. 355 patients with an incidental radiological diagnosis of IPMN between 2007 and 2017 were identified. EPM was defined by ICD-10 C00-C80 based on a histological or radiological diagnosis. The relative risk (RR) of developing an EPM between 2007 and 2015 was calculated by using demographic data from the National Cancer Registry.

Results: 8.7% of 355 IPMN patients had a history of EPM ($n=31$). The commonest malignancies were colorectal 35.5% ($n=11$), breast 22.6% ($n=7$) and prostate 12.9% ($n=4$) respectively. The age-adjusted RR of EPM in all IPMN patients is 1.0 (95% CI 0.7 to 1.4) when compared to the Maltese population ($p=0.9$). There was no significant difference in the RR for EPM between branch-duct and main-duct IPMNs ($p=0.1$). When considering EPMs individually, only colorectal adenocarcinoma was noted to be at a significantly higher age-adjusted risk in IPMN patients (RR=2.1; 95% CI 1.2 to 3.8; $p=0.01$).

Conclusion: IPMN patients are at a higher population-matched and age-adjusted relative risk of colorectal adenocarcinoma, but not for EPM in general. The role of a dedicated colorectal adenocarcinoma screening programme in these patients might need to be explored. There is no role for searching for the other EPMs in this population.

OP1.010

The role of endoscopic ultrasound in the management of pancreatic cancer: reviewing the local practise

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Introduction: Endoscopic ultrasound (EUS) is vital in the management of pancreatic cancer. Operable cases should have EUS to confirm accurate staging, while inoperable cases should have EUS-guided tissue acquisition prior to chemotherapy. We studied local adherence to such practise since the launch of EUS in Malta in June 2016.

Methods: All patients with radiological/ histological evidence of pancreatic cancer (all types), diagnosed

between June 2016 and June 2018, were retrospectively enrolled. EUS referral was checked from medical notes.

Results: One hundred and twenty seven patients (53% males; mean age 67) were diagnosed with pancreatic cancer during the study period. 27% (34/127) were discussed at MDT meetings. EUS was performed in 37% (47/127) of cases. 34% (16/47) were performed for staging in resectable tumors and 66% (31/47) for tissue acquisition in unresectable tumours. Biopsies were also taken in 12 resectable cases. Biopsy yield was 74% (32/43). From all operable cases (49/127, 38%), 33% (16/49) had pre-op staging EUS and 2 were deemed unresectable. From the ones with no pre-op staging EUS (67%, 33/49), 3 had unresectable disease at laparotomy.

Conclusion: Only one-third of pancreatic cancer cases were referred for EUS. Tissue acquisition was requested twice as often as pre-op staging EUS. Biopsy yield is very good, enabling a reduction in radiologically-guided biopsies. Request for pre-op staging EUS for resectable disease was low. Surgery was avoided in 2 cases with pre-op EUS. Surgery could have been avoided in 3 cases had pre-op EUS been performed. Awareness for EUS will increase if all cases were discussed at MDTs (only one fourth were discussed).

OP1.011

A single centre analysis of pre-, intra- and post-operative thrombotic events in a cohort of 470 orthotopic whole liver transplantations

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Introduction: Thrombotic events are common in liver disease and might cause graft failure after liver transplantation. However, there is scarce information on the risk of thrombosis in these patients. The aim of this study was to evaluate the incidence of arterial and venous thrombosis pre-, intra- and post-liver transplantation in patients with chronic liver disease.

Methods: Retrospective data collection on adult patients undergoing whole liver transplantation at the Mayo Clinic (Rochester, MN) (2006-2012). Exclusion criteria: multiple procedures, living partial donor transplant, deceased partial transplants, second transplants. Objectively confirmed thrombosis were classified as venous thromboembolism [VTE], arterial thrombotic events [ATE], other liver-related thrombosis (hepatic artery thrombosis [HAT], graft thrombosis). Patients were followed up to the first event, re-transplant, death or 1 year after transplant, whichever came first.

Results: We included 470 consecutive patients (median age 56; 62% males; 28.5% hepatocellular carcinoma; 28.5%

alcoholic liver disease; 25.3% hepatitis C virus). Eighty-nine (18.9%) had pre-operative history of one or more thrombotic events (74 VTE, 19 ATE, 2 HAT). Seventy-four had intra-operative findings of portal vein thrombosis ($n=69$), right atrial clot ($n=2$), HAT ($n=4$). Seventy-one developed post-operative thrombosis: 49 VTE, 12 ATE, 14 liver-related thrombosis (incidence rates: 12.7, 95%CI 9.6-16.8; 3.1, 95%CI 1.8-5.5; 3.7, 95%CI 2.2-6.1, per 100 patient-years, respectively). Thrombotic events were more common in the first 3 months (79%). At multivariate analysis, cholangiocarcinoma ($p=0.008$) and red blood cell [RBC] transfusion ($p=0.001$) were associated with increased risk of post-operative thrombosis; while elevated bilirubin seemed protective ($p=0.002$). Thrombotic events increased with the units of RBC transfused ($p=0.028$).

Conclusion: The results of our study are consistent with an increased risk of thrombotic events in liver transplant recipients, especially in the first 3 months after transplantation.

OP1.012

The incidence and treatment of post-operative pancreatic fistula after distal pancreatectomy

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Introduction: The development of pancreatic fistula (POPF) after distal pancreatectomy is the single most significant cause of morbidity and mortality after this type of surgery. In the literature the leak rate varies from 14 to 30%. Post operative pancreatic fistula causes a major burden on cost of treatment, it increases length of hospital stay and may result in life threatening complications. The audit aimed to assess the clinically significant leak rate of a single surgeon interested in pancreatic surgery and the management of these cases. The Revised 2016 ISGPS classification was used to grade these fistulae.

Methods: A prospectively maintained database was queried for patients who underwent distal pancreatectomy from January 2015 to December 2017. Demographic data, co-morbidities, indication and surgical technique and post-operative outcome were noted for each case.

Results: Nineteen patients (10 females) with a mean age of 66 years (range 26–82 years) were considered for this study. The indication for distal pancreatectomy was as follows: 3 pancreatic adenocarcinomas, 2 gastric adenocarcinomas, 2 mucinous neoplasms (MCN), 5 neuroendocrine tumours, 2 main duct IPMN's, 3 pseudopapillary lesions, 1 gastric GIST and 1 serous cystadenoma. Three patients developed clinically relevant POPF. Two of these patients had Grade B POPF (MCN and pseudopapillary lesions). Both of these patients had had previous left hemicolectomy. One of these fistulae resolved spontaneously after a period of drain shortening. The other resolved with endoscopic retrograde pancreatic duct stenting. The third fistula (grade C) occurred after the only laparoscopic procedure. The patient was managed with ERP and stent, however the fistula persisted and a small laparotomy was required to effect a necrosectomy, with resolution of the fistula after 4 weeks. More cases to be reviewed and added to final study.

Conclusion: POPF was identified in 16% of patients and the rate may be higher in patients who have previously had splenic flexure surgery. When compared with leak rates from larger institutions, this POPF rate is acceptable for a low volume centre.

OP1.013

Liver-related hospitalisation rates, readmissions rates, length of stay, hospitalisation costs and in-hospital and peri-hospital mortality in patients with liver cirrhosis

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Introduction: Liver cirrhosis is increasing worldwide and as a result, hospitalisation rates for liver-related complications are increasing too. We studied hospitalisation, readmission and mortality rates, and estimated hospitalisation costs in such patients.

Methods: In this retrospective study, patients diagnosed with liver cirrhosis between 2008-2013 were randomly selected. Patient demographics and hospitalisation data were analysed from discharge letters. Patients were followed up for a mean of 44 months (range 24-84 months).

Results: One hundred and thirteen patients diagnosed with cirrhosis in the study period (mean age 60; 75% males, mean MELD score at diagnosis 13.7) were enrolled. The main cause for cirrhosis was alcohol (66%). 40% had a liver-related admission within the first year after diagnosis, increasing to 50% by year 2 and 65% by year 3, with ascites (30%) (encephalopathy 20%; variceal bleeding 12.5%), being the main reason. Readmissions occurred in 20% of patients. Higher MELD score at diagnosis was present in hospitalized patients vs non-hospitalised patients (14.7 vs 12.1, p value 0.03). The mean length of hospital stay was 9 days, with 12% of patients requiring ITU care. Estimated mean cost for each admission was €2600. 49.6% of patients died by the end of the follow up period, 71% of whom were in-patient mortality and a further 18% at 90-day post-discharge.

Conclusion: Liver-related hospitalisations in cirrhotic patients cause substantial hospital and economic burden with high hospitalisation rates, readmission rates, long hospital stays and high hospital costs. Mortality rates remain high, 90% of which occurring either in hospital or within 3 months after discharge.

OP1.014

Hepatitis B virus infection in the Maltese Islands

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Introduction: Hepatitis B virus (HBV) infection is a global health problem that may result in life threatening liver disease as well as costs to the health-care system. The

aim of this study was to determine the local prevalence of HBV infection and demographic data, including ethnic and racial groups affected.

Methods: Patients who were documented to have HBV infection from 2008 to date were identified through the Virology Department. After patient identification, demographic data was obtained. Statistics on the Maltese population were obtained from the Eurostat database 1.

Results: Four hundred and forty-one patients were noted to suffer from HBV infection. Demographic data was available in 93% ($n=409$) of these. The overall current prevalence in Malta of known chronic HBV infection was 0.1%. The patients' age varied from 22 to 88 years with 61% ($n=254$) being male. The proportion of non-migrants suffering from HBV infection was 0.06% ($n=245$) of the average non-migrant population in Malta ($n=398,604$). The equivalent statistic for migrants was 0.6% ($n=164$) of the average migrant population ($n=27,162$). The most prevalent race was Caucasian (78%, $n=321$), followed by African American (14%, $n=58$), Asian (5%, $n=20$) and American Indian (2.4%, $n=10$). The main ethnic group was non-Hispanic (97.5%, $n=399$).

Conclusion: The prevalence of HBV infection varies according to race and ethnicity, being highest in the migrant population. Epidemiological studies regarding the burden of HBV infection highlight the importance of continued public health efforts to target this preventable illness as well as to identify at-risk patients.

OP1.015

Behçet's Disease: a model for multidisciplinary clinical care and research

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Head of Clinical and Diagnostic Oral Sciences

Behçet's disease (BD) is a rare chronic auto-inflammatory, relapsing-remitting, multisystem syndrome. It consists of oral aphthous ulcers, genital ulcers, cutaneous lesions, uveitis, retinal vasculitis, neurological problems, thrombophlebitis, arterial aneurysms and arthritis.

A multidisciplinary one-stop comprehensive clinic enables patients to obtain rapid access to diagnosis and treatment for this complex disease.

The service includes:

- Clinical consultation with experts representing multidisciplinary specialties at each clinic.
- Telephone access to a specialist nurse.
- Representation from the patient organisation, the Behçet's Syndrome Society
- Support worker to provide non-medical support particularly to newly diagnosed patients.

Although this method of service delivery is intensive the outcomes indicate that the impact on patients care provides a cost-efficient service with benefits for patient health outcomes (e.g. visual loss and the decrease in time to diagnosis), and patient needs driven research.

The results from the 5 year review of outcomes and patient driven research will be discussed

OP1.016

Noise-induced hearing loss in dental surgeons – the Maltese perspective

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Introduction: Dental surgeons are exposed to several occupational hazards during their daily practice, amongst which is noise, generated by equipment used in dental clinics. Such noise exposure may lead to hearing loss. The aim of this study was to investigate hearing loss among dental surgeons registered and practising in Malta ($n=129$), with special reference to occupational noise-induced hearing loss (NIHL).

Methods: Noise levels in dental clinics were measured so as to check whether they exceeded levels set by the European Agency for Safety and Health at Work. The first part of the study involved a questionnaire to determine eligibility and possible confounding factors. Eligible dentists ($n=40$) were invited to have their hearing assessed via a pure-tone audiogram and the noise-levels at the dental clinics where they practised measured.

Results: The studied population had a prevalence of hearing loss of 2.5%, however, 35% showed noise-induced auditory changes, most commonly at 4000 Hz, followed by 6000 and 3000 Hz. The mean background noise level was found to be 55.5 dBA. The mean noise level whilst dental instruments were in use was 76.7 dBA.

Conclusion: Over a third of dentists registered and practising in Malta showed noise-induced auditory changes. Mean background noise levels significantly exceeded maximum recommended levels for public areas in clinics. The mean noise level measured in dental clinics in Malta whilst dental instruments were in use was lower than the maximum exposure limit. Given that occupational NIHL is a preventable disease, a more proactive approach towards noise reduction and hearing conservation should be adopted.

OP1.017

The Oral Health Status of the Gozitan Community

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Introduction: Gozo, although part of the Maltese archipelago, is a geographically isolated area with a population which has its own (oral) health trends and needs. Objective: to assess the oral health status and treatment needs of Gozitan residents attending for a dental check-up on the Mobile Dental Unit.

Methods: A cross-sectional study of 332 Gozitan attendees on the Mobile Dental Unit was carried out during a three-month period in 14 localities in Gozo. The participants attended for a dental check-up and indices were used to record caries, plaque, calculus, erosion, soft tissue pathologies and number of dental functional units.

Results: Of the 332 participants 76.8% presented with plaque deposits, 78% require either restorative or periodontal treatment while signs of erosive wear were present in 28% of participants. In younger age bands (0 – 9 and 10 – 19) untreated carious lesions amount to 1.34 and 1.0 (DT portion of DMFT) respectively, care index FT (filled teeth)/DMFT was 0.37 overall. Most participants in 50+ age bands had less than 10 remaining functional units.

Conclusion: The oral health status of the Gozitan community shows a high level of unmet dental treatment needs. This underscores the need for provision of better dental services in Gozo, re-orientation of existing services to focus on prevention, and the introduction of evidence-based preventive strategies in school-children.

OP1.018

The development of risk predictive models for erosive tooth wear in preschool-aged children.

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Introduction: Erosive dental wear is increasingly observed in the primary dentition. Its early diagnosis and an increased knowledge of relevant risk factors are essential to introduce timely preventive measures. This study determined the risk factors for erosive dental wear acting upon three and five-year-old preschool children.

Methods: A longitudinal cohort study involved a clinical examination and a parent administered questionnaire two and three years apart for three and five-year-old children respectively. The data collected from the baseline and follow-up sessions was analysed to describe changes in food consumption frequency patterns over time in relation to erosive tooth wear and to develop risk prediction models using Generalized Linear Models.

Results: Risk factors for the three-year-old cohort included the presence of erosive wear ($\chi^2 (1, 92) = 12.829, p < 0.001$), district of residence ($\chi^2 (5, 92) = 17.032, p = 0.004$) and family size ($\chi^2 (1, 92) = 4.547, p = 0.033$). Risk factors for the five-year-old cohort also included the presence of erosive wear ($\chi^2 (1, 144) = 4.768, p = 0.029$) but then incorporated gender ($\chi^2 (1, 144) = 19.399, p < 0.001$), the consumption of ice tea ($\chi^2 (1, 144) = 8.872, p = 0.003$) and the sensation of a dry mouth ($\chi^2 (1, 144) = 9.598, p = 0.002$).

Conclusion: Predictive risk factors for three-year-old children are based on demographic factors and are distinct from those for the five-year-old cohort which are based on biological and behavioural factors. The presence of erosive wear is a risk factor for further wear in both age cohorts.

Disclosures: University of Malta Research Grants

OP1.019

On treatment outcomes of immediately loaded narrow and conventional diameter implant-supported overdentures in the edentulous jaw

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Introduction: Anchoring a full lower denture prosthesis using dental implants can immediately rectify biomechanical deficiencies of such a prosthesis in the mouth. The aims of this study were to examine the outcomes of implant-supported overdentures conducted in the Teaching Dental Clinic, University of Malta. It was also necessary to assess the impact of treatment on oral health related quality of life and patient satisfaction.

Methods: Fifty completely edentulous patients (27 males and 23 females), with a mean age of 66 years, were included in this study. These were randomly divided in 2 groups and had the lower full denture converted into a mandibular overdenture supported by either 2 conventional or 2 narrow diameter implants. Patients were asked not to remove the denture for 1 week (immediate loading). Patients were examined at 1, 4, 12, 26 and 52 weeks post-surgery. At each postoperative visit, the quality of life was measured using questionnaires and any need for prosthesis maintenance was recorded. Any additional maintenance appointments were recorded. The radiographic bone level change was measured on digital peri-apical radiographs at baseline and 6 months after loading. Treatment was performed between 2016–2018 providing medium-term results.

Results: The results showed that patients were satisfied with their oral health-related quality of life following implant intervention. Prosthetic maintenance included denture relining, fracture repair, and replacement of retention inserts. In the majority of cases, immediate loading did not jeopardize osseointegration (Success rate: 98% for conventional implants vs 94% for narrow diameter implants).

Conclusion: Within limits of this study, the results suggest that both treatment concepts offer equal treatment success indicating that an equal number of narrow or conventional diameter implants can be used with confidence.

OP1.020

Determining the 'in vitro' effect of the extract of *padina pavonica* on human osteoblast primary cell lines

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Introduction: This research-based experiment compares the ability of osteoblasts treated with the extract of *padina pavonica* (EPP) to differentiate and fix calcium, with osteoblasts treated with raloxifene and oestradiol.

Methods: Alkaline phosphatase activity was measured as an early marker of osteoblast differentiation using

spectrophotometry. An MTT assay was employed as a measure and marker of cellular viability and proliferation. These tests were performed after seven days of incubation. The alkaline phosphatase:MTT ratio aims to reflect whether any increases in alkaline phosphatase were due to an increase in cell mass or whether this was due to the formation of more terminally differentiated osteoblasts. Cells were also incubated with the drugs for fifteen days. The Alizarin Red assay was performed as measure of calcium fixation and bone matrix mineralization.

Results: Alkaline phosphatase activity was not statistically different between cells treated with EPP, oestrogen or raloxifene (p -value: 0.501). A statistically significant difference between drugs was noted in the cell viability assay (MTT) (p -value: 0.002). The highest cell viability was noted in the cells treated with oestradiol. Cells treated with the extract of *padina pavonica* were only slightly inferior to raloxifene in terms of osteoblast differentiation as supported by the second highest average estimated marginal means of the alkaline phosphatase to MTT ratio. The different drugs did not show any statistically significant difference in the bone matrix mineralization assay (p -value: 0.548).

Conclusion: Our data supports previous studies, which show a potential role for the extract of *padina pavonica* in the management of post-menopausal osteoporosis.

Disclosures: Institute of Cellular Pharmacology have partially funded this study.

OP1.021

Uterine fibroid embolisation: initial experience in our local population

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Introduction: Fibroids are the most common benign uterine tumours. Symptomatic fibroids, which are the case in an estimated 50%, can cause excessive menstrual bleeding, varying degrees of pain and, if large enough, significant pressure symptoms. They may even contribute to infertility by hampering implantation. Traditional operative treatments for symptomatic fibroids - hysterectomy and myomectomy - involve considerable morbidity. Treatment of symptomatic fibroids by trans-catheter embolisation of the uterine arteries, first performed in 1995, has since gained acceptance as a safe and effective alternative treatment for fibroids.

It has been a year and a half since the introduction of the uterine fibroid embolisation (UFE) service at Mater Dei Hospital (MDH).

Methods: In our presentation we will delineate the pre-embolisation imaging and clinical work-up of fibroids (including indications and contra-indications), the embolisation technique employed at our institution, and the post-procedure outcomes. MRI is the diagnostic tool of choice for a pre-embolisation work-up. It determines patient eligibility and also helps to assess potential risks that could be encountered during the procedure. It is also helpful in monitoring post-procedure outcome and for diagnosing any complications.

Results: A technically successful embolisation was done in all 20 patients. The results (fibroid shrinkage and symptomatic relief) of all the UFEs performed thus far will be presented. Volume reduction and infarction rate of dominant fibroid were assessed by comparing the baseline and follow-up MRIs. Outcome based on fibroid size, multiplicity, location, MR signal characteristics will also be presented.

Conclusion: Symptomatic fibroids are a major local public health problem. Since its introduction at MDH, the UFE service has yielded excellent results - its promises to be an important minimally-invasive, safe and cost-effective alternative treatment of fibroids. For definitive results of its role in our local population, studies with larger sample sizes and longer-term follow-up will be carried out.

OP1.022

Identifying genetic factors for osteoporosis in Malta: a family-based study

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Introduction: Osteoporosis is a complex metabolic bone disease having a strong genetic background and high heritability rate. An extended Maltese family having multiple members affected with primary osteoporosis (T-score: <-2.5 or Z-score: <-2.0) at the spine or hip was recruited, with the aim of identifying known and/or novel genes and gene variants contributing to osteoporosis pathogenesis.

Methods: A 2-generation family consisting of 15 relatives with ages ranging from 28 to 74 years was recruited. Biochemical analysis excluded any comorbidities affecting bone health and none of the relatives had *osteogenesis imperfecta*. Whole genome sequencing was performed on 12 relatives and a number of filtering schemes together with *in silico* modelling were applied to narrow down the list of potentially causal variants.

Results: Five missense variants segregating in a dominant inheritance pattern were shortlisted, all of which had an alternative allele frequency of $\leq 1\%$ in the 1000Genome project. The gene variants identified were ADAMTS20 rs138035327, BMP1 rs368615556, SELP rs754086574, TGF-b2 rs773943154 and TRIM45 rs146244405. Replication of the ADAMTS20 rs138035327 variant in a case-control collection of 1045 Maltese postmenopausal women was performed to determine association with bone mineral density, fragility fracture risk and biochemical parameters, including serum calcium and alkaline phosphatase. Heterozygosity was associated with a 2-fold increased risk of low serum calcium levels (odds ratio: 2.3 (95% confidence interval 1.1-5.0), $p=0.03$).

Conclusion: ADAMTS20 encodes a protease enzyme that cleaves aggrecan, required for cartilage and bone formation. Thus, functional follow-up is required to determine how the ADAMTS20 variant could be affecting calcium and bone homeostasis.

Disclosures: This work was funded by the Endeavour Scholarships Scheme.

OP1.023

The role of interventional radiology in the treatment of chronic pelvic pain in women

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Introduction: Chronic pelvic pain is a common presenting symptom – it is defined as pain of more than 6 months duration and severe enough to cause functional disability. Chronic pelvic pain with associated ovarian vein varicosities is termed pelvic congestion syndrome (PCS) and is an important but under-diagnosed condition. Simply put, PCS is the female equivalent to a testicular varicocele, for which endovascular embolisation has long been the established treatment at our institution. This presentation will provide a platform for PCS and ovarian vein embolisation (OVE), which is a novel service being offered at Mater Dei Hospital.

Methods: Non-invasive imaging (ultrasound, CT and magnetic resonance venography) plays a central role in establishing the diagnosis, excluding alternative causes of pelvic pain and providing a road-map for OVE. Our presentation will describe the early radiographic and clinical results of OVE in 3 local women with a radio-clinical diagnosis of PCS. The technique of percutaneous trans-catheter ovarian vein embolotherapy – performed as selective catheterization of the ovarian veins followed by contrast venography and embolisation – as well as procedure outcomes and potential peri-procedural complications, will be explained.

Results: The procedure was technically successful in all our patients. There were no complications resulting from the procedure. All our patients reported a significant and prompt improvement in their pain perception levels.

Conclusion: To date, our experience of OVE mirrors that of the literature, in that OVE is a safe, cost-effective and feasible option for the treatment of PCS. The procedure is performed on an out-patient basis and is well-tolerated by patients. Our presentation aims to raise awareness of PCS among clinicians and reviews the pathogenesis, imaging assessment and minimally invasive treatment options that are now available.

OP1.024

Are IVF pregnancies high risk pregnancies after 28 weeks?

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Introduction: A study done to determine whether the complication rate in IVF pregnancies is different from that in the background control population.

Methods: A number of specific complications were looked at. All pregnancies from a major NHS hospital were collected over a 2 year period. Successful IVF pregnancies were followed up after 28 weeks gestation and compared to a matched cohort of pregnant controls. A number of maternal complications including diabetes, hypertension, pre-eclampsia, antepartum haemorrhage and multiple pregnancy, were looked at. Foetal outcome

with regards to weight at birth and anomalies were also noted. Complications that could have complicated the pregnancy, such as placental abruption, placenta *previa* and intrauterine death were also assessed.

Results: Given the high risk nature of the IVF population, age, weight, reproductive pathologies and other factors, it is often assumed that the pregnancies tend to be high risk. Our results show a trend that suggest that this may be so and that previous conclusions from other studies are corroborated.

Conclusion: The possibility of high risk pregnancy should be part of the counselling that patients are offered prior to undertaking IVF treatment. Being aware of these potential complications one can employ early interventional measures can be undertaken early in the pregnancy period so that their effects on the outcome is minimised.

OP1.025

Measurement of biomarkers for PE in pregnant women: PlGF, sFLT, ADMA and HSP70 mono-methyl lysine

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Introduction: Pre-eclampsia (PE) is a pregnancy-specific disorder and is a leading cause of maternal, perinatal and neonatal morbidity and mortality worldwide. Screening pregnant women with the use of biomarkers for PE could enable pre-symptomatic diagnosis, reducing unnecessary suffering and associated healthcare costs. In this study, six biomarkers which could predict the development of PE or assist in its detection have been investigated.

Methods: Serum samples collected from normotensive and pre-eclamptic pregnant women were used to measure the levels of the potential biomarkers: placental growth factor (PlGF), total and mono-methyl lysine soluble Feline McDonough Sarcoma (fms)-like tyrosine kinase-1 (sFlt-1), asymmetric dimethyl-arginine (ADMA), and total and mono-methyl lysine heat shock protein (HSP) 70, with the use of enzyme-linked immunosorbent assays (ELISAs). The same assays were also performed on cord blood samples collected from newborn babies.

Results: All biomarkers showed gestational variation between trimesters in both the normotensive and pre-eclamptic pregnant women, as well as when comparing trimesters between the two maternal groups. The protein assay results matched the literature, while new data was generated for the methylation assays since no literature is available for comparison. In the case of newborn samples, the results obtained could not be compared to the literature due to the small number of samples and missing demographic data.

Conclusion: The levels of these biomarkers in the maternal sera, both alone but more so in combination, could determine the presence and severity of PE, allowing for preventive measures with the aim of reducing the number of premature births or other PE-associated complications.

Disclosures: Partly funded by an Endeavour Grant

OP1.026

Exploring Maltese women's attitudes on incontinence in pregnancy and the puerperium

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Introduction: The development of urinary and faecal incontinence is closely linked to childbearing. Our study aims at establishing the prevalence of different types of incontinence in our population, and exploring the views and help-seeking behaviour of these women.

Methods: 100 primiparous women who had a normal vertex vaginal delivery of a singleton infant were identified in consecutive order. They were contacted by phone a year later. Patient demographics and details of labour were collected. The participants were asked to complete a telephone questionnaire to establish the time of onset of incontinence, the severity of symptoms, the effect on quality of life and their help and advice seeking behaviour.

Results: Four patients reported urinary incontinence pre-pregnancy; all noticed their symptoms worsen in pregnancy and continued postnatally. Two patients sought help. 22 patients reported developing urinary incontinence in pregnancy; none reported faecal incontinence. 19 reported episodes of incontinence at 3 months but only 5 patients had incontinence episodes one year postpartum. One patient reported developing faecal soiling in the puerperium. Two patients reported developing urinary incontinence in pregnancy to their doctor. The other 20 patients did not seek help. Two of 5 patients complaining of urinary incontinence at one year had not spoken to a healthcare professional about it.

Conclusion: Women who develop urinary incontinence during the first pregnancy and the puerperium have a significantly higher risk of incontinence 5 years later. Our study highlights the need to promote awareness amongst women about incontinence and that help should be sought as various management modalities are available.

OP1.027

Demographic and clinical profile of multiple sclerosis in Malta, including auditing documentation of the EDSS (Expanded Disability Status Scale): a report

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Introduction: Multiple sclerosis (MS) is a chronic autoimmune and inflammatory demyelinating disease of the central nervous system (CNS). The local MS population in Malta was analysed and demographic data was collected about the current MS population. An audit was also performed to assess whether the Expanded Disability Status Scale (EDSS) score is documented at outpatient review. The EDSS is a scale used to quantify disability in MS and to monitor changes in the level of disability over time in MS. It is useful for the clinician to be able to assess the rate of decline of the patient over the years and a helpful aide in deciding whether to escalate treatment.

Methods: Two hundred and sixty-six multiple sclerosis patients were identified from a local adult MS register of outpatient follow-ups between 2017-2018. The patients' clinical notes were obtained for data collection. The last outpatient note documented was checked for EDSS documentation.

Results: Male to female ratio was found to be 1:2.3 with mean age at the time of first presentation 33.46 and mean age at the time of diagnosis 34.89. The most common type was relapsing-remitting MS (RRMS), with 73% of cases showing this clinical course. This was followed by secondary progressive in 15% and primary progressive in 5% of cases. The most common first clinical symptom was sensory in 49% of cases, followed by visual, motor and gait problems. The majority of cases (66.42%) did not have a documented EDSS.

Conclusion: Our report shows the current demographic distribution of the local MS population. Further statistical analysis will be performed on the data collected. Possible reasons for the paucity of EDSS recording include the bulky and subjective nature of the score and time limitations. An easily accessible EDSS form will be made available to encourage and remind local practitioners to document the score.

OP1.028

Establishing Safe Transfers between Acute Medical and Psychiatric In-Patient Facilities

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Introduction: Due to problematic inter-hospital transfers there was a need to improve the communication between two NHS Trusts at the pre-transfer phase thereby ensuring safe transfer of medically fit individuals to a psychiatric hospital.

Methods: A questionnaire was submitted to all doctors working within the psychiatric department to elicit what issues were experienced in patient transfers and what markers would be considered essential in any transfer checklist. The results of the questionnaire were followed by the introduction of a pre-transfer medical checklist. The designed checklist and guideline required doctor-to-doctor discussion across the two sites to ensure confirmation of the agreed minimum medical criteria for safe transfer to a psychiatric bed. A simple-to-follow one-page form was created to ensure appropriate documentation of requested status

Results: Initial responses to the questionnaire reported a pre-cycle unsafe transfer of 71% with the main issues being missing discharge letters, missing drug list and discharge letters with no valuable info. All respondents to a departmental questionnaire indicated that a transfer checklist would be of benefit. We conducted a 'plan, do, study, act' (PDSA) cycle within a quality improvement model. The checklist went live once stakeholders had an opportunity to contribute to its creation. A conservative estimate shows a cost saving of £40,000 on staff time saved. This does not take into consideration transport costs, drug costs and error costs.

Conclusion: The transfer of patients from acute hospitals to psychiatric inpatient facilities requires clear communication and careful co-ordination of care in order to maximise patient safety. Anecdotal evidence suggests handover information at transfer is variable. This has sometimes resulted in patient safety concerns, and it is felt that there is a need for an established standard. In doing so, we hope to safeguard the safety of our patients and instil confidence in health care professionals involved in their transfer.

Disclosures: This project was developed as a part of the Wessex Deanery Chief Registrar Programme sponsored by the Royal College of Physicians of London.

OP1.029

Audit 2018: Renal Tract Ultrasonography Surveillance in Spinal Cord Injury Patients

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Introduction: Life-long urologic follow-up is a key component in the routine care of the spinal cord injury (SCI) patient. The importance of follow-up imaging in this cohort is well recognized internationally. NICE guidelines recommend lifelong ultrasound surveillance of the kidneys to people who are judged to be at high risk of renal complications, such as spinal cord injury, at an annual or two yearly interval. The goal of this audit was to analyse our local practice in this regard.

Methods: Data from patients who had been admitted to Karen Grech Hospital between 2012-2016 and who were suffering from spinal cord injury was analysed. Local 'Electronic Case Summary' and iSOFT systems were used to survey whether or not renal tract ultrasonography surveillance was done on a yearly or 2 yearly basis.

Results: Fifty-two patients were identified for this audit. Average age at injury was 66 years. 61.5% were male. From 52 patients analysed, 19 (36.5%) had at least one renal tract ultrasonography recorded on iSOFT. 4 out of 19 (7.7% overall) were done annually and 7 (13.5% overall) were done at least 2 yearly. 16 patients (30.8%) had at least one urology outpatient visit recorded on iSOFT, 14 of which (87.5%) had a renal tract ultrasound done, with 25% being done yearly and 43.8% being done 2 yearly.

Conclusion: Urological follow-up and ultrasonographic surveillance of patients with spinal cord injury is poor. Increased awareness amongst all healthcare professionals involved with SCI patients is recommended.

OP1.030

An assessment of outpatient management of transient ischaemic attacks through the specialised neurovascular clinic in Malta

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Introduction: As the risk of stroke is highest immediately post-TIA, expedition of tests will avoid stroke through secondary prevention. In 2017, the service

of a neurovascular clinic was introduced to facilitate the management of patients with TIA.

Methods: Patients seen at A&E with an impression of TIA from January 2017 to January 2018 were included. The duration from referral to NVC, the type and timing of investigations, treatment and patient outcomes were analysed.

Results: Seventy-five patients were referred to NVC. 6 patients were excluded, 2 of whom were admitted to hospital prior to NVC due to recurrent TIA. 69 patients were analysed. 44.9% ($n=31$) were male. Mean age was 57.3 ± 12.1 years. 91% ($n=63$) of referrals were discussed with neurology. 64.7% ($n=44$) had an ABCD2 score calculated. Mean time from presentation to NVC was 16.9 days (range 5-38). Attendance was 94% ($n=65$). The neurologist agreed with the impression in 40.6% ($n=28$). CT brain was performed in 96% ($n=66$). 27.5% ($n=19$) underwent an MR head (mean time to scan [MTTS]: 111.9 days). 18.8% ($n=13$) underwent a Holter. 95.7% ($n=66$) underwent carotid duplex ultrasound (MTTS: 15.9 days) and 37.7% ($n=26$) underwent echocardiography (MTTS: 124.5 days).

Conclusion: NVC offers a rapid access service for patients who suffered a TIA. Less than 3% of patients referred to NVC with an impression of TIA suffered a stroke prior to being seen in clinic.

OP1.031

Bridging the gap between primary and secondary health care for cerebral ischaemia

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Introduction: The risk of stroke or Transient Ischaemic Attack (TIA) recurrence is estimated at 26% within the first 5 years and 39% within 10 years, with the greatest risk being within the first 3 months. This audit is a retrospective analysis of the implementation and adherence of secondary preventative strategies following such events.

Methods: A total of 81 patients, admitted with a stroke/TIA at Mater Dei Hospital within the neurology department between January and June 2017 were analysed. Data was collected via a combination of telephone questionnaires and analysis of recent investigations on iSoft.

Results: The mean age of disease was 64 years, with the majority, 69.1%, being males. Despite the fact that 77.4% of hypertensive patients checked their blood pressure at least monthly, only 55.6% had a systolic blood pressure of less than 130mmHg. Only 45% had an HbA1c that was well controlled, with 29% not having checked their HbA1c levels within 6 months. Although lipid lowering agents were started empirically in the majority of cases, only 50.6% of the patients had further lipid profiles taken up to 6 months post-ischaemic event.

Conclusion: This audit highlights that the transition between secondary and primary care is the major shortcoming in risk factor modification. Through this audit, a proforma for secondary prevention was designed to enable continuity of care through the different levels of health care.

OP1.032

Incidence of brain tumours in the Maltese Islands: a population based study

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Introduction: Accurate information about incidence of brain tumours in Malta is lacking. The study's aim was to define the incidence of brain tumours in Malta using an audit of scan results as the main source.

Methods: A review of all CT and MRI head performed at Mater Dei Hospital between 1 January 2010 and 31 December 2015 ($n = 77,101$) was performed, excluding scans performed as follow up. Demographic and diagnostic data were collected using PACS, Isoft®, Electronic Case Summary, and patients' records.

Results: One thousand, two hundred and sixty eight patients with newly diagnosed intracranial tumours were identified giving a crude incidence rate (CIR) of 50.23/100,000/year. These tumours were divided into the following subtypes: high grade glioma (CIR 4.28/100,000/year); low grade glioma (CIR 1.98/100,000/year); meningioma (CIR 12.84/100,000/year); sellar tumours (CIR 8.32/100,000/year); acoustic neuroma (CIR 1.94/100,000/year) and metastases (CIR 17.39/100,000/year). Low-grade gliomas show highest incidence in the younger age group. Metastases are the commonest tumour type in the over 60 age group, probably still an underestimation (due to asymptomatic cases or symptomatic but ignored in a seriously ill patient). On the other hand, most meningiomas were found as an incidental finding.

Conclusion: Reported incidence rates of brain tumour vary widely across European regions. Imaging of the brain is a necessary tool in the diagnosis. In Malta, this service is provided free of charge, limiting bias secondary to socioeconomic differences. In this setting, this method of case collection allows a more accurate estimation of incidence, and is superior to other methods, such as histology results or admission to hospital.

OP1.033

The Paceville project: adolescent exposure to drugs of abuse - transgenerational and long term effects on motivational and emotional state of rats

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Introduction: Binging on alcohol, and smoking marijuana and tobacco is a common trend among adolescents. The adolescent brain is susceptible to long-term damage due to drugs of abuse. Compelling evidence shows that exposure to drugs of abuse has long term effect on the user, as well as on the offspring through epigenetic mechanism. Moreover, the offspring have a greater predisposition towards drug abuse in adulthood.

Methods: Long Evans rats of the F0 generation were treated during adolescence (P30-P58) with either drugs or their vehicles. The drugs used were: nicotine (1 mg/

kg *i.p.*, daily for 28 days), WIN55,212-2 (1.2 mg/kg *i.p.*, two consecutive days a week for 28 days), and ethanol (3 g/kg, *p.o.* two consecutive days a week for 28 days). The F0 generation were bred to give the F1 generation, which followed the same treatment protocol. The F1 generation were tested for anxiety-related behaviour in the elevated plus maze (EPM) test at P60 and P90, and starting at P120 conditional learning using food-rewards in operant chambers.

Results: Female rats respond differently from the males, independently from the F0 and F1 treatments. Moreover, females, but not males, showed long-term effects of both F0 and F1 treatments. Our data suggests that females from treated parents might have a dysregulation of i) the emotional state, ii) the reward/associative learning system, and iii) the motivational system.

Conclusion: This is likely due to the altered limbic-prefrontal pathway and further indicates that females are more vulnerable than males to adolescence exposure to drugs of abuse.

OP2.034

Perioperative management of warfarin

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Introduction: The management of anticoagulation in patients undergoing an operation is challenging because transiently stopping anticoagulation increases the patient's risk of thromboembolism. Simultaneously, invasive procedures are associated with bleeding risks that are increased if anticoagulation is administered. A fine balance between bleeding and thrombosis risk must be reached. No guideline has been present in the management of anticoagulation in patients at Mater Dei Hospital; as a result, various practices have been used with occasional mismanagement of patients and resources. Thus, a new guideline has been constructed in order to help unify management. In Mater Dei Hospital, patients that need bridging prior to operation are admitted a few days before the procedure in order to start an unfractionated heparin infusion. This occupies beds in the hospital that could be used for acute cases and uses valuable resources. Mater Dei is changing its policy. Patients who need bridging will be given low molecular weight heparin (LMWH) at home by a community nurse. This will help reduce costs and increase beds as well as efficiency.

Methods: We retrospectively assessed all surgical patients that underwent preoperative assessment in POAC at Mater Dei Hospital during the month of January 2017. 1,127 patients were seen during this time period. Using iSoft and discharge notes, 32 patients were found to be on warfarin. Data including gender, age, operation type, anticoagulation/bridging plan, as well as INR/APTT trends were gathered from iSoft and the POAC notes stored on this computer program.

Results: The majority of patients (84%) took warfarin for atrial fibrillation. Twenty-eight patients stopped their warfarin prior to operation. One patient continued warfarin during the perioperative period while 3 patients did not

have their preoperative management of anticoagulation documented on iSoft. Warfarin was stopped on average 4 days prior to operation. Five patients were bridged in total of which 2 patients were bridged inappropriately according to the new guidelines. One patient should have been bridged. Three patients would have needed a haematology consultation, but this was not done. On average, the last INR was taken 4.6 days prior to operation and its value was 1.78. Warfarin was restarted 1.8 days after surgery.

Conclusion: Patients on warfarin are commonly encountered in preoperative assessment. Implementation of guidelines for the management of this subgroup is vital to improve outcomes for the patient. In addition, by shifting treatment to LMWH patients can be managed in the community. Therefore, bed availability increases and costs will be reduced for the hospital.

OP2.035

Malignant disease after kidney transplantation in Malta: a 10-year analysis

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Introduction: Kidney transplantation remains the best treatment in end-stage kidney disease. Nonetheless, a number of patients still die with a functioning graft due to cardiovascular disease, infection and malignancy. Our objective was to establish the incidence of malignancy and associated mortality after kidney transplantation in Malta.

Methods: This is a retrospective analysis involving all patients who received a kidney transplant in Malta between Jan 2007 and Dec 2016. The time-at-risk for malignancy (immunosuppression exposure time) was calculated from the first transplant to the first malignancy, cessation of immunosuppression or end of follow-up, whichever came first.

Results: A total of 130 patients received 133 grafts. Mean age at transplant was 47.9 ±14.6 years and median follow-up was 51 months (interquartile range [IQR]: 52). All patients received basiliximab, calcineurin inhibitor, anti-metabolite and corticosteroids post-transplantation. Eighteen patients (13.8%) developed malignancy at a median time of 58 months (IQR: after the first transplant). Out of these; 13 patients developed skin malignancy, 6 developed solid organ malignancy, 2 of which metastatic (one patient had both skin and solid organ malignancy). The incidence of post-transplant malignancy was 0.026 per patient-year-at-risk. Increasing age was identified as an independent risk factor for developing malignancy post-transplant (OR: 1.06, 95% CI: 1.01-1.12, $p=0.011$). Three deaths occurred in the malignancy cohort, one directly related to the malignancy. The malignancy-related mortality was 0.0014 per patient-year-at-risk. All of these patients died with a functioning graft.

Conclusion: Post-transplant malignant disease, especially involving skin plays a substantial role in our transplant outcomes, highlighting the need for close surveillance.

OP2.036

A retrospective analysis of the complication and patency rates in first-time arteriovenous fistulas and grafts fashioned in Malta

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Introduction: The aim of this study is to retrospectively assess first-time arteriovenous fistulas (AVFs) and grafts fashioned over a 5 year period in Malta, and analyse their patency and complication rates.

Methods: Patients who underwent surgery between January 1st 2012 and December 31st 2016 were identified through the vascular surgery database at Mater Dei Hospital and followed up until 31st December 2017. Complications, interventions and patency duration were recorded from patient notes. Patency rates were calculated with Kaplan-Meier curves and log-rank test was used to compare significance between the curves.

Results: A total of 258 vascular accesses (VA) were analysed, only 242 of which were used for haemodialysis. The chance of a VA developing no complications was 38%, with stenosis and thrombosis rates of 36.8% and 24.8% respectively. There was no significant difference between the complication rates or intervention frequency when comparing different fistula types. From the 207 patients who had AVFs created since January 2012, only 26.1% ($n=54$) had creation prior to initiation of haemodialysis. Survival rates for first-time AVFs were 47.8% (95% CI, 40.8%-54.9%) for primary patency, 65.7% (95% CI, 59.3%-72.6%) for assisted primary patency and 68.6% for secondary patency (95% CI, 61.8%-74.9%). The secondary patency rates were 76.9% at 1 year and 70.8% at 2 years. There was no significant difference when comparing primary ($p=0.539$), assisted primary ($p=0.634$) or secondary patency ($p=0.783$) rates for the different AVF types.

Conclusion: In Malta, AVF incidence lags behind the European average, but patency rates compare favourably with most other countries.

OP2.037

Long-term outcomes after carotid endarterectomy

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Introduction: Carotid artery stenosis (CAS) is one of the main causes of atherothrombotic occlusion leading to CVA. The benefit of carotid artery endarterectomy (CEA) has been demonstrated through multiple randomized controlled trials and CEA remains the gold standard treatment for CAS. The aim of this study was to explore the outcomes of CEA performed at Mater Dei Hospital, Malta.

Methods: Data was prospectively collected between August 2008 and October 2017 in the Malta vascular database, Maltavasc, and analysed retrospectively. Patient demographics, mortality rates and complications were recorded.

Results: 118 CEAs were performed. The mean age was 67.6 years (range 44 - 84 years). 78.8% ($n=93$) were male. 54.0% ($n=61$) were performed for stroke, 40.7% ($n=46$) for

TIA and 7.96% ($n=9$) were asymptomatic. In 88.1% CAS was 70-99% and in 11.9% it was 50-69%. Conventional CEA using a patch was performed under general anaesthesia in all patients. There were no immediate postoperative stroke. During an average follow up of 56.5 months (range 9-122 months), 2 patients (1.69%) experienced ipsilateral carotid circulation stroke and 1 patient experienced vertebral circulation stroke. Thirty day mortality was 0.85% ($n=1$) and one year mortality was 5.08% ($n=6$).

Conclusion: Compared to data from the European vascular network, VASCUNET, 30 day mortality after CEA is similar (0.45% vs 0.85%) while perioperative stroke rates are lower in Malta (0% vs 2.1%). Longterm stroke rates are similar to those reported by VASCUNET (1.8%), despite the fact that in Malta asymptomatic patients constituted a much lower proportion (8% vs 26%).

OP2.038

The impact of renal disease on survival rates after lower limb amputations in Malta

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Introduction: The prevalence of diabetes mellitus (DM) in Malta is one of the highest in Western Europe with significantly higher amputation rates. The aim of this study was to compare mortality rates in patients with renal disease undergoing lower limb amputations with those without renal disease.

Methods: All amputations performed by the vascular unit at Mater Dei Hospital, Malta between 2008 and 2017 were retrieved from the Surgical Operations Register. The list was matched with the mortality register between 2008 and April 2018. The main outcomes recorded were 30 day, 1 year, 3 year and 5 year mortality. Data on renal function was collated from the vascular unit database.

Results: 1178 subjects undergoing amputation during this study period had renal function test results available and were included. 944 (80.1%) had no significant renal impairment ($eGFR > 50$), 52 (4.4%) had mild ($eGFR$ 30-50), 89 (7.6%) had moderate and 93 (7.9%) had severe impairment ($eGFR < 15$). Mortality was significantly higher in patients with renal impairment at all time points. The highest mortality was observed in those with severe impairment (30 day 21.5%; 1 yr:64.0%; 3 yr 82.1%; 5 yr:93.7%) compared with those without renal disease (30 day: 4.7%; 1 yr: 23.5%; 3 yr:50.3%; 5 yr:69.4%). Even in those with mild impairment, mortality data was significantly worse.

Conclusion: Lower limb amputation is associated with very high mortality both in the early and late postoperative period. Renal impairment significantly increases the mortality risk with mortality increasing with worsening renal function.

OP2.039

Prophylaxis of deep vein thrombosis in surgical patients: is our practice following the guidelines?

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Introduction: Deep Vein Thrombosis (DVT) may cause pulmonary embolism. In the UK it accounts for more than 25,000 admissions annually making identification and management of patients at risk crucial. The aim is to analyse the prescription and implementation of DVT prophylaxis in surgical patients, through risk identification and adequate management of at risk patients in accordance with local and national (Scottish Intercollegiate Guideline Network, SIGN) guidelines.

Methods: Consecutive inpatients from five surgical wards in Forth Valley Royal Hospital (Falkirk, Scotland) were identified. Data were collected on risk factors for DVT, adequacy of prescription and implementation of the appropriate DVT prophylaxis.

Results: 106 inpatients were studied over a week. 81 patients (76.4%) were considered at risk of developing DVT. Risk factors included major surgery, malignancy and obesity. From those at risk, 66 patients (81.5%) were on Enoxaparin and 46 patients (56.8%) had TED stockings. 9.9% of these had a contraindication to Enoxaparin and 13.6% had a contraindication to TEDs. Of those not at risk, 8 patients (32%) were given prophylaxis needlessly. The level of risk was only formally recorded in the case notes in 22 patients (20.8%).

Conclusion: The majority of patients at risk of developing DVT were managed according to the aforementioned guidelines. However, the level of risk was only recorded in a minority of patients. This led to the unnecessary prescription of Enoxaparin in those who were deemed not at risk and also missing some patients at risk. Careful documentation of risk factors, level of risk and a clear written plan for prophylaxis, is therefore recommended for all patients.

OP2.040

Using thiel embalmed cadavers for training in transoral endoscopic thyroidectomy vestibular approach (TOETVA): Is it feasible?

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Introduction: Transoral endoscopic thyroidectomy through a vestibular approach (TOETVA) is a relatively new technique that has been increasing in its importance when compared with other endoscopic platform for thyroidectomy. Throughout the world there are increasing limitations in the time trainees are allowed to stay in hospitals which is causing a noticeable strain on quality of training. Thiel embalmed cadavers have been shown to offer a good alternative for surgical training experience in a number of specialities.

Methods: This study was carried out at the cadaveric dissection lab of the University of Malta Medical School after being approved by the University of Malta ethics committee. One female and two male cadavers were utilized. A standard operative technique as published in the literature was used to carry out the procedures. Anatomical measurements of the Thiel embalmed cadavers used and time taken to perform the procedure were recorded. After the procedure, all of the cadavers underwent open assessment of the anatomy in order to evaluate whether there was any damage to the anatomical structures surrounding the dissection including the recurrent laryngeal nerve, trachea, oesophagus, internal jugular nerve and carotid artery

Results: After the neck was extended, the mandible to sternal notch distance was 13.7cm, 19cm and 14 cm respectively. Tissues in the cadavers dissected maintained life-like elasticity and quality was maintained. The carbon dioxide insufflation at 6mmHg was able to maintain the working space open and allow clear visibility. The recurrent laryngeal nerve was not well characterised in two of the three cadavers. Thyroid tissue was identified easily in all three cases. In one of the cases, the texture of the gland was altered making it very friable and difficult to handle. The specimen was easily retrieved through the vestibule. In all cases, there was no damage to the trachea, recurrent laryngeal nerves, carotid arteries and internal jugular veins. The parathyroid glands could not be identified at open assessment.

Conclusion: Training on Thiel embalmed cadavers was found to be a feasible option for surgeons who are starting to familiarize themselves with TOETVA. It offers a safe setup with realistic tissue handling and overall operative experience. Cadavers with a shorter neck are advisable in the initial phase.

Disclosures: This research was partly funded by Endeavour scholarship scheme Malta.

OP2.041

Functional outcomes in Hirschsprung's disease: a retrospective analysis of the Maltese paediatric patients

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Introduction: Hirschsprung disease (HD) is a congenital condition in which ganglion cells are absent in the bowel. Despite surgery this condition is associated with long term morbidity and lifelong implications for bowel function. A retrospective analysis of 42 patients operated for HD since 2002 was done. Analysis of functional outcomes through the Rintala Bowel Function Score (BFS) tool was carried out and data collection regarding age at diagnosis, level of HD, family history, associated anomalies and any post-operative complications was undertaken. Preliminary results show a mean BFS score of 14.8 (9-19). 59% of the cohort reported no social problem relative to the condition, whereas 29% and 12% reported infrequent and frequent social problem respectively. The overall majority didn't suffer from constipation, however 35% required regular laxatives or diet modifications and only 1 patient required regular enemas.

Conclusion: Following review we advocate early and aggressive management of this condition to improve long-term functional outcomes and avoid complications.

OP2.042

Regional differences in Childhood BMI data - The Malta Childhood National Body Mass Index Study

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Introduction: Obesity is a problem of major public health concern all over the world and Malta has high obesity prevalence rates. With over a third of Maltese children being overweight or obese, the Malta Childhood National Body Mass Index study was devised to quantify the extent of the problem precisely. This study looks at regional differences in the BMI data obtained.

Methods: Training in measurement was provided to physical education teachers and identical stadiometers were used. Data was processed using World Health Organisation cut-offs for underweight, overweight and obesity.

Results: A total of 41,343 students from 145 schools were measured. Age range from 4.7 to 17 years. Approximately 40% of school-aged children in Malta were overweight or obese, with higher percentages of obesity than overweight being observed. Results show significant differences in BMI between children living in Northern and Southern regions of Malta.

Conclusion: Results from this study further confirm the high levels of overweight and obesity in Maltese children. The North-South differences should help better target public health resources and should be further evaluated in more focussed research.

Disclosures: Scales were bought with funds from Ministry of Education and Employment

OP2.043

Paediatric minimal invasive surgery: current practice and future challenges

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Introduction: Substantial progress in Minimal Invasive Surgery (MIS) in the paediatric population has been held up significantly in the past decades. With fast evolution of miniaturisation of fine instruments and advanced surgical skills, difficulties related to limited working space and unique physiological demands have been overcome. MIS in children is currently performed in many complex diagnostic and therapeutic procedures in most centres around the world. Prospective randomised trials and cooperation between centers for benefit of MIS in children are still limited.

Methods: This article presents a retrospective case series of MIS in a paediatric population. Management

of various acute pathologies is included, for example; appendicectomy, ovarian torsion and inguinal hernia (simple and complicated). Elective cases included are undescended testes, gastrostomies and levelling biopsies in Hirschsprung's Disease. Advantages encountered are; fast enhanced recovery; patient satisfaction and short hospital stay. Never the less, better cosmesis, proper field exposure and successful outcome.

Results: This article summarises the current practice of a single paediatric surgical firm in MIS over last year, giving an overview of various applications and techniques performed. With ergonomical instruments, tools and appropriate surgical skills it appears that MIS is safe in neonates and younger children.

Conclusion: We strongly believe that MIS has found its place in paediatric surgery. Neonates and children will continue to benefit from this alluring technique.

OP2.044

Congenital syphilis in Malta

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Introduction: Congenital syphilis is a potentially disabling infection caused by vertical transmission of the spirochaete *T. pallidum*. All pregnant mothers are routinely screened for syphilis and are treated if found to be seropositive and without any evidence of past treatment. The aim of this study was to identify the prevalence of congenital syphilis in Malta.

Methods: All pregnant women referred to the Paediatric Infectious Diseases Clinic at Mater Dei Hospital from 2008 to 2017 were recruited in the study.

Results: Over the 10 year study period, maternal syphilis was identified in a total of 41 pregnancies.. The majority of pregnancies (68.3%) were in foreign mothers. Eighteen mothers (43.9%) received treatment for syphilis during pregnancy, mostly being given in the second or third trimester. None of the neonates showed signs of congenital syphilis at birth, however fifteen neonates (36.8%) were treated with benzylpenicillin, either because the mother was not or was inadequately treated during pregnancy, or because of serological evidence of possible congenital syphilis. Clinical and serological follow up of all neonates showed that none had congenital syphilis.

Conclusion: Antenatal screening and treatment of syphilis during pregnancy is an effective measure for preventing congenital syphilis.

OP2.045

Transitioning youth from paediatric to adult care: knowledge, practice and perceptions of paediatricians and adult physicians in Malta

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Introduction: Implementing an adolescent transition programme improves the clinical outcome of young persons with chronic conditions and reduces morbidity and mortality. There is no official adolescent transition programme in Malta at present.

Methods: A mixed method approach was used. A modified questionnaire was developed from questionnaire

tools in the literature, piloted and validated before being distributed to paediatricians and adult physicians in both departments at Mater Dei Hospital (MDH). Descriptive analysis was used. Semi-structured interviews were subsequently conducted and transcribed ad verbatim. Thematic analysis of the interview transcripts was conducted.

Results: The response rate for the questionnaire was 48.6% for adult physicians and 85.5% for paediatricians. 74% of paediatricians and 82% of adult physicians have no training in adolescent transitional care (ATC). Lack of training, lack of clinic time, lack of resources and lack of a formalised transition policy were the most significant barriers. Interview analysis showed conflicting views regarding the role of the general practitioner (GP), whether provision of ATC is superior in the private sector or at MDH and the management of a young persons with rare chronic conditions in Malta. All the interviewees agreed on the importance of developing a standardised transition policy.

Conclusion: This is the first study exploring ATC in Malta. There are unmet education and training needs and a standardised adolescent transition care policy is needed. A set of recommendations applicable to the Maltese population was drawn up from the results of this study that can help to set up an adolescent transition care programme in Malta.

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It was presented at the European Academy of Paediatrics Conference in Slovenia in 2017 (abstract published in European Journal of Paediatrics) and at the conference of the Association of Child and Adolescent Mental Health Conference in Malta 2018.

OP2.046

Are blood cultures in paediatric oncology patients with central venous lines being taken according to current guidelines?

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Introduction: To analyse the significance of micro-organism isolated from blood cultures in children on chemotherapy with suspected central line infections, and to assess whether cultures were taken according to current Infectious Diseases Society of America clinical practice guidelines.

Methods: Paediatric chemotherapy patients with central lines admitted to the Paediatric/Young Adult Oncology wards in Mater Dei Hospital during 2013 - 2016 were studied. Data were analysed, looking at whether paired samples (≥ 1 central and ≥ 1 peripheral blood culture taken simultaneously) were taken in suspected central line infections. Nature and frequency of organisms isolated from central/peripheral samples was also analysed, calculating time to positivity (TTP) for each sample.

Results: Sixty-one patients (8 months-17 years) were studied, accounting for 745 blood cultures (84% central;

16% peripheral). Organisms were categorised as 'definite contaminants' (*Micrococcus* commonest) or 'significant' (*Staphylococcus hominis* commonest), contaminants having longer TTP. Of the 84 (11.3%) positive samples, Gram negative and Gram positive bacteria were isolated in 14.3% and 85.7%, respectively. Only 104 (14%) of the total cultures were taken within a paired set, most in 2013: 66 central and 38 peripheral cultures in 36 paired sets, 16.7% being positive cultures.

Conclusion: The current guidelines for blood culture sampling in children on chemotherapy who are investigated for central line infections are not being adhered to resulting in challenges in interpreting positive cultures. Awareness and adherence to these guidelines should be encouraged. As advised by guidelines, should peripheral puncture be impossible, ≥ 2 blood samples should be drawn through different central line catheter lumens.

OP2.047

Henoch Schonlein purpura in Maltese children - clinical characteristics and outcomes over an 8 year period

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Introduction: Henoch Schonlein Purpura (HSP) is a systemic vasculitic condition believed to be mediated by the presence of IgA antibodies and immune complex deposition within small vessels. A number of possible triggers have been inferred in literature however the exact pathophysiology has not been described, possibly because of inter-individual characteristic heterogeneity of the disease. The aim of this study was to examine the epidemiology, clinical manifestations and disease outcomes in Maltese children affected with HSP.

Methods: Retrospective study of all the children discharged with a diagnosis of HSP from Mater Dei Hospital, between January 2008 and January 2016. Epidemiological, clinical, laboratory data, treatment, and outcomes were collected by reviewing patients' notes. The children were followed up for a period ranging from 6 months up to 3 years and the long term outcomes evaluated.

Results: Ninety-six children met the inclusion criteria of the study. The male: female ratio was 1.35:1 and the mean age at presentation was 5 years. 70% of cases presented in the autumn/winter months from September till March. All the children who presented to the service had the typical cutaneous purpuric rash. 75% of these children were also found to have other associated features of HSP; 75% had joint pain and joint swelling, 66% had abdominal pain and 45% had renal involvement. 40% had both renal and extra-renal involvement and it was noted that this subgroup developed nephrotic range proteinuria (10%). All the patients underwent investigations upon presentation. The most common abnormalities included raised erythrocyte sedimentation rate (ESR) (68%), thrombocytosis (55%) and proteinuria (55%) and haematuria (50%). 87% of the patients recovered fully within 2 months with no recurrence or hypertension. 12% had a recurrence with 4% having persistent nephrotic range proteinuria beyond 2.5 years of follow-up.

Conclusion: The results of the study compare well with the figures quoted in the literature. We accept that some cases of mild HSP relapses may have been treated in the community and those cases would not have been included in this study. It is apparent that in most cases of HSP, the prognosis for complete remission is good and only a minority develop persistent renal disease requiring further investigations and management. The presence of renal and extra-renal involvement at presentation adversely affects the prognosis of the condition and these cases had a longer disease course and recurrence rates.

OP2.048

Quality Decision making in Everyday Life: Can it Improve Outcomes?

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Decisions, ranging from the mundane to the critically important, are constantly being made throughout one's everyday life and those decisions are often made under conditions of uncertainty and bias without an established strategic process. Organisations cannot afford to ignore the human factor in making strategic decisions. They can greatly improve their chances of making good decisions by becoming more aware of the way cognitive biases can mislead them, by reviewing their decision-making processes and by establishing a culture of transparency and constructive open debate.

The science of decision making has been established, but research is limited regarding the quality and transparency of the decision-making processes through which medicines become available. Indeed, it is not always clear what explicit processes pharmaceutical companies, regulatory authorities and health technology assessment (HTA) agencies are using to arrive at their decisions. Previous research resulted in the development of the ten Quality Decision-Making Practices (QDMPs), which are considered as the best practices in decision making in the lifecycle of medicines, as well as the Quality of Decision-Making Orientation Scheme (QoDoS), which is a technique that can be used to measure the incorporation of these QDMPs in decision making.

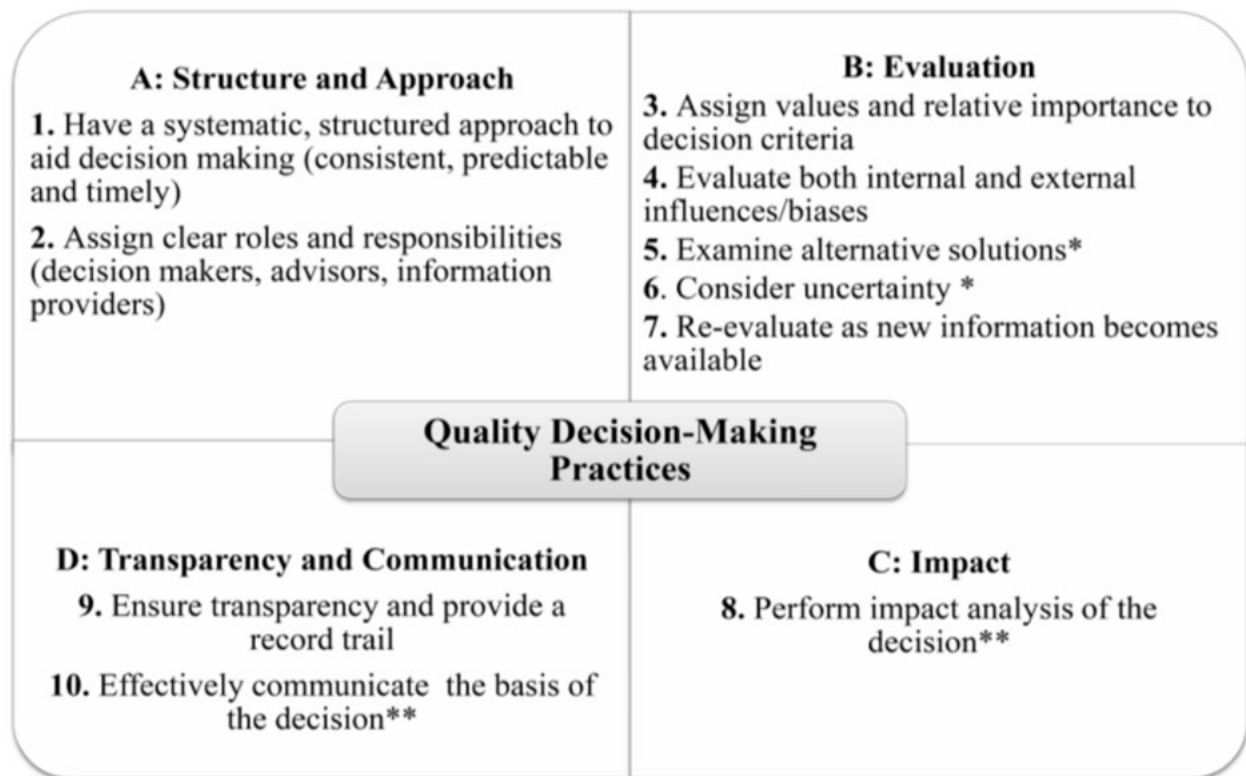
Results from a recent study of pharmaceutical companies, regulatory authorities and HTA agencies indicated that less than half the companies (41%) and only 20% of the regulatory authorities have formal assessments in place to periodically measure the quality of their regulatory decision making, whereas regarding reimbursement processes, this was carried out by 36% of the HEOR company departments and 55% of the HTA agencies. These assessments included re-evaluation based on the outcome, feedback from stakeholders and audits of decision making. In the same survey, respondents indicated that there are ways of measuring the quality of decision making, relating to evaluating the actual practices as well

as the outcomes, although such measurements are not always incorporated into the organisations. Nevertheless, if the quality of the decision-making process is truly key to increasing the probability of making good decisions and in building trust in those decisions, then the challenges that stand in the way of the measurement of decision making should be determined and ways to meet those challenges proposed.

The Ten Quality Decision-Making Practices (QDMPs) were identified through empirical research to identify important issues that influence quality decision making (Donelan et al., 2015). The QDMPs have been organised into four areas, namely, 'Structure and Approach', 'Evaluation', 'Impact' and 'Transparency and Communication' (Figure 1). One way to measure decision making could be based on a pre-specified agreement regarding what a successful decision would look like, including an anticipated positive

result. Indeed, one of the QDMPs specifies the performance of an impact analysis of the decision, but this may not be a good measure of the total decision-making process, as indeed a good-decision making process may lead to a bad outcome and *vice versa* due to uncertainty. However, despite the challenges to the direct measurement of quality decision making and its outcome, by understanding the components of quality decision-making practices, it may be possible to build a methodology to develop measures and markers against each practice to ensure that the practice is embedded within organisational and individual processes. Such an approach could take the form of a checklist, already utilised widely in a number of industries and disciplines including medicine and aviation, in order to ensure a quality decision-making process (Gawande, 2011).

Figure 1 The Quality Decision-Making Practices (QDMPs)



It is generally agreed that not all decisions require the use of a decision framework in its full context and, in addition, the development of a guide for use of the framework that explains the rationale for its application would be beneficial. For example, quality decision-making practices should play an important role throughout the life cycle of medicines and decision makers should be aware of the crucial decision points where their use may be of critical importance. An example of such a decision point would be when sponsors and investigators/clinicians must decide what kind of human exposure a medicine can be given based on the data from nonclinical studies. It is also important to understand the potential of a framework and of QDMPs to accelerate critical decision making.

Because the term *bias* has a negative connotation, it may be more helpful to consider the impact of internal and external behavioural influences on decision making. Practical approaches to mitigate these influences should be based on the objectives of individual decisions (Table 1). It was agreed that the grouping of biases/influences developed by Lovallo and Sibony (2010), namely action-oriented biases (e.g. having a tendency to take immediate action), interest biases (e.g. having a conflict of interest in committee setting), pattern-recognition biases (e.g. seeking evidence to support own views) and stability biases (e.g. tendency to do things as always), is appropriate and relevant in the context of medicines development, regulatory review and HTA. Furthermore, the categorisation introduces order to discussion around

the behavioural influences within an organisation. Such discussions are key to raising awareness of these biases on the decision-making process of individuals and groups and eventually create an equilibrium in influencing the ultimate

decision. Nevertheless, in addition to raising awareness, work is required to develop a model for mitigating biases within organisations.

Table 1 Approaches to mitigate influences/biases in decision making and the goals of those approaches.

Discuss and categorise influences as per Lovallo and Sibony (2010)	To introduce order and awareness and potentially create equilibrium in the group
Openly state perspectives throughout the decision-making process	To establish trust and transparency needed for decision making
Examine and discuss the criteria for and documentation of decision making	To determine a clear scope and ensure incorporation of good practice in decision making
Establish committees, make decisions through consensus and re-examine negative decisions	To bring in internal views and introduce objectivity into decision making

Because transparency underpins trust in decision making, stakeholders should openly state their perspectives at the beginning and throughout the process. In addition, decision makers need to examine and discuss the criteria for and documentation of decision making, establishing a clear scope and ensuring that good practices are incorporated. The establishment of decision committees will bring in external views and introduce objectivity into decision making. Finally, where possible, decisions should be made through consensus and unfavourable outcomes should be followed-up by a re-examination of the decision-making process.

Take home messages:

- Despite the challenges to the direct measurement of quality decision making and its outcome, by understanding the components of QDMPs, it may be possible to build a checklist against each practice to ensure that it is embedded within organisational culture and individual processes
- Development of practical approaches allow incorporation of quality into the decision-making processes
- checklists enable an organisation to incorporate these practices into its project matrix structure and lists process steps that need to be established and documented at the time of decision making in order to enable process quality, transparency, and consistency.

OP2.049
Gentamicin levels in low-birthweight infants

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Introduction: Gentamicin is important in the treatment of suspected neonatal sepsis, but is also potentially oto- and nephrotoxic. Therapeutic drug monitoring of gentamicin levels helps prevent this. An audit done in 2013-2015 suggested that while 90% of trough gentamicin levels taken at the Neonatal and Paediatric Intensive Care Unit (NPICU) were safe, low-birthweight infants may be at higher risk of toxicity.

Methods: We enrolled 185 neonates admitted to NPICU from 2013-2017 who needed intravenous gentamicin treatment. The dosing regimen, dose of gentamicin, gentamicin concentration, and demographic details including gestation and birthweight, were recorded for each neonate. Trough gentamicin concentrations $\geq 2\text{mg/L}$ before the 2nd dose were taken as indicative of unsafe levels.

Results: A total of 169 neonatal gentamicin results were included. Nineteen (11.2%) of these were higher than recommended. Stratifying the results according to weight showed significantly higher mean gentamicin levels in neonates weighing $<1.5\text{kg}$ (1.34mg/L; 95% CI: 1.16-1.53) and 1.5-3kg (1.33mg/L; 95% CI: 1.13-1.52), compared to those weighing $>3\text{kg}$ (0.71mg/L; 95% CI 0.57-0.85). However, no significant differences in gentamicin levels were found between small-for-gestational age, appropriate-for-gestational age, or large-for-gestational age neonates. On the other hand, premature neonates born at 28 weeks' gestation or less had significantly higher mean gentamicin levels (1.69mg/L; 95% CI: 1.33-2.04) than those born at term (0.84mg/L; 95% CI: 0.68-0.99mg/L).

Conclusion: Our study confirms that the current gentamicin dosing guidelines are safe, while showing premature neonates born under 28 weeks to be at higher risk for gentamicin toxicity.

OP2.050
Prioritising patients for long-acting muscarinic antagonist therapy

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Introduction: Long-acting muscarinic antagonists (LAMAs) have been shown to reduce chronic obstructive pulmonary disease (COPD) exacerbations and hospitalisations, yet these drugs are not available on the Government Formulary List (GFL). An understanding of the predictors for COPD hospitalisation may contribute to develop healthcare policies which consider prioritisation of patients requiring LAMA therapy.

Methods: All the hospital admissions to Mater Dei Hospital during February-April 2017 were screened and those flagged as COPD exacerbations were identified. Cost estimates using an activity-based costings approach was computed. The predictors for COPD hospitalisation were determined using the case-control method, via multinomial logistic regression. Cases were recruited by convenience from the pre-identified admissions whilst control subjects were recruited from respiratory outpatients. A validated data collection tool was completed for recruited cases and control subjects.

Results: A total of 148 COPD hospitalisations were identified. Out of these only 16.9% were on LAMA therapy, indicating a low number of patients on optimum therapy. The estimated total hospitalisation cost during a 3-month time frame amounted to €225,000. Logistic regression identified six significant predictors for hospitalisation: COPD Assessment Test (CAT) score ($P<0.001$), number of previous COPD hospitalisations ($P<0.001$), lack of inhaled LABA ($P=0.003$), recent emergency nebuliser use ($P=0.021$) and intravenous antibiotic use ($P=0.023$), number of comorbidities ($P=0.032$).

Conclusion: The cost analysis study is key to the rational allocation of health care resources. The identified predictors for COPD hospitalisation may assist in developing a protocol to prioritise patient access to LAMAs.

OP2.051

Analysis of efficacy parameters used in clinical trials for anti-leukaemic therapy

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Introduction: Clinical trials (CTs) in leukaemia have validated biological markers as surrogates for measures of direct clinical benefit, such as overall survival (OS), contributing to shorter CT durations. The aim of the study was to analyse the choice of efficacy endpoints over time for leukaemia CTs conducted in the European Union (EU).

Methods: Interventional Phase II to Phase IV CTs investigating therapies in subtypes of leukaemia for all ages over an 11-year period (2007-2017) were identified from the EU Clinical Trials Register database. CTs reporting efficacy data for medicinal products of chemical, biological and biotechnological origin were included in the study. To understand the shift in response assessment, efficacy endpoints were extracted from the selected CTs, categorised and trends in the frequency of selection evaluated.

Results: Thirty-six unique efficacy endpoints were identified from the final data set of CTs ($N=431$) and categorised into four domains consisting of survival ($n=5$), response rates and biomarkers ($n=16$), time-to-event ($n=6$), and other ($n=9$) parameters. OS (66%, $n=285$) was the most studied endpoint across the defined period at primary and/or secondary level, with complete response (CR) rate (14%, $n=59$) surpassing OS (12%, $n=52$) as a primary measure. The proportion of CTs reporting minimal residual disease (MRD) as an endpoint registered the highest frequency change from 21% (2007-2010) to 39% (2011-2017).

Conclusion: Regulatory authorities consider OS as a robust endpoint which is in line with the findings observed. CR is a strong predictor of OS whilst MRD is emerging as a surrogate endpoint, both bypassing the maturation of survival data.

OP2.052

Forensic pharmacy: drug testing

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Introduction: The project aims to validate methods for the identification and quantification of illegal drugs using Gas Chromatography-Mass Spectrometry. Testing was done at a forensic laboratory in Life Sciences Park.

Methods: The method was developed, calibrated and validated, according to standards set by the United Nations office on Drugs and Crime (UNODC), for cocaine, diacetylmorphine and 3,4-methylenedioxymetamphetamine (3,4-MDMA) at 1mg/ml. Diphenylamine was used as an internal standard. The retention time, qualifier ions and relative abundance were tabulated and used to set up a quantification method to estimate the percentage purity of the drug in the tested sample.

Results: The validation parameters tested for cocaine, diacetylmorphine and 3,4-MDMA were satisfactory. The method was linear from the limit of detection (LOD) to the highest calibration point, with R^2 values >0.99 (0.9982, 0.9961, 0.997). The limits of detection were 1% for all drugs, whilst the limits of quantification (LOQ) were 1% for cocaine and 3,4-MDMA, and 12.5% for diacetylmorphine. Accuracy and precision were satisfactory (% CV: -5.361, 2.445, 1.346 and %E: 9.257, 14.448, 13.550). Samples of cocaine and 3,4-MDMA were stable at room temperature for 36 hours and samples of diacetylmorphine were stable for 6 hours. No carry-over was observed between samples.

Conclusion: All the validated parameters were within the limits set by the UNODC. This shows the applicability of the methods in a forensic laboratory setting. The decreased stability and LOQ of diacetylmorphine did not affect the validation of its method as limits were sufficiently low for the purpose of analysis.

OP2.053

Malta's National Cancer Plan 2011-2015 - an implementation analysis

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Introduction: The strategy document entitled "The National Cancer Plan 2011-2015" (NCP), aspired to "prevent cancers which are inherently preventable" and "provide accessible, high quality cancer services geared towards improving survival and quality of life". Specifically, five priority areas were identified and objectives/measurements set.

Methods: Qualitative data was collected via semi-structured interviews held with key stakeholders relevant to key priority areas. A Likert Scale and SWOT analysis

(strengths, weaknesses, opportunities, threats) were used to evaluate the implementation of each objective/measure. Supporting epidemiological data was also utilised.

Results: Prevention Excellent tobacco legislation but fragmented enforcement. Diet/nutrition-related targets remain unmet. Absence of alcohol strategy and powerful local alcohol industry/lobby engendered failure to meet alcohol-related objectives. Screening and early diagnosis Breast - <50% participation locally; controversy regarding mortality/morbidity outcomes. Colorectal - Faecal Immunochemical Test (FIT) highly specific/sensitive. Endoscopy presents bottleneck. Cervical - Domination by private specialists explains apparently low participation rate. Quality of care Construction of new oncology centre, good practice in breast cancer care, huge advances in radiotherapy services. Human resources challenging. Personal and social support Inpatient palliative care unit operational, but community palliative care services still limited. Surveillance and research Robust surveillance data extant thanks to cancer registry, but clinical research is insubstantial.

Conclusion: The NCP 2011-2015 is an assortment of victories (oncology centre, screening, breast cancer treatments) and defeats (alcohol, obesity, clinical research). Although broadly non-controversial, many objectives/ measures struggled during implementation due to absence of: strategic/logistical/financial/human resources. The presence of a functional steering committee would boost organisational and political motivation to actualise tangible objectives/ measures.

OP2.054

Catheter related blood stream Infections in haemato-oncology patients: a retrospective study

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Introduction: Central venous access devices (CVAD) are indispensable in managing patients who need chemotherapy; blood products and antibiotics. The recent introduction of Peripherally Inserted Central Venous Catheters (PICCs) has required the need to start a surveillance audit regarding Catheter Related and Central Line Associated Blood Stream Infections (CRBSI and CLABSI respectively).

Methods: Haematology patients who had a line insertion from March 2018 to July 2018 were recruited and duration and indication for insertion; line associated sepsis; organis cultured were noted. A diagnosis of CRBSI was defined by the Infectious Diseases Society of America criteria and CLABSI defined by Centre for Disease Prevention Criteria.

Results: Fifty-six patients had line insertions, of which 57% were Hickman lines ($n=32$); 27% were PICC lines ($n=15$); 7% Central Lines ($n=4$); 5% Portacath ($n=2$) and 2% Permcath ($n=1$). The commonest indications for insertion were administration of vesicant chemotherapy and poor peripheral access. The rate of CRBSI per 1000 line days is 3.9 per 1000 Hickman line days ($n=7$) and 5.3 per 1000 PICC line days ($n=3$). The rate of CLABSI per 1000

line days is 8.8 per 1000 Hickman line days ($n=16$) and 8.9 per 1000 PICC line days ($n=5$). Staphylococcus epidermidis was the commonest pathogen on catheter tip culture ($n=4$). The mean duration of insertion of a Hickman line and a PICC is 57 and 38 days respectively, 14% of lines ($n=10$) had to be removed prematurely because of iatrogenic or patient damage.

Conclusion: A line surveillance programme needs to be continued as it will highlight strengths or inadequacies in the management of lines.

OP2.055

The immunohistochemical and molecular profiling of primary lung adenocarcinoma - a local perspective

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Introduction: The objective is to evaluate the percentage of primary lung adenocarcinoma that do not express thyroid transcription factor 1 (TTF-1) and to assess the prevalence of EGFR and ALK mutations in lung adenocarcinoma.

Methods: All patients diagnosed with lung cancer between January 2012 and December 2017 were examined retrospectively. The number of tumours that did not express TTF-1 was determined. These tumours were further classified into metastatic cases, primary lung adenocarcinoma and indeterminate. The indeterminate category consists of those tumours without specific morphological features of metastatic or primary adenocarcinoma.

Results: The total number of patients diagnosed with lung cancer over a period of six years was 426. TTF-1 was performed in 89% of cases, out of which 22% were reported as negative. 55% of these TTF-1 negative adenocarcinomas were reported as metastatic cases, 26% in keeping with lung primary and 18% were indeterminate. Molecular testing was requested in 26% of all the lung cancer cases. EGFR mutation was tested in 91% of cases, 30% of which were positive. ALK-1 was tested in 29% of cases, one of which was positive. PDL-1 was performed in 7 cases while KRAS was only tested in 1 case.

Conclusion: Accurate histological typing of lung tumours can be challenging, however this is of vital importance as treatment varies accordingly. TTF-1 is considered as a reliable marker for confirming morphologically ambiguous cases. Literature states that 20% of primary lung adenocarcinomas are negative for TTF-1. Locally, 22% of lung adenocarcinomas fail to express TTF-1. Napsin A has a slightly higher sensitivity in detecting lung primary adenocarcinoma. This has been recently introduced and should alleviate diagnostic issues in TTF1 negative adenocarcinomas. Our current mutational analysis shows that the local cases are in keeping with the expected prevalence.

OP2.056

Effects of low-dose combinations of chromatin-modifying agents with retinoic acid on the terminal differentiation of leukaemia

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Introduction: Acute myeloid leukaemia (AML) is characterised by a block in haematopoiesis, resulting in uncontrolled clonal proliferation of immature cells leading to bone marrow failure. Acute promyelocytic leukaemia with a t(15;17) reciprocal translocation has proven that overcoming the block in differentiation with the use of all-trans retinoic acid (ATRA) will lead cancer cells to terminally differentiate and enter apoptotic pathways. The treatment of ATRA has caused a leukaemia that was once considered fatal, to result in a cure rate of over 75%. Other AML subtypes are not susceptible to ATRA-induced differentiation and the use of chromatin-modifying agents (CMAs) to overcome treatment resistances has been introduced in research, however with poor clinical success.

Methods: Four histone deacetylase inhibitors and a DNA demethylating agent were used in various combinations on an ATRA-resistant HL-60 cell line. Differentiation was assessed through reduction of nitroblue tetrazolium and results were normalized using the thiazolyl blue tetrazolium bromide assay. Positive results were further analysed with differentiation markers on flow cytometry.

Results: Trichostatin A, Sodium valproate (NaVal) and 5-Azacytidine (5Aza) in low concentrations with ATRA show an increase in differentiation of HL-60 cells. These CMAs are known to restore retinoic acid receptor expression in leukaemia cells allowing for ATRA-induced differentiation. 5Aza and NaVal also induced differentiation of leukaemia patient primary cells (LPPCs).

Conclusion: The combination of low doses with multiple CMAs proved more efficient in differentiation than higher doses of a single CMA. These results together with the differentiation of LPPCs give hope for new potential regimens of AML treatment.

OP2.057

Screening and functional analysis of genetic alterations in the G-protein receptor 101 (GRP101) gene in local pituitary adenoma (PA) patients

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Introduction: X-linked acrogigantism is a recently described phenotype of early onset gigantism associated with somatic mutations of the GPR101 gene. Point mutations and duplications in this gene have been found in three studies, with a rare variant (Glu308Asp), being found in 21 out of 1593 total PA patients (Trivellin et al., 2014);

Lecoq et al., 2016). This variant has been shown to increase growth hormone secretion, cAMP signalling and cell proliferation when overexpressed in a rat sommatotroph cell line GH3 (Trivellin et al., 2014).

Methods: Peripheral blood was collected from 149 local PA patients and DNA was extracted. The GPR101 gene was amplified by PCR and fully sequenced successfully in 136 patients. Rare variants identified were then cloned into an expression vector together with the wild-type GPR101 gene. These expression constructs were then transfected into GH3 cells and differences in proliferation rate were studied using two techniques, the MTT assay and the alamarBlue assay in order to compare differences between these two viability assays.

Results: In all, 10 variants were identified, of which, five mis-sense rare mutations were found, including the known Glu308Asp and Ser35Thr, Gly282Arg, Thr293Ile and Gly31Ser variants. No significant difference in viability was observed between any GRP101 variants and the wild-type over three days of assessment using either MTT or alamarBlue assays.

Conclusion: Prevalence of GPR101 variants in the local PA cohort was low and the variants identified do not appear to significantly alter proliferation rate in the GH3 cell model. However, other studies are needed to further validate these findings. References: Lecoq, A.-L., Bouligand, J., Hage, M., Cazabat, L., Salenave, S., Linglart, A., et al. (2016). Very low frequency of germline GPR101 genetic variation and no biallelic defects with AIP in a large cohort of patients with sporadic pituitary adenomas. *European Society of Endocrinology*, 1–20. Trivellin, G., Daly, A. F., Faucz, F. R., Yuan, B., Rostomyan, L., Larco, D. O., et al. (2014). Gigantism and acromegaly due to Xq26 microduplications and GPR101 mutation. *The New England Journal of Medicine*, 371(25), 2363–74. <https://doi.org/10.1056/NEJMoa1408028>

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OP2.058

Full cycle audit: polypharmacy in the elderly at KGRH

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Introduction: The future of health care in Malta will need to cater for the ever increasing geriatric population. A longer life expectancy is usually associated with a build up of co-morbidities. This in turn has a natural tendency to lead to polypharmacy. This implies, too many medications for an individual patient, with an associated higher risk of adverse drug reactions and interactions, including far reaching implications, such as costs and sustainability. Our study aimed to apply the STOPP of the START and STOPP Criteria to one of our local geriatric/rehabilitation hospital.

Methods: 8 wards selected – Randomisation via a random computer generator. Data was collected and sorted into 3 main categories: Demographics, Medical/Surgical History and Medications. Medications category was subdivided into 36 drug classes and the 8 most commonly

used drugs from the cohort were chosen. The STOPP criteria were applied accordingly.

Results: In the first cycle a cohort of 45 patients were used, 37 female and 8 male. There was little concern with respect to anticoagulants and antiplatelets. The main issues were Digoxin and a poor renal function, benzodiazepines/neuroleptics and a history of falls and use of calcium channel blockers and worsening constipation. This Data was presented to the Postgraduate Geriatric Medicine meeting and Foundation Audit and Quality Conference. A second cycle was carried out 1 year later. A cohort of 75 patients, with 56 females and 19 males. 3 patients were found to be on aspirin and 1 on warfarin, which was potentially inappropriate/clinical concern respectively and the correct therapeutic alternative applied. One patient was noted to be on digoxin and had a low eGFR which was reduced correctly. Whilst two patients were inappropriately prescribed neuroleptic and benzodiazepines given their history with no change in treatment.

Conclusion: In conclusion our first cycle audit had the desired effect to help increase awareness amongst physicians regarding polypharmacy in the elderly. In our second cycle no patients were inappropriately given calcium channel blockers. However there is still room for improvement and further awareness is necessary.

OP2.059

Study - frailty and rehabilitation outcome prediction

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Introduction: Multidisciplinary rehabilitation is proven beneficial for successful discharge. Identification of patients who will do well with rehabilitation lacks strong evidence and frailty amongst older adults makes identification of such patients more challenging. The main objective of this study is to assess patient features which will help in better identification of patients for successful rehabilitation.

Methods: A prospective observational cohort study of patients admitted to Rehabilitation Hospital Karin Grech (RHKG) between March and November 2017. Patients over 60 admitted with any diagnosis were included. Age, gender, Charlson co-morbidity index, and frailty were documented. Frailty was measured by means of the Clinical Frailty scale and the Edmonton Frailty Scale.

Results: 83 patients were included, 34 males and 49 females, with an average age of 77 years. 89% of the patients were admitted from their own home. 69% of all patients were successfully discharged. Mean difference in Barthel score from admission to discharge was 5.2. Using regression model, the Edmonton Frailty score ($p=0.04$) was a significant predictor for successful outcome. An Edmonton Frailty score of 7 or less is a good predictor for effective rehabilitation and likelihood of discharge to their pre-admission domicile. Using regression model, Barthel on admission at RHKG ($p<0.001$) and Edmonton Frailty Score ($p<0.001$) were significant predictors for improvement in Barthel score. A Barthel score on admission of 8 or more will likely improve their physical outcome.

Conclusion: The Edmonton Frailty Score and Barthel score are useful tools in patient selection for rehabilitation.

OP2.060

Management of falls in the elderly presenting to the emergency department

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Introduction: Falls in the elderly are a common presentation to the Emergency Department (ED). The objectives were to evaluate concordance with the British Geriatric Society Guideline on Prevention of Falls in the Older Persons.

Methods: All patients older than 65 years presenting to the ED in Mater Dei Hospital with a fall and fracture and who were subsequently discharged from the ED during the months of February and March 2017 were included in the study. Data was collected from the local database and the patients' notes.

Results: One hundred and five patients were eligible. A smoking history was documented in 29.5% whilst alcohol intake was documented in 25.7%. The BMI, history of previous fracture and parent hip fracture were never documented. A drug history was recorded in 51.4% whilst past medical history was recorded in 56%. Pulse rate and rhythm were documented in 39% and 25.7% respectively. Gait, neurological assessment and muscle strength of the lower limbs and activities of daily living were documented in only 4 cases. Documentation of the history of falls in the past year, frequency of falls, walking or balance difficulties, postural blood pressure, visual problem and feet and footwear assessment were omitted in all patients. Only 1 patient was referred for further investigation and management to the geriatrics department.

Conclusion: The ED evaluation of older adult fallers is not congruent with international guidelines. Ideally a system such as a Fracture Liaison Service is set up which would facilitate referral.

OP2.061

Management of health problems in general practice: an insight into patient demographics and reasons for encounter at the Floriana health centre

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Introduction: The audit sought to analyse the patient demographic characteristics, the reasons for clinical encounters and health problem managed by General Practitioners (GPs) at the Floriana Health Centre (FHC).

Methods: The audit adopted a retrospective data analysis methodology looking at all walk-in visits to the FHC Treatment Room and GP Roo between the 22nd of January 2018 08:00 and the 5th of February 2018 08:00. Patients attending for specialised clinics, ACC POC, Diabetes Clinic, Chronic Disease Management Clinic (CDMC), prescription clinic and phone call advices were excluded for this audit. All data was collected from the GP sheets and patients' files. Data on Gender, Age, Locality and

Presenting Complaint were collected. Data on the presence/absence of relevant documentation was also gathered. All data was coded and recorded in a standardised form. No direct patient contact was required throughout the audit.

Results: Data was obtained for a total of 1235 patients, of which 49.7% were males and 50.3% were females. Of these patients, those aged between 20-29 years, were the most common visitors amounting to 13.8% ($n=134$). The majority of patients visiting the FHC lived in Hamrun and amounted to 15% ($n=155$) of the overall sample. This was followed by patients residing in Valletta which amounted to 11% ($n=120$). 73.5% ($n=794$) of the patients were seen inside a GP Room while 23.5% ($n=287$) were seen inside the Treatment Room. Documentation was found in 70.7% ($n=831$) of the patient encounters. Respiratory complaints were the commonest reason for a GP encounter at 26.8% ($n=241$), followed by booking/issuing of results (blood results or others) at 16.9% ($n=152$).

Conclusion: The audit provides an insight into the demographic characteristics of patients making use of the services available at the FHC. The results highlight a need for better documentation of patient encounters which stood at 70.7% at the time of the audit. In addition, it is noted that booking and issuing of results such as bloods where the second commonest reason for attendance to a GP clinic. In view of the exclusion of specialised clinics such as CDMC from the audit, the latter result would indicate that patients would most likely be attending the FHC at least once for booking of relevant investigations and then again for issuing of results. This might result in the patient being ultimately followed-up for the same reason of encounter by different doctors on two or more occasions hence undermining the concept of continuity of care. It is hoped that, the results of this audit could provide a basis for future wider evaluation and planning of services at the FHC. This would enhance allocation of resources and development of guidelines and practices on documentation, follow-up and specialised clinics.

Disclosures: This audit was done in collaboration with the Primary Health Care Department.

OP2.062

Patient awareness on warfarin use and its interactions in a primary health care setting

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Introduction: Patients' knowledge on warfarin has been shown to be a determinant of anticoagulation control, with improved education and awareness leading to decreased hospital admissions. Successful warfarin therapy treatment is dependent on factors including drug interactions, dietary intake, adherence to medication and patient knowledge. The aim of this study was to evaluate patients' knowledge on warfarin therapy, its interactions and indications in a primary health care setting

Methods: A standardized questionnaire was used to assess patients' knowledge on warfarin indication, dose, importance of blood monitoring, its interactions with food and other medication, adverse effects and actions to be taken if an adverse effect occurs.

Results: Hundred patients were enrolled in this study. Commonest indication was atrial fibrillation (65%). Warfarin Interactions: 80% of cohort were aware of its interaction with antibiotic therapy, more than two thirds of patients were aware of its interaction with alcohol (67%) and dietary intake of green vegetables (68%). Warfarin adverse effects: 18% of patients reported requiring medical attention secondary whilst on warfarin, namely for spontaneous bleeding (10%). Most patients interviewed were aware that medical attention should be sought when experiencing haematuria (86%), prolonged epistaxis (81%), spontaneous bruising (76%) and melena (70%).

Conclusion: Patient awareness on warfarin therapy is crucial to maximize benefits of the treatment within its narrow therapeutic index whilst minimizing adverse effects. This study showed that the majority of patients reviewed at primary care level are aware of interactions of warfarin and are aware of possible adverse effects of warfarin therapy.

OP2.063

An evaluation of the tele-consultation and triage system at a primary health care centre

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Introduction: The telephone triage and advice service (TTAS) operates within Malta's Primary Health system. The aim of this study is to evaluate the TTAS at Mosta health centre (MHC). Three parameters were studied, namely service usage, patient satisfaction and patient outcome.

Methods: All adult patients who phoned MHC from their home asking for a doctor between February and April 2018 were included. Data was collected from the TTAS sheets available at MHC. A small random sample of patients were involved in a questionnaire via telephone to assess their experience with the service.

Results: 2,013 patients were included. The mean age was 54.85 years (95%CI: 54.04-55.67). There was no significant gender mean age difference ($P=0.813$). Females (67.46%) significantly called more often than males (32.54%), ($P<0.001$). The majority of calls were from Mosta (24.64%) and Birkirkara (18.28%). Most of the patients called asking for advice and their outcome predominantly involved advice over the phone ($P<0.001$). Using the ICPC-2, most complaints were of category A (General/unspecified), the commonest being fever (44.25%). Advice over the phone (53.5%) was the major outcome. The 80+ age group had a higher house visit percentage outcome (48.58%) compared to the overall population (34.72%). Patients involved in the questionnaire showed an overall satisfaction with this service.

Conclusion: This is the first study evaluating the service locally. The results are promising, showing that

TTAS is being used as a means of healthcare provision, both for acute illnesses and minor ailments. A structured approach for doctors taking calls is recommended for more consistent outcomes.

OP2.064

Cardiac rehabilitation for heart failure patients: a service long overdue

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Introduction: Evidence supporting a multi-disciplinary approach in the management of heart failure (HF) patients is substantial. Exercise training (ET) sessions for HF patients are now available locally as of 2018. This study aimed to look at patient satisfaction in those referred to the program, whilst also looking at a number of health outcomes.

Methods: Cardiovascular Information System (CVIS) and Isofit software were used for demographic, clinical and biochemical data collection. A telephone-based interview was used for data collection with respect to patient satisfaction and NYHA class and the KCCQ12 questionnaire after completing the program.

Results: In total, 26 HF patients were referred, with a mean Ejection Fraction $36.19 \pm 9.1\%$ and a mean age of 62 ± 9.2 years. The majority were male (62%), suffering from ischaemic cardiomyopathy (54%). The majority of those attending were NYHA 2 (47%). To date, 15 subjects completed the program, with 47% of these attending all 12 ET sessions (Median 11). There was a significant improvement in NYHA class at the end of the program ($p=0.05$). By the end of the program, 33% took up exercise more frequently ($p=0.132$), which did not seem more likely in those who adhered more to ET sessions ($p=0.89$) and had higher NYHA class ($p=0.67$). There was no statistical difference in NT-proBNP levels before and after ET sessions ($p=0.480$). The majority (73%) felt that the program exceeded their expectation, 67% were very satisfied with the programme and 93% reported they felt better.

Conclusion: HF patients attending ET sessions were extremely satisfied and had a significant improvement in NYHA class.

OP3.065

Retrospective analysis of whether prior talc pleurodesis attempt affects subsequent IPC-related autopleurodesis or not

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Introduction: Indwelling pleural catheters (IPCs) are used to manage recurring effusions in patients with symptomatic malignant pleural effusion (MPE). A subset of

these patients will have had previous failed talc pleurodesis. This study aims to look at the rate of autopleurodesis (and the time to achieve this) in IPC patients who had received previous talc compared to those who had not.

Methods: All IPC insertion records for MPE in our Trust between 2008 and April 2017 were analysed retrospectively. Data on previous ipsilateral pleural procedures, including attempted talc pleurodesis performed prior to the IPC insertion, and details about IPC insertion outcomes were collected from the medical records. Autopleurodesis was defined as minimal or no output via IPC, with subsequent IPC removal.

Results: 181 IPC insertions for MPEs were recorded, but 2 insertions were excluded due to insufficient data about IPC removal date and reason for removal ($n=179$ analysed further). Sixty-eight patients (38%) had received prior talc (60 received talc once; 8 received talc twice); while 111 (62%) had not received prior talc. IPC was subsequently removed due to autopleurodesis in 23 of the 68 (33.8%) who had received prior talc after a median 105 days (IQR 91) (an additional IPC was removed because of pain 4 days after insertion). IPC was subsequently removed due to autopleurodesis in 37 of the 111 (33.3%) who had not received prior talc after a median 104 days (IQR 83.5) (3 more IPCs removed in this group for other reasons). There was no difference in rates of autopleurodesis between patients who had received prior talc and those who had not ($X^2 0.0045$, $p=0.946$). When comparing time to autopleurodesis, there was no statistically significant difference between the 2 groups (2 tailed Mann Whitney test, $p=0.29$).

Conclusion: There does not seem to be a difference in the rate of autopleurodesis between patients who had previous failed talc pleurodesis and those who chose IPC in the first instance. Further studies are needed to investigate whether the pleural space in certain patients is inherently resistant to different forms of pleurodesis.

Disclosures: M Hassan is recipient of a long-term research fellowship from the European Respiratory Society – ERS LTRF 2016-7333; RJ Hallifax is funded by a clinical training fellowship from the medical research council (MR/L01709/1; NM Rahman is funded by the NIHR Oxford Biomedical Research Centre.

OP3.066

The management of spontaneous and Iatrogenic pneumothorax (PTX) at Mater Dei Hospital in 2017

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Introduction: Our aim was to assess the management and outcome of patients admitted to Mater Dei Hospital with spontaneous and iatrogenic pneumothorax (PTX) in 2017.

Methods: All patients discharged from Mater Dei Hospital with a diagnosis of pneumothorax on electronic discharge letters (ECS) in 2017 were included and data was collected retrospectively using case notes and online systems.

Results: 22 patients required immediate chest drain insertion (CD) according to guidelines and, of these, 21 (95%) had a CD inserted while 1 patient had a failed aspiration followed by CD insertion. In 25 patients aspiration was indicated, however, of these 21 (84%) received a CD insertion and 3 (12%) had an attempted aspiration, 2 of which failed and required CD insertion with one further patient treated with observation alone. 18 patients were candidates for conservative management and, of these, 12 (67%) were treated with observation alone, 4 (22%) had a CD insertion and 2 had an aspiration (11%) performed. Those with a longer length of stay (>7 days) were more likely to be referred to the cardiothoracic surgeons (CTS) ($p=0.008$). 32% (7/22) of chest drains in situ for over 48 hours had suction applied. 100% of patients (6/6) with previous ipsilateral PTX were referred to CTS as opposed to 50% (2/4) patients with previous contralateral PTX. Pain was the most common immediate complication of CD insertion (16%) with haemorrhage and a vasovagal episode reported in 2% of cases. In terms of delayed complications, CD was accidentally dislodged in 11% with pain, drain blockage and pleural infection reported in 7%, 6% and 4% respectively. Inpatient all-cause mortality was 5% however no deaths secondary to procedure related complications were reported.

Conclusion: Seldinger chest drain insertion remains a relatively safe and commonly used treatment option with aspiration being less frequently utilised. Major complications were rare with no procedure related mortality identified.

OP3.067

Is mesothelioma associated with increased risk of indwelling pleural catheter-related septated pleural effusion?

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Introduction: Indwelling pleural catheters (IPC) are an increasingly attractive option for patients wishing to avoid hospitalisation as they reduce length of stay. However, non-draining IPC-related symptomatic loculation occurs in 8.4-13.5% of patients, and requires further procedures to break down septations and drain fluid more freely. Fibrin deposition facilitates autopleurodesis but can also induce septations and loculations within pleural fluid, impairing effective fluid drainage in patients with symptoms of accumulated fluid. Given the larger pleural tumour load and larger area of pleura involved with mesothelioma than with other MPEs, mesothelioma may have an increased risk of fibrin deposition. The aim was to assess whether mesothelioma is associated with increased rates of IPC-related non-draining symptomatic septated pleural effusion.

Methods: IPC insertion records for MPE between 2008 and April 2017 were analysed retrospectively, and data collected from medical records, including whether prior intrapleural talc was administered or not (since talc may

give rise to septated effusion). Fisher's exact test was used to compare the frequency of complicated septated effusions between patients with mesothelioma (mesothelioma MPEs) and those with other malignancies (non-mesothelioma MPEs). Non-draining symptomatic septated effusions were defined as pleural effusions identified to be septated on ultrasound, associated with shortness of breath and/or cough, and not draining adequately via the IPC.

Results: 181 IPC insertion cases were analysed. Mean age at IPC insertion was 67.6 years (SD 13.9), 48% were female ($n=87$). 38(21%) were mesothelioma MPEs and 143 (79%) were non-mesothelioma MPEs; 3 (7.9%) and 5 (3.5%) developed IPC-related non-draining symptomatic septated effusions respectively ($p=0.4$). There was no significant difference in rates of IPC-related non-draining symptomatic septated effusions between patients who had received prior ipsilateral talc pleurodesis and those who had not: in mesothelioma MPEs ($p=1.0$), in non-mesothelioma MPEs ($p=1.0$).

Conclusion: There was no statistically significant difference in rates of IPC-related symptomatic septated pleural effusion between patients with mesothelioma and non-mesothelioma MPE, although this data is limited by the retrospective study design and by relatively small numbers of non-draining IPC-related symptomatic septated pleural effusions.

Disclosures: M Hassan is recipient of a long-term research fellowship from the European Respiratory Society – ERS LTRF 2016-7333; RJ Hallifax is funded by a

OP3.068

Success rate of talc pleurodesis

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Introduction: Pleurodesis is a common procedure performed by respiratory physicians and cardiothoracic surgeons in the treatment of malignant effusions or complicated pneumothorax. Talc is the most effective agent for chemical pleurodesis and is administered by instillation into the pleural cavity after the removal of pleural fluid. The authors aimed to determine the success rate of talc pleurodesis in patients treated at Mater Dei Hospital.

Methods: The study included patients who had talc pleurodesis performed during an 18-month period between January 2016 and June 2017. Data was collected from electronic case summaries, PACS and iSoft using a standardised proforma.

Results: From a total cohort of 81 patients, 97.5% of patients required talc pleurodesis for a malignant effusion. 60% of patients were female while 40% were male, and the median age was 71. 49.5% of the malignant effusions were a result of lung cancers, while other common malignancies metastasising to the pleura originated from the breasts and ovaries. Of the patients presenting with a pleural effusion, 13% had previous chest drain insertion while 5% had previous talc pleurodesis. Recurrence of the effusion stood at 56%, however only 14.8% of these required further drainage. 7% of patients undergoing pleurodesis survived less than 1 month.

Conclusion: The success rate of talc pleurodesis was modest in our sample of patients, despite being performed by trained staff. The success rate could potentially be increased by better selection of patients and by introducing a standardised protocol for talc instillation.

OP3.069

Ultrasound-guided pleural biopsy at Mater Dei: Auditing a new service

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Introduction: Ultrasound-guided biopsy, which makes outpatient pleural sampling possible under local anaesthesia, was introduced in Malta to reduce need for open surgical biopsy in pleural malignancy and infection. This audit aims to assess diagnostic accuracy and complication rates two years after the setup of this service.

Methods: All patients who had pleural biopsies from 2015-2017 at Mater Dei Hospital were recruited. Patient records were analysed for demographic data and biopsy method. The histology result was compared to the final diagnosis made by the caring team to determine diagnostic outcome. Post-procedure radiology was assessed for pneumothorax, a known complication of pleural intervention.

Results: 53 patients underwent pleural biopsy from 2015-2017, 46 male, with an average age of 61 years. 22, 6, and 25 samples were obtained by open/VATS, CT-guided and ultrasound-guided methods respectively. 20% of ultrasound-guided biopsies were done as outpatient procedures compared to 100% inpatient rate in VATS. Pneumothorax rates were 0% for US-guided procedures and 16.7% for CT-guided biopsies (all VATS patients had post-op chest drains). Regarding diagnostic accuracy in US-guided procedures, 5 of 10 cases of suspected TB were confirmed on biopsy. The remaining 5 were managed empirically without laboratory confirmation. US-guided biopsies for suspected malignancy were confirmatory in 7 of 10 cases, inconclusive in 2 cases and in 1 case the diagnosis of malignancy was missed.

Conclusion: Diagnostic accuracy in pleural biopsy compares favourably with rates obtained for open and CT-guided procedures. Additionally, the low rate of complications and ability to perform US-guided biopsies as outpatient procedures makes them a highly attractive alternative to invasive open procedures.

OP3.070

Prospective analysis of the predictive value of sonographic pleural fluid echogenicity for the diagnosis of exudative effusion

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Introduction: Pleural effusion echogenicity on ultrasound has previously been suggested to allow identification of exudates. A case series suggested that

homogeneously echogenic effusions are always exudates. With modern imaging techniques and more advanced ultrasound technology, this may no longer be true. The objective was to prospectively assess the predictive value of echogenicity in the identification of biochemically confirmed exudates.

Methods: Patients undergoing thoracic ultrasound before pleural fluid sampling were analysed prospectively (n=140). Pleural fluid was classified as an exudate if both fluid total protein (TP) >29 g/l and fluid lactate dehydrogenase (LDH) >2/3 upper limit of normal serum LDH (which is 255 Int Unit/L in females and 235 Int Unit/L in males) were present. If only one of these criteria was met, the effusion was considered to have discordant biochemistry.

Results: Fifty-five (39%) patients had non-echogenic and 85(61%) had echogenic effusions. Six (7.1%) patients with echogenic effusions had transudates; the median fluid TP for this group was 18.5 g/l (IQR 9.75) and median LDH 63.0 Int Unit/L (IQR 40.3). The sensitivity of echogenicity identifying exudates from transudates, excluding patients with discordant biochemistry, was 65.1%, specificity 57.1%, positive predictive value (PPV) 90.3%, negative predictive value (NPV) 21.0%. The sensitivity of echogenicity identifying exudates (including discordant biochemistry) from transudates was 62.7%, specificity 57.1%, PPV 92.9%, NPV 14.5%.

Conclusion: Echogenicity of a pleural effusion does not necessarily indicate an underlying exudate, and the echogenic qualities of the fluid should not influence clinical decision-making.

Disclosures: RJ Hallifax is funded by a Clinical Training Fellowship from the Medical Research Council (MR/L017091/1); M Hassan recipient of a Long-term research fellowship from the European Respiratory Society – ERS LTRF 2016-7333; NM Rahman is funded by the NIHR Oxford Biomedical Research Centre

OP3.071

“Microbiological data on pleural effusions – The bugs that count”: A retrospective review of local experience in a secondary hospital.

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Introduction: Pleural effusions are a common problem we encounter frequently on the medical and oncology wards. A percentage of these effusions will be culture positive. These require diagnostic and therapeutic management as per British Thoracic Society Pleural Disease Guideline 2010.

Methods: A retrospective analysis of all patients with positive pleural cultures, selected from the microbiology database, performed between January 2013 and April 2016 at Mater Dei Hospital was carried out. The indications, management and outcomes of these patients were

identified using patient notes, Electronic Case Summaries, iSoft and Radiology Information Systems. Data collected included patient demographics and current illness as well as previous co-morbidities.

Results: A total of 35 patients (29 male, 6 female) with an average age of 66 were enrolled in the study. Co-morbidities among these patients were noted to be common and included aspiration risk, diabetes, immunosuppression and malignancy. While only 35% of patients were noted to be febrile during admission, 90% had an abnormally raised C-Reactive Protein. Almost all patients had a unilateral effusion or radiological empyema and all effusions were found to be an exudate as per Light's Criteria. pH was assessed in only 8 of the patients and this was found to be less than 7.2 in 50%. There were similar proportions of community acquired (30%), hospital-acquired (35%) and health care associated (35%) culture positive pleural infections and almost all received intravenous antimicrobial therapy. Despite positive culture pleural effusion being an indication for pleural fluid drainage, only 51% had a chest drain inserted. 67% of significantly large effusions and 82% of radiologically or lab confirmed empyemas were drained. Organisms grown on culture were mainly streptococci and staphylococci (34% Streptococci, 26% staphylococci, 20% Gram negative / Enterococci and 11% anaerobes), with a higher proportion of staphylococci in hospital acquired effusions. The majority of patients were started empirically on Piperacillin/Tazobactam (37%) or Levofloxacin (26%). Meropenem, Teicoplanin or Gentamicin/Amikacin were added in some cases. Only one patient was prescribed Co-Amoxycylav. One fifth of patients died during admission and 90 day mortality was 26%. Patients had a prolonged hospital stay (mean 27 days) and long antibiotic duration (mean 36 days).

Conclusion: Positive microbiology pleural fluid analysis corresponds closely to published data. All large enough, clinically relevant culture positive pleural effusions should be drained. Antibiotic algorithms for such cases will help improve adequate antibiotic administration and reduce resistance, as pleural infections carry a significant morbidity and mortality.

OP3.072

Trends in prostate cancer incidence and age distribution – 2011-2016

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Introduction: Incidence of prostate cancer is increasing globally. The stage at which prostate cancer is diagnosed is related to the stage at which it is diagnosed – the earlier the diagnosis, the better the prognosis of survival. Prostate cancer occurs principally in older male patients. The aim of this study was to investigate the trends in prostate cancer incidence by stage and five-year distribution. The outcome of prostate cancer and treatment is related to stage and age at diagnosis.

Methods: Data of prostate cancer patients diagnosed in 2011-2016 were collected and analysed. The prostate cancer stages were defined using the TNM staging system, the Gleason score and total PSA. The data was compiled and analysed using MS Excel.

Results: During the period 2011-2016, the incidence of prostate cancer has fluctuated between 161 to 228. The incidence of early stage (stage I, stage II) disease decreased (-21%) over the period 2014-2016. There was a corresponding increase (+21%) in the incidence of prostate cancer diagnosed at later stage (stage III, stage IV). About 76% of patients were diagnosed between the age between 60-79 years, with a peak at 65-69 years.

Conclusion: Although the age distribution over this period has remained the same, prostate cancer is being diagnosed at a later stage. This will have a negative effect on the survival rate in the near future. Further research is needed to determine the cause. The national screening program could help to reverse this negative tendency

OP3.073

Emergency admissions following kidney transplantation: a local perspective

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Introduction: Kidney transplantation (KT) remains the best option for patients with end stage renal disease notwithstanding the increased risk of infection, cardiovascular disease and malignancy compared to the general population. Emergency hospital admissions following transplantation are common. Aim: To evaluate the local incidence and aetiology for emergency admission following KT.

Methods: A retrospective review of adult patients receiving a kidney transplant at Mater Dei Hospital, Malta from January 2008 to December 2016 and followed up till December 2017 or until allograft failure or patient death was performed. Recipients with primary non-function and transplants performed overseas were excluded.

Results: 114 recipients satisfied inclusion criteria with 1 patient receiving 2 allografts during the study period. 63.5% (n=73) were male; 76.5% (n=88) and 23.5% (n=27) received a deceased and living donor allograft respectively. Median age at transplantation was 51 years (IQR=21). There were 294 emergency admissions over 500 follow-up years (overall rate 58.8/100 patient-years); 77% (n=89) had at least one admission after transplantation. 60.9% (n=70) had their first admission during the first year. Median time to first admission was 2.3 months (95% CI, 1.6 to 3.1; IQR=5.3). The most common diagnosis was of infectious (49.7%, n=146) followed by gastrointestinal (10.9%, n=32) aetiology.

Conclusion: Emergency admissions are the norm following KT, with 3 out of every 5 patients needing hospitalisation in the first posttransplant year. Infectious complications, particularly arising from the urinary tract, account for the great majority of admissions.

OP3.074

The kidney transplant program in Malta: a 10 year report

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Introduction: Kidney transplantation is the best treatment option in end-stage kidney disease (ESKD) as it conveys best survival and quality of life. The objective of this analysis was to investigate key performance parameters of the transplant program in Malta.

Methods: This was a retrospective analysis including all patients who received a kidney transplant (KT) in Malta between January 2007 and December 2016.

Results: A total of 130 patients received 133 grafts. The mean age at transplant was 47.9 ± 14.6 years and the median follow-up was 51 months (interquartile range [IQR]: 52). Three KTs were pre-emptive (2.3%), 31.0% of recipients were on peritoneal dialysis and 66.7% on haemodialysis prior to transplantation. The majority of recipients were males (62.3%), 72.9% cadaveric and 27.1% living transplants. All patients received basiliximab induction, 60.0% were maintained on cyclosporine and 40.0% on tacrolimus in the early post-transplant period. The median creatinine at 1, 3 and 5 years after transplant were 132 µmol/L (IQR: 78), 136 µmol/L (IQR: 117) and 142 µmol/L (IQR: 111). Primary non-function occurred in 3.8% of grafts and the 1-year biopsy proven acute rejection was 4.4%. The death-censored graft survival at 1, 3 and 5-years was 90.8%, 84.3% and 73.5% respectively. The patient survival at 1, 3 and 5 years was 95.4%, 90.4% and 83.6% respectively. Six patients died with a functioning graft (4.6%).

Conclusion: We conclude that graft and patient survival are comparable to other European and American transplant centres.

OP3.075

Long-term survival outcomes in chronic kidney disease requiring dialysis in the Maltese islands

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Introduction: Chronic kidney disease patients on maintenance haemodialysis (CKD 5D) experience major morbidity and mortality. No data on survival in Maltese dialysis patients exist. The aim of this study was to rigorously examine survival statistics in a complete cohort of Maltese CKD 5D patients.

Methods: All incident chronic patients (n=329) starting dialysis at the renal unit, Mater Dei hospital, Malta during four consecutive years (2009-2012) comprised the study population. Each yearly cohort was analysed in detail up to 31st December 2017 providing up to 8 years follow up. Demographics (male 65%; female 35%), aetiology of renal failure (diabetic kidney disease n=196; 59.6%), co morbidities, transplant status and death were documented. Data collection and follow up was complete and statistical analysis was performed on the aggregated cohorts with SPSS version 23 with censoring up to 31st December 2017.

Results: The cumulative adjusted five year overall survival in Maltese CKD 5D patients was 0.39 and 0.20 at 8 years. No statistical difference was observed according to the year of starting dialysis. Cox regression analysis showed that age and transplant status to influence survival. The hazard of death increased by 3% for every one year increase in age, and was increased by 7% if the patient did not receive a transplant. Overall 22% (n=72) of the entire cohort eventually got transplanted.

Conclusion: This study reports an approximate 60% mortality at 5 years in Maltese haemodialysis patients. This poor prognosis, despite optimal medical management, is consistent with worldwide reports.

OP3.076

Trial without catheter - A 4-year retrospective audit

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Introduction: The removal of a urinary catheter from a patient's urethra and monitoring for the passage of urine is known as 'Trial Without Catheter (TWoC)'. A retrospective study reviewing TWoCs carried out by the Urology Outreach Unit at Mater Dei Hospital was performed with the aim of providing an overview of the incidence, indications and success rate of the performed TWoCs.

Methods: Research was collected by accessing patients' medical notes and extracting relevant clinical data from the forms filed during each TWoC episode. This was then extrapolated onto a database for assessment.

Results: A total of 2855 episodes were reviewed, 93.6% male, 6.3% female with the average age of 71.9 years. Patients would most commonly present to the Urology Outreach Clinic with a silicone catheter, sized at 16F. The patients were primarily referred from the urological department (37.1%), followed by the Accident & Emergency (24.2%), Surgical (9.4%) and the Medical (7.7%) Departments. Amongst the more common indications for catheter insertion were acute painful retention (37.4%) or painless retention (26.7%). Reestablishment of micturition was possible in 65% of cases, with only 35% requiring reinsertion of catheter, usually silicone with catheter residuals averaging at 454.6mls. Final outcomes were generally successful with 61.6% of patients being discharged without a catheter, to be followed up at the Outpatient Department.

Conclusion: TWoCs have now become a standard practice and it is hoped that this audit will encourage further studies into the efficacy and benefits of TWOC practice.

OP3.077

A comparison of outcomes following percutaneous ablation versus partial nephrectomy for renal tumours.

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Introduction: In recent years there has been increasing acceptance of radiological percutaneous ablation (PA) of small (<4cm) renal tumours. We compared oncological, functional and complication outcomes following percutaneous ablation with those following partial nephrectomy (PN) procedures done at Mater Dei Hospital.

Methods: Data of patients who underwent PA or PN between January 2009 and June 2018 was collected retrospectively. In both groups, pre-operative imaging was reviewed to characterise the index lesions and their predicted complexity for surgery using RENAL nephrometry score. Post-procedural outcomes analysed include change in renal function, complication rates and grades, recurrence and metastasis rates. We also compared oncological re-interventions required for each group.

Results: 210 patients were included. The vast majority were incidental radiological findings less than 4cm in size. 120 underwent PA and 90 had PN. The latter group includes intraoperative use of ablative energy during open or laparoscopic surgery. The RENAL complexity score was higher in the surgical cohort. Patients undergoing surgery had higher grade complications. 5 patients required re-intervention for oncological purposes (mostly residual tumour); 3 after microwave ablation and 2 after radiofrequency ablation. 9 patients developed local recurrence and none developed metastases. In patients who recurred, average recurrence free survival was 334 days (range 70-686 days). Further data collection is ongoing.

Conclusion: The results show that percutaneous ablation of renal tumours has oncological outcomes similar to a surgical approach for amenable lesions. Whilst it carries a higher re-intervention rate, it has less morbidity and should be considered in patients with high risk for open or laparoscopic surgery.

OP3.078

Audit of oncological and functional outcomes post radical prostatectomy for localised prostate cancer

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Introduction: This preliminary analysis looks into contemporary surgical practice for prostate cancer and makes observations in terms of oncological and functional outcomes.

Methods: Data from 106 patients with localised prostate cancer was collected. 77 cases were operated at

the University College London Hospital (UCLH) and the rest performed by visiting surgeons or local consultants in Malta. The cases analysed are those performed between 8/5/2012 and 10/5/18.

Results: Average patient age was 62.4 years. 29 patients received preoperative androgen deprivation therapy (ADT). Preoperatively 14 patients reported incontinence and lower urinary tract symptoms. 47 patients were potent in the preoperative period. Preoperative average prostate specific antigen (PSA) value was 10.2ng/ml. 43% of cancers were staged T2c at diagnosis. Most malignancies were Gleason 6 and 7, with only 7 tumours exhibiting high grade disease. Salvage surgery was performed in 4 patients. Surgical approach was robotic in 73 patients and open in 20 patients. An attempt at nerve-sparing was made in 42 cases. 27 patients had obturator pelvic lymphnode dissection (PLND) and 13 had extended PLND. Estimated average blood loss was calculated at 295ml. Perioperative complications were reported in 10 patients and graded according to the Clavien classification. Positive resection margins were recorded in 28 patients. 10 patients received adjuvant radiotherapy and 3 required salvage radiotherapy. Long-term outcomes revealed 7 patients with biochemical recurrence and a single patient who developed metastases. In those patients who recurred, the average biochemical recurrence free survival was 535 days. Median follow up was 1.8 years. All patients are alive at time of data censoring. Postoperative impotence was experienced by the majority of patients, with 90 of them having an average International Index of Erectile Function-5 (IIEF-5) score of only 6. Postoperatively, incontinence was reported in just above half the patient group.

Conclusion: The above are interim results pending complete data collection

OP3.079

Epigenetic regulation of early human development: molecular biology of preimplantation development

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Epigenetic marks are essential for normal mammalian development and they undergo dynamic programming/reprogramming during gametogenesis and preimplantation development. DNA methylation is an epigenetic mark that regulates chromatin and gene expression and is essential during vertebrate development for numerous processes such as genomic imprinting. The disruption of these essential epigenetic processes can therefore cause disease. Epigenetic information is an important interface between the cellular environment and the genome and a major determinant of phenotype. In human assisted reproduction, the nature of the epigenetic 'signature' that is imposed on the preimplantation embryo will likely be influenced by the *in vitro* environment and techniques that are used in the assisted reproduction technology (ART) procedure. It follows that elements of this epigenetic legacy will be carried forward during development. There

are some reports that have suggested that human ART cohorts may exhibit epigenetic profiles that differ from natural conceptions. Animal studies have indicated that certain ART procedures may have the potential to disrupt developmental epigenetic programming. However, the precise effects of ART procedures on the epigenome, the mechanisms involved, and the ramifications for human health are far from being fully understood. We will discuss how the application of highly-sensitive next generation sequencing-based methods for assessing DNA methylation in small cell numbers has allowed a major leap in our understanding of the molecular biology of human preimplantation development. It is envisaged that this information, taken together with other methods of embryo assessment, will be useful for identifying and minimising any developmental consequences that ART may have on these critical developmental processes.

OP3.080

Outcomes of women referred to the perinatal mental health clinic during pregnancy over a three-year period

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Introduction: In Malta, there is very limited evidence on the impact of antenatal depressive, anxiety and adjustment disorders on perinatal outcomes. This study investigates the association between maternal depression, anxiety and adjustment disorders during pregnancy and the key perinatal variables and outcomes. These variables and outcomes include maternal age, nationality, parity, marital status, smoking, gestational age at delivery, singleton/twin, mode of induction, type of delivery, gender of infant, head circumference, birth weight, infant gestational age at delivery, infant mode of feeding at delivery, and infant outcome.

Methods: A retrospective cohort of mothers over a span of three years (2014 to 2017) was enumerated from routinely collected antenatal data of women referred to the perinatal mental health clinic to investigate the adverse perinatal outcomes associated with diagnosis of maternal depressive disorder, anxiety disorder and adjustment disorder during pregnancy. One hundred and thirty nine women out of 363 were diagnosed clinically with antenatal depression, anxiety and adjustment disorder and measured using the Edinburgh Postnatal Depression Scale (EPDS) and the Antenatal Risk Questionnaire (ANRQ).

The data collected of the 116 women in this study was linked to the National Obstetric Information System (NOIS) to determine associations between diagnosis of psychiatric disorder and maternal age, nationality, parity, marital status, smoking, gestational age at delivery, singleton/twin, mode of induction, type of delivery, gender of infant, head circumference, birth weight, infant gestational age at delivery, infant mode of feeding at delivery, infant outcome compared to the control obtained from the NOIS.

Results: From the above mentioned variables and outcomes, psychiatric diagnosis of depressive disorder, anxiety disorder and adjustment disorder was significantly

associated with having more than one child, are of a lower educational level and being single. No other significant association was found for the other variables.

Conclusion: From this study, it is highlighting the importance of identifying women that have more than one child, are of a lower educational level and being single as at a higher risk of having a depressive disorder, anxiety disorder and adjustment disorder.

OP3.081

Optimal gestational age for delivery in uncomplicated dichorionic twin pregnancies: a population-based review

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Introduction: Twin pregnancies are associated with increased fetal, perinatal and neonatal risks and complications when compared to their singleton counterparts. This is attributable to the higher incidence of preterm birth, lower birth weight and the associated physiological instability and lung immaturity of the infant. Preterm birth is a leading cause of death and complications in the neonatal period and one of the key causes for poor developmental outcomes in childhood. Gestational age at delivery is thus a key factor affecting neonatal outcome in twin pregnancies. Appropriate timing for delivery of twin pregnancies is a matter of acknowledging the dynamic balance that exists between in-utero foetal stillbirth risk and ex-utero neonatal risk.

Methods: A retrospective analysis of gestational age-specific neonatal morbidity and mortality data was performed for 254 uncomplicated dichorionic twin pregnancies. Outcome measures included 1st and 5th minute Apgar scores, NICU admission, RDS, TTN, sepsis, seizure, hyperbilirubinemia, hypoglycaemia, neonatal length of hospital stay, birthweight and overall outcome. After correcting for confounding variables by regression analysis, adverse variable trends were assessed in each of the gestational-age-at-birth groups.

Results: A significant drop in the incidence of LBW, RDS, TTN and hypoglycaemia, accompanied with the lowest NICU admission rate and neonatal length of hospital stay occurred concordantly at 38 completed weeks of gestation. The incidence of severe hyperbilirubinemia requiring phototherapy decreased significantly by 36 weeks. No correlation was found between advancing gestation and foetal, perinatal or neonatal mortality.

Conclusion: Elective delivery in uncomplicated dichorionic twin pregnancies should be delayed until at least 38 completed weeks of gestation as this significantly reduces neonatal morbidity with no impact on mortality.

OP3.082

Preterm birth in the Maltese cohort

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Introduction: Preterm birth, defined as birth occurring before 37 completed weeks of gestation, is a

major contributor to neonatal morbidity and mortality. Sequelae can include respiratory difficulties, a prolonged hospital stay and emotional and mental delays. Identifying and dealing with the risk factors can help in decreasing the incidence of these complications.

Methods: A retrospective analysis of preterm births occurring between 2007 and 2016 was undertaken. 3147 preterm births were analysed and a random sample of 9600 term births were included as controls. SPSS was used for data analysis, with a chi-squared test being used for categorical variables and an unpaired T-test for continuous ones. Logistic regression was also done to assess the relationships between the different variables.

Results: Infant outcome with regards to morbidity and mortality and risk factors for preterm birth were assessed. 67.6% of preterm births were either spontaneous in onset or due to pre-labour premature rupture of membranes. Infant morbidity and mortality were more likely to occur in the preterm cohort, with the effects being more pronounced the earlier the birth. Risk factors for preterm birth were found to include a lower BMI, smoking, previous preterm birth, infections during pregnancy, ante-partum haemorrhage, multiple gestation and artificial reproduction.

Conclusion: It is important to correctly identify patients who have risk factors for preterm birth and deal with them, ideally within the pre-conception period. It is also essential to avoid unnecessary inductions of labor or elective C-sections prior to 39 weeks of gestation.

OP3.083

Obstetric and Infant outcomes in mothers of Maltese and Non-Maltese Nationality – are there inequalities?

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Introduction: Due to the rapidly changing patterns of migration, the number of mothers of non-Maltese nationality has increased significantly over the past years. This study aims to describe and compare the obstetric and infant outcomes for mothers of Maltese and Non-Maltese nationality.

Methods: Routinely collected registry data for the ten-year period 2008-2017 was obtained from the National Obstetric Information System (NOIS) and analysed using Open-Epi software.

Results: There were 35,936 deliveries in Maltese mothers and 6,169 deliveries in Non-Maltese mothers between 2008-2017. Maltese mothers were significantly different from Non-Maltese mothers in age distribution, education, BMI and pre-pregnancy Diabetes Mellitus, with Maltese mothers being younger, having lower level of education, higher BMI scores and higher rates of pre-pregnancy diabetes. Non-Maltese mothers were significantly less likely to attend their first antenatal appointment in the first trimester of pregnancy and less likely to use assisted reproductive technology. Delivery by Caesarean Section was significantly higher in Non-Maltese mothers. There were no significant differences between Maltese and Non-

Maltese mothers in parity, multiplicity of pregnancy, mode of onset of delivery and rate of perineal lacerations. Infant outcomes including very low birth weight, prematurity, low 5-minute Apgar score and perinatal mortality were significantly worse in non-Maltese mothers. Infants of Non-Maltese mothers were significantly more likely to be breast fed at discharge from hospital.

Conclusion: Obstetric outcomes of mothers of Non-Maltese Nationality are different and infant outcomes generally poorer than those experienced by Maltese mothers, leading to health inequalities which need to be addressed. Further research to identify the particular nationalities that are at major disadvantage is warranted.

OP3.084

Long-term survival of Maltese patients with repaired secundum atrial septal defects

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Introduction: Secundum atrial septal defects (ASD) are one of the commonest congenital heart defects (CHD). ASDs associated with significant left-to-right shunts should be closed to reduce likelihood of right-ventricular failure, pulmonary hypertension and atrial arrhythmias. Several studies suggested a survival disadvantage for subjects with an ASD, despite successful closure. The present study is the first to investigate this phenomenon locally.

Methods: All patients with an ASD and history of successful surgical/percutaneous closure, born before 1998 were extracted from our institutional CHD-database at the end of 2013. Patients with missing notes/unverifiable history of closure were excluded. An age- and gender-matched general Maltese population control group (906 subjects-43.05%male) was generated. Mortality- data was obtained from the National Mortality Registry. Follow-up was performed till the end of 2016. Kaplan-Meier methodology was used to determine estimates-of-survival; log-rank test was applied to compare survival between subjects in the repaired ASD and general-population groups.

Results: 113 subjects (42.5%male) with repaired ASD included. 88 had surgical and 25 had percutaneous closure. Mean-age at repair: 16.19±14.08 years. Follow-up from repair ranged from 2.4-49.26 years, mean follow-up of 27.03±11.58 years. By the end of 2016, there were 5 deaths (cardiovascular=1) in the repaired-ASD cohort and 19 deaths (cardiovascular=4) in the control-cohort. There was a trend towards reduced survival for repaired ASD subjects (estimated mean survival 75.47 years-95%CI 71.82,79.11) when compared to matched controls (estimated mean survival 85.38 years-95%CI 82.16,88.60) ($p=0.072$).

Conclusion: Despite successful closure, subjects with a history of ASD appear to have a tendency for reduced long-term survival. Long-term follow-up is probably warranted, even if at less frequent intervals.

OP3.085

Neuromuscular Junction Defects in Models of Motor Neuron Disease

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Introduction: Motor neuron diseases are neurological disorders characterised primarily by degeneration of motor neurons in the brain and/or spinal cord. Patients present with weakness and wasting of muscles that culminates in often fatal motor dysfunction. Destruction of neuromuscular junctions, the point of contact between motor neurons and muscle, is thought to play a crucial role in the onset of spinal muscular atrophy (SMA) and amyotrophic lateral sclerosis (ALS), the two most common motor neuron diseases of infancy and adulthood, respectively. This raises the question of whether there is an overlap between the pathological pathways leading to SMA or ALS.

Results: Making use of the Drosophila model system, we investigated phenotypes resulting from disruption of key genes linked to ALS, including SOD1, TARDBP (TDP-43), FUS and C9orf72. Importantly, we determined whether phenotypes are enhanced in an SMA model. We particularly focused on identifying defects in the neuromuscular junction of fly models in which an ALS-linked gene was combined with an SMA-linked gene. We find genetic interactions for some but not all ALS-linked genes. Interaction is most probably indirect since physical association could not be demonstrated via yeast 2-hybrid analyses.

Conclusion: Our work suggests that perturbation of ALS-linked genes disrupts diverse pathways. Importantly, our results support convergence of pathogenic pathways leading to either ALS or SMA. Overlap between these two major motor neuron degenerative disorders raises the possibility that successful SMA therapeutics may be beneficial to a subset of ALS cases.

Disclosures: Work is funded by the University of Malta Research Fund.

OP3.086

Genetic testing for Granular Corneal Dystrophy type1 in Malta uncovers the causative variant in the transforming growth factor beta induced gene.

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Introduction: Granular corneal dystrophy (GCD) is a condition causing significant visual impairment. It is generally inherited in an autosomal dominant fashion and is phenotypically bilateral, non-inflammatory and progressive. Multiple allelic mutations in the transforming growth factor beta induced (TGFB1) gene produce various phenotypes. The aim of this research project was to determine the molecular genetics and mode of inheritance

present in a cohort of Maltese patients who are members of the same family that phenotypically exhibit GCD type1.

Methods: A complete ophthalmological examination of eight consenting Maltese individuals who have been clinically diagnosed with GCD was performed. Genomic DNA from all subjects was extracted from mouthwash samples. Gene sequencing of the TGFB1 gene was carried out to identify the mutation(s) present in these Maltese patients.

Results: Eight patients showed patterns of crumb-like corneal anterior stromal lesions. Five out of the eight samples collected were analysed. All the sequenced samples revealed a nucleotide missense mutation in chromosome 5q31, namely a nucleotide change of cytosine being replaced with thymine within exon 12. This caused the amino acid arginine to be replaced with tryptophan at codon 555. By analysing the family tree we could confirm the mode of inheritance. This was further confirmed by the sequencing results.

Conclusion: This study is the first genetic analysis study carried out on Maltese patients that phenotypically exhibit corneal dystrophy. This is the first stepping stone towards understanding the genetic variations present within our population, making it easier for clinicians to identify and provide proper management to subjects at risk.

Disclosures: Faculty Research Funding Committee, Faculty of Medicine and Surgery

OP3.087

Array-CGH analysis in patients with developmental delay, intellectual disability and congenital malformations.

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Introduction: Developmental delay, intellectual disability and congenital malformations have been linked to chromosomal abnormalities in several epidemiological studies. Array-CGH is a specific form of comparative genomic hybridisation which uses DNA microarrays that enable a locus-by-locus measure of CNV (copy number variant) with increased resolution, hence ideal to study the links between chromosomal abnormalities and clinical manifestations.

Methods: From 2007 to 2017, array-CGH was conducted on blood samples of 322 patients, including patients with developmental delay, intellectual disability and congenital malformations, and their parents where possible. The array-CGH report of each patient was reviewed, noting mainly the referral reason for array-CGH and the result of the report.

Results: Out of a total of 322 array-cgh results, 227 result (70.5%) were normal at the resolution used (60 K) while 95 results (29.5%) were abnormal. 55 of these abnormal results had a deletion mutation (57.8%), 31 had a duplication mutation (32.6%) and 5 had a translocation mutation (5.3%). 11 of the abnormal results (3.4%) showed the presence of a second abnormality. 10 patients had de novo mutations, six being clinically significant. The highest number of abnormalities occurred in chromosome 2, with 16 abnormal results being recorded on this chromosome,

followed by 11 abnormal results recorded on chromosome 15, 10 abnormal results on chromosome 22 and abnormal results on chromosome 8.

Conclusion: Array-CGH is recommended as the first-line diagnostic test in patients with unexplained developmental delay, congenital abnormalities and intellectual disability due to its high diagnostic accuracy in detecting CNVs that are clinically significant.

OP3.088

The Malta NGS Project: Identifying local disease-causing variants using high throughput sequencing

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Introduction: High throughput sequencing (HTS) has revolutionised genetics research and is finding widespread application in clinical diagnostics of Mendelian disorders greatly improving on the diagnostic sensitivity of traditional approaches. The Malta NGS project was designed to take advantage of the genetic history and composition of the Maltese population to identify novel disease-causing genes and mutations in a variety of conditions and disease.

Methods: Affected singletons, trios and families were recruited following approved ethical procedures in collaboration with clinicians from Mater Dei Hospital. Blood or saliva were collected and an interviewer led questionnaire was carried out. In total, 15 conditions both rare and common are being investigated. A candidate gene approach using a custom designed capture panel of 700 genes of interest, and whole exome sequencing were used to generate HTS data. Raw data was mapped to GrCh37 as paired-end libraries using NextGENe software. An in-house data analysis pipeline was set-up to shortlist potentially causative variants which were filtered against an in-house database of more than 100 HTS datasets.

Results: A number of variants which can be classified as pathogenic, likely pathogenic or influence the risk for the development of disease have been identified. Some of these are novel, not previously reported variants. A number of founder effects have also been identified.

Conclusion: HTS has been successfully used to identify causative mutations in a number of genetic conditions relevant to the Maltese population. This highlights the importance of studying the local population as many of our causative variants differ from the common northern European variants.

Disclosures: This work was carried out as part of a collaboration between the University of Malta and Mater Dei Hospital. It was supported by national funding through the R&I 2012 programme (NGS Project R&I-2012-024) administered by the Malta Council for Science and T

OP3.089

Progress report on familial hypercholesterolaemia in Malta 2018: the current situation and what needs to be done to improve it

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Introduction: FH is an autosomal dominant condition causing premature cardiovascular disease. It is underdiagnosed and undertreated worldwide-yet cost-effective treatment is available which should be started early to prevent disease progression. Expected Maltese prevalence is up to 1,700 individuals. National Premature Years of Life Lost under 65 years (PYLL-65) from cardiovascular disease is high, and FH a likely contributor. Moreover, Schedule V database has only 7 children listed as 'genetic dyslipidaemia' (expected number c.300). This represents a public health challenge to cardiologists, physicians, general practitioners and paediatricians.

Methods: A Register was established in 2017 as an observational study based on opportunistic testing, with Dutch Lipid Clinic Network phenotypic criteria for inclusion of index cases. Monitoring of progress and quality criteria is ongoing. Cascade testing uses lower LDL cut off points for family member identification.

Results: Less than 10% of potentially affected individuals have been identified; 96% of these are on statins, with 60% meeting LDL goals; most 'Definite cases' are not achieving target. One patient is on PCSK9 inhibition. Cascade testing has identified five cases to date.

Conclusion: Under 10% of affected patients have been identified on the register, with none under 18 years. Measures to raise awareness are ongoing, including presentations to various audiences. Outcomes could be improved through the formulary inclusion of ezetimibe, and PCSK9 inhibitors. Genetic testing would improve identification, facilitating the more accurate identification of children and their early management.

Disclosures: No direct funding was provided for this study. Sanofi has funded fees for consulting and lectures, and participation in seminars related to the area.12

OP3.090

A novel mutation in the human PDHA1 gene as a cause for X-linked hereditary episodic ataxia

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Introduction: Ataxia is a disorder which presents with varying degrees of loss of control of normal bodily movements. Although acquired ataxia may be encountered,

it is more commonly found as a hereditary condition. A wide array of genetic variants have been identified as the cause of each of the multiple subtypes of inherited ataxias. Several members of a particular two-generation Maltese family had been diagnosed with hereditary ataxia however little was known about the nature of the causative variant/s. The family history suggested an X-linked recessive pattern of inheritance.

Methods: This study aimed to profile the genetic variants responsible for this ailment in the affected family members by means of clinical exome sequencing coupled with bioinformatics analysis. Genomic DNA was extracted from clinical blood samples from all members of the family using the QIAamp DNA Mini Kit for the QIAGEN Qiacube automated extractor (QIAGEN, Hilden, Germany). A clinical exome sequencing panel was used to analyse the specimens using the TruSight One Sequencing Panel (Illumina, USA). This clinical exome panel targets 4,813 genes which are known to contain variants which cause clinically-relevant diseases and disorders (Illumina, n.d.). The libraries were loaded onto the Illumina MiSeq sequencer (Illumina, USA) in single 3-plex pools (3 samples per pool). Using the MiSeq Reporter software, the DNA sequence reads were aligned to the human hg19 reference genome and subsequently called any variants present. The raw VCF files produced contained the data around which the majority of the analysis was carried out.

Results: A missense variant in an alternative isoform of the PDHA1 gene on the X chromosome, p.T103A, was detected in both probands, their mother and 2 of her female relatives. The variant was not detected in any of the other study participants. Variants of the PDHA1 gene are associated with pyruvate dehydrogenase E1 deficiency (PDHAD) and X-linked Leigh syndrome. This variant was identified as the most likely causative variant upon correlation of the family history and clinical picture of the probands with the expected observations in these disorders.

Conclusion: This observation can only be confirmed once further studies are carried out. Once a definite diagnosis is established, efforts can be made to understand the mechanisms by which the variant is generating ataxia such that a cure, or more likely, a symptomatic treatment may be provided. Additionally, genetic counselling can be provided to guide future generations of this family line with regards to aspects of family planning and follow-up.

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OP3.091

Bystander CPR and outcome from out-of-hospital cardiac arrest in Malta

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Introduction: In Europe, approximately one person suffers a cardiac arrest every 45 seconds, totalling 350,000 per annum. In the majority of cases, cardiac arrest is fatal and <10% of 'out-of-hospital' (OOH) arrest survive to discharge from hospital. Since irreversible brain damage is established within just 3-4 minutes, survival is often associated with significant neurological disability and an inferior quality of life compared with their pre-arrest state. Around 80% of OOH arrests are witnessed by bystanders and prompt and effective cardiopulmonary resuscitation (CPR) ± defibrillation, if delivered within 1-2 minutes of cardiac arrest, may improve survival 3-4 fold or up to 60% of victims.

Methods: This study assessed OOH cardiac arrests in Malta from May 2016 – September 2017 from cardiac arrest records obtained from the ambulance control room/Accident and Emergency Department, and analysed the number of witnessed arrests, the number and type of bystander interventions, and the survival rate of 'victims' to discharge from hospital.

Results: During the 16 month study period, there were 148 OOH cardiac arrests of which 71% were witnessed by laypersons, and bystander intervention only occurred in 39.2% of cases, including bystander defibrillation in 8.8%. Of the total, 115 were brought to Accident and Emergency and, in 35 cases, resuscitation was discontinued on site. Of those hospitalised, ROSC was obtained in 25 patients, 7 of whom survived, resulting in a survival to discharge from hospital of just 6.1%.

Conclusion: In Malta, bystander intervention of 39% and 6.1% survival are both well below the ERC's goals of >80% and 60%, respectively. Furthermore, the quality of life of these survivors in Malta was not estimated. Greater efforts are required in CPR training and the use of AEDs of laypersons at a national level.

OP3.092

Quality of chest compressions by the Emergency Department staff at Mater Dei Hospital

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Introduction: High quality chest compressions are considered an important factor, influencing a patient's outcome during cardiopulmonary resuscitation (CPR). The purpose of this study was to describe the quality of chest compressions by healthcare professionals and highlight areas requiring improvement.

Methods: An observational study was performed on healthcare professionals working in the Emergency Department at Mater Dei Hospital, who could possibly need to perform CPR pre- or in-hospital. Participants were requested to perform a 2-minute cycle of continuous chest compressions on Resus Anne Q-CPR manikin with specific software to analyse the accuracy of hand positioning, depth, rate and overall efficiency.

Results: Out of a total of 247 eligible participants, 148 were assessed, 64% male, 36% female with the average age of 34 years. More than 91% accurate hand positioning was achieved by 79% of the participants. However, only 36.5% achieved an adequate depth of 5cm and 31.8% achieved the target rate of 110-120bpm, >91% of the examined time. An overall efficiency of >91% was only achieved by 22.3% of the participants. Note was made of the bimodal distribution of most of the data with peaks at the two extremes and very few participants with an average performance.

Conclusion: It is necessary that CPR training and assessments are done on a regular basis with emphasis on control of the compression rate, depth and recoil, as per accepted international guidelines, in order to improve the quality of chest compressions. It is hoped that this study will encourage further solutions to improve the original data obtained.

Disclosures: Software was lent by Malta Resus Council

OP3.093

Managing Septic Shock in the Mater Dei Hospital Emergency Department (ED) – are we following international guidelines?

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Introduction: “Surviving Sepsis Campaign” recommendations include early fluid resuscitation and antibiotic administration. The audit aim was to determine whether these standards of care are being met and identify where improvements can be made.

Methods: Data collected from patients admitted with septic shock between February-March 2018 included demographics, triage score, vital signs, time to fluids, antibiotics and blood cultures, qSOFA score and 30-day mortality.

Results: Of 105 patients, 61 were male. Mean age was 74 years. qSOFA was calculated for 67 patients in whom GCS was documented; only 6 scored the highest score, 3. Two patients needed ITU admission, both were triaged ESI-2. Average time to antibiotics was 183 minutes (95%CI 182.7 ± 33.3), 126 minutes in qSOFA-3 cases (95%CI 126 ± 57.3). Only 24.4% of patients with lactate >2 and 1 of the qSOFA-3s received antibiotics before 1 hour. A trend of shorter time to antibiotics with higher qSOFA score was seen, however this was not significant (p=0.281). Fluids were only given within the 1st hour in 53.6% of cases with systolic blood pressure <90mmHg. There was good correlation between triage score and qSOFA with none of those scoring 3 being triaged as low priority. 30-day mortality was 21.9%. There was a significant relationship

between mortality and both age (p=0.012) and qSOFA score (p=0.036). No correlation was found between mortality and early antibiotic administration.

Conclusion: Notwithstanding limitations, results confirmed delayed antibiotic and fluid administration. We recommend integration of qSOFA score at triage together with introduction of a sepsis pathway to improve outcomes.

OP3.094

Analysis of cardiopulmonary resuscitation (CPR) at Mater Dei Hospital: preliminary results

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Introduction: In this audit we analysed the characteristics, and estimated the outcome of in-hospital CPR at Mater Dei Hospital, Malta

Methods: Data on 544 adult patients for whom a CPR call was issued between January 2016 and December 2017 were retrospectively analysed. Information was retrieved from CPR log at Cardiac Care Unit (CCU) Ward. Neonatal Paediatric Intensive Care Unit, Catheterisation Lab, Intensive Care, Emergency Department and Operating Theatres were excluded as a CPR call is not normally usually initiated and do not recorded on the register.

Results: Out of the 544 CPR calls, 438 were sudden cardiopulmonary arrests and 91 were periarrest cases. Overall, immediate survival was 18% of those with cardiorespiratory arrests. 24% of the immediate survivors were alive at 24 hours, and 23% of them survived to 6 weeks or beyond. An important indicator for a successful outcome was the heart rhythm at the resuscitation team's arrival, with the presenting rhythm being shockable in 15% of the survivors and non-shockable in 72.5%. Rates of survival to hospital discharge associated with these rhythms were 58% and 21% respectively. 53% of the ROSC (Return of Spontaneous Circulation) cases occurred in cardiac wards and acute medical wards.

Conclusion: Audit results will help to act as a benchmark from which to assess the future impact of changes in service delivery and treatment of in-hospital cardiac arrests. Survival to hospital discharge rate is comparable to published literature.

OP3.095

Assessing Risk Factors for Carbapenem-Resistant Enterobacteriaceae Colonisation and Infection in Critically Ill Patients

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Introduction: Colonisation and/or systemic infections caused by multi-drug resistant organisms have increased over time. Therefore, it is critical to identify these organisms, and to prevent and control transmission of these bacteria. All patients admitted to Intensive Treatment Unit (ITU) at Mater Dei Hospital are screened for Carbapenem Resistant Enterobacteriaceae (CRE) via rectal swab, on admission

and weekly thereafter. The aim of this study was to identify factors that are likely to increase the risk for patients in critical care areas to acquire CRE.

Methods: The patients who had a positive CRE screen 48 hours after ITU admission from January 2018 till July 2018 were recruited in this study, and it was assumed that the CRE was acquired at ITU.

Results:

Conclusion: Several factors were analysed, such as admission APACHE score, presence of immunosuppression, length of stay in ITU, co-morbidities, recurrent hospital admissions, enteral nutrition, malnutrition, need for inotropic support, renal replacement therapy, interventions done, intubation days and antibiotic use during hospital admission. The outcome of each patient was also evaluated. The commonest organism found in our cohort of patients was *Klebsiella pneumoniae* (NDM carbapenemase-producing). Other organisms detected were *Klebsiella pneumoniae* (OXA-48 carbapenemase-producing) and *Escherichia coli* (OXA-48 carbapenemase-producing).

OP3.096

A retrospective analysis of outcome after tracheostomy insertion in ITU at Mater Dei Hospital

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Introduction: Patients in critical care may require tracheostomy insertion, which provides a number of advantages, including decreased use of sedatives, easier weaning from mechanical ventilation and decreased incidence of ventilator-associated pneumonia. However, such patients require dedicated care until decannulation of the tracheostomy. The aim of this study is to analyse outcomes of patients who required a tracheostomy in ITU, and were subsequently discharged out of ITU.

Methods: All patients admitted to ITU from January 2013 to December 2017 were studied: unfortunately, data from 2014 was incomplete. Demographic data obtained included age, gender, admission and discharge dates, insertion date of tracheostomy and length of duration with tracheostomy in ITU, and discharge location. The primary outcome was 30-day mortality. Other outcomes included 14-day and 1-year mortality, length of stay in ITU. Furthermore, a number of nurses in general and speciality wards were asked to fill in a questionnaire to assess their knowledge on tracheostomy care. Their results were compared to questionnaires given to ENT and ITU nurses.

Results: In the period studied, 213 (9.4%) patients in ITU required a tracheostomy. 18% of these patients died in ITU. From the remaining 174 patients, 93 (53.4%) of such patients were discharged to a ward. 30-day mortality in these patients was 14.8%. When analysed by ward, 14-day and 30-day mortality in the general wards was higher compared to areas routinely having patients with

tracheostomies (14d: 15.5% vs 6.0%, $p = 0.054$ / 30d: 19.7% vs 6.0%, $p = 0.00999$).

Conclusion: Mortality is higher for patients with tracheostomy cared for in a general ward. Reasons for this are varied, and will be discussed. A prospective study set-up involving these kind of tracheostomy patients may provide further validated information.

OP3.097

Opuntia ficus-indica a prickly situation during Summer

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Introduction: The *Opuntia ficus-indica* is a particularly problematic phytobezoar in the Maltese Islands during the summer months, causing anything from abdominal discomfort to severe constipation requiring general anaesthesia for manual disimpaction. Aim was to determine how many patients, ultimately reach the operating theatre followed by a literature review, to compare the situation and management with other clinical centres.

Methods: A retrospective review was performed in the local Surgical Department in Mater Dei Hospital Malta. The inclusion criterion was adults patients who underwent manual rectal disimpaction with general anaesthesia due to faecal impaction secondary to prickly pear ingestion in our emergency theatre. A literature search was performed.

Results: 23 patients (15(65%) males vs 8(35%) females) required emergency disimpaction under anaesthesia between August 2014 and August 2017. Age range was 23-74 years. The range of prickly pear ingestion ranged from 3 to 50 prickly pear fruits. No correlation between the amount of fruit ingestion and potential risk admission with large bowel obstruction was noted. No cases of small bowel obstruction were identified in the cohort of patients. Literature search revealed, only 3 reports directly focused on prickly pear bowel obstruction.

Conclusion: Education is a priority, given the popularity of the fruit result into a relatively common complaint during its peak period of August and September. Consensus agreement might be needed for management in the local setting.

OP4.098

The effect of maternal opioids on guardianship and development of neonates in the first three years of life

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Introduction: There have been few prospective longitudinal studies focusing on the effects of opioids on neonates born to Methadone Maintained or heroin dependent women especially in the developmental period following birth.

Methods: Using a prospective case series design (2012-2016) the effect of prenatal opioid exposure was investigated in order to assess development in the first 3 years after birth to determine whether children reached their milestones on time. Methadone Maintained (MMT) or heroin users in treatment were recruited to the study as

well as all their new-borns: children were monitored for 3 years. The women largely acted as their own control group but were compared to the general Maltese population of child-bearing women. Ethical consent was obtained from the Malta Medical School Ethical Board, from the University of Malta Ethical Board and from King's College Research Ethics committee.

Results: Sixty nine women were recruited and were significantly younger ($p<0.001$), single ($p<0.001$), multiparous ($p<0.001$), unemployed and poorly educated ($p<0.001$) than the general Maltese population. Most were prescribed methadone: mean methadone dose was 46.22 ± 28.51 mg/day. Doses in the third trimester were significantly higher than in the first trimester ($p<0.005$). There were 69 live births, mean birth weight (2843.40 ± 443.00 g) and mean head circumference (32.90 ± 1.61 cm) were significantly smaller than the general Maltese population ($p<0.001$); half (50.7%) were males, 18.8% were preterm. Seventy percent of the neonates were placed (at birth) with their biological mother, 26% were fostered and 4% institutionalised: by the 30 month assessment, 4% of those placed with their mother were removed (6/48 to an institution and 3/48 into foster care). Paediatricians diagnosed 7 neonates with autistic traits: the rate of autism (10.1%) was significantly higher than those in the general Maltese population ($p=0.031$, Z-score=2.165). At 3 years ($n=33$), children scored significantly lower in performance (i.e., the ability to do simple tasks) ($p<0.001$), hearing and language ($p<0.001$) and eye and hand coordination scales ($p<0.001$) using the Ruth-Griffiths scales.

Conclusion: Opioid use and its associated lifestyle had a significant impact on guardianship. Two-thirds of mothers lost their children at birth to alternative guardians and over 30 months children placed with their mothers initially were removed. Child development such as hearing and language, performance and eye and hand coordination skills was impacted regardless of parenting skills (opioids using parent or non-using carer) and environment (biological home, foster care or institution). Guardianship and the removal of care and custody from our subjects did not seem to alter the development of children following exposure to opioids. Other solutions are needed for this difficult to manage group

OP4.099

Neonatal acute kidney injury and follow-up for subsequent chronic kidney disease

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Introduction: Renal development continues until 34-36 weeks gestation. Risk factors for acute kidney injury (AKI) and chronic kidney disease (CKD) include prematurity that predisposes to FSGS, hypoxic-ischaemic encephalopathy (HIE), sepsis, nephrotoxic medications and suboptimal nutrition. Risk assessment and early recognition offers a window for targeted intervention. This study aimed to identify high-risk neonates for AKI.

Methods: All preterms admitted to NPICU <37 gestational weeks and term neonates with AKI and/or small-for-gestational age (SGA) during 2009 were included in this study. Gestational age, weight, diagnosis and creatinine levels on day 1, 3, 7 and for a longer period as available on iSoft were documented. Creatinine levels were plotted against time and compared to the norms. Long-term follow-up for high-risk cases was implemented.

Results: One hundred and thirty eight neonates were analysed: 107 were preterm and 31 term, of which 27 were SGA. Five preterms and 4 term neonates had AKI using the neonatal modified KDIGO criteria. Three preterms were <32 weeks gestation. None of the term SGA babies had evidence of AKI. HIE and fetomaternal haemorrhage caused AKI in the term neonates. 56/138 (41%) at-risk neonates had follow-up creatinine levels at >3months of age. 5/9 (56%) babies with neonatal AKI were followed up to 6 months of age and 4/9 (44%) for >1 year.

Conclusion: Preterms <32 weeks gestation are at a higher risk for AKI but 59% high-risk neonates did not receive long-term monitoring for CKD. This finding led to the establishment of a protocol to identify high-risk neonates with early referral and follow-up to paediatric nephrology.

OP4.100

Clinical presentation of neonates admitted to intensive care for suspected sepsis

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Introduction: Sepsis is an important cause of neonatal mortality and morbidity. Clinical presentation of neonatal sepsis can be very non-specific. We studied the clinical signs in neonates investigated for sepsis.

Methods: All neonates admitted to intensive care for suspected sepsis during 2013 were retrospectively included in this study. Records were obtained from the NPICU admission booklets for 2013, and from online electronic case summaries. Only neonates <28 days of age were included. The data collected included gender, gestational age, birth weight, mode of delivery, length of stay, presenting complaint on admission and blood culture results. Neonates were then grouped into those with confirmed and unconfirmed sepsis depending on the identification of a pathogen from their blood cultures.

Results: A total of 205 neonates were included in this study of who 43.4% were female. The median gestational age and birth weight were 37 weeks and 2.75kg respectively. Preterms, less than 37 weeks gestation, constituted 53.2% of the study population. The most common mode of delivery was normal vaginal delivery (38.1%), followed by emergency C-section (37.1%). Approximately one third of neonates had a low birth weight less than 2.5kg. The median length of stay was 9 days (range 0-192 days). The most common presentations of suspected sepsis were tachypnoea (30.9%), prematurity with tachypnoea (22.2%) and vomiting (12.1%). Positive blood cultures were identified in 9 neonates of which 8 were contaminated. One neonate had Group B streptococcal septicaemia.

Conclusion: Tachypnoea, especially when associated with prematurity, and vomiting are non-specific signs of sepsis in neonates.

OP4.101

Screening for developmental dysplasia of the hip in Malta

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Introduction: This study aims at identifying current practice regarding developmental dysplasia of the hip (DDH) screening and obtain the incidence of DDH in Malta.

Methods: Data pertaining to hip ultrasounds (US) for DDH screening in Malta between 2012 and 2016 was sourced from the general hospital electronic records. The following data about each patient was observed - gender, age at US, indication and result including Graf method for US classification.

Results: A total of 1,285 patients had a US booked for hip screening, 56.3% were female and 43.7% were male. One hundred and five (7.9%) failed to attend (FTA). Indications for hip screening were breech delivery (53.7%), click on examination (31.1%), a family history (FH) of DDH (3.6%), structural talipes equinovarus (TEV) (2.5%), multiple birth (1.3%), positive ortolani and barlow test (1.1%), abnormal skin creases (1.0%), and others (5.7%). From the US performed 93.2% had a Graf Type 1 (normal). 87 (6.8%) were found to have DDH (Female: 72.3%, Male: 28.7%, Left: 54%, Right: 20.7%, Bilateral: 23% undocumented: 2.3%). Forty eight percent were breech, 27.6% had a click on examination. Four (4.6%) did not have a repeat US to ensure hip maturity. Seventy seven resolved (5 with documented use of a pavlick harness). Six cases had persistent DDH (left hip:5, 1: bilateral, Female: 5, Male: 1, TEV: 3, Breech: 1, Click: 1, FH: 1).

Conclusion: The national incidence of early diagnosed DDH in Malta is 4 per 1000 live births. It is being envisaged that a set of national guidelines shall be developed, which result in a more effective screening procedure to identify those at risk and FTAs.

OP4.102

BCG vaccination in babies born to parents coming from high risk countries

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Introduction: The World Health Organization in its 2017 global tuberculosis (TB) report advises that in countries with a low incidence of TB, neonates born to parents coming from countries with a high TB burden

(>40 cases/100,000 persons per year), should be vaccinated with the Bacillus Calmette-Guérin (BCG) vaccine as soon as possible after birth. We aimed to assess the success of the current BCG vaccination programme in Malta.

Methods: Data were collected from January 2014 until December 2016 from the obstetric wards at Mater Dei Hospital (MDH), Malta, and from the Floriana Health Centre where the BCG vaccine was administered. The data were then analysed to assess the age when the BCG vaccine was being administered, the uptake rate and the main originating countries of those parents at high risk of TB.

Results: Over the three-year study period, there were 13,725 live births in MDH, of these 13.4% (1,785) were born to parents originating from countries at high risk of TB. The uptake of the vaccine in these babies was 71.7%, the mean age of vaccine administration was 94.6 days (95% CI: 90.4-98.7). Babies were more frequently born to parents coming from Libya (10.9%), Syria (8.3%), Bulgaria (6.6%), Russia (6.3%) and Somalia (5.4%).

Conclusion: In order to have a successful BCG vaccination programme more measures need to be in place to provide timely immunisation and increase the uptake of the BCG vaccine in babies born to parents coming from countries with high TB incidence rates.

OP4.103

Blood culture sensitivity in neonates with suspected sepsis

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Introduction: Although the gold standard diagnostic test for sepsis is a blood culture (BC), the yield of cultured organisms is relatively low and is affected by the blood volume inoculated, prenatal antibiotic use, level of bacteremia and laboratory capabilities. Physicians therefore rely on clinical signs and results of laboratory tests to confirm a diagnosis of sepsis. The primary aim of this study was to assess the sensitivity of BCs in neonates with suspected sepsis.

Methods: All neonates admitted to the NPICU at Mater Dei hospital between 2012-2017 with suspected sepsis were included in this retrospective study. The BC results and the first and second CRP, after an initial BC, were analysed.

Results: A total of 1,412 BCs were taken from 1,205 neonates. Organisms were isolated from 119 BCs (8.4%). However, only 69 of these (4.9%) were significant and not contaminants. Of the significant BCs, a high CRP was observed in 38, giving a positive predictive value of 57.9% (95% CI: 47.0%-68.2%). Furthermore, 1,293 (91.6%) BCs were negative, of which 105 were associated with a high CRP giving a sensitivity rate of 27.6% (95% CI: 20.5-35.7%). Of the 1,293 negative cultures, 483 were associated with a normal CRP, giving a specificity rate of 94.3% (95% CI: 92.0% - 96.2 %)

Conclusion: The number of neonates with suspected sepsis that could not be confirmed microbiologically

by blood cultures is high. Molecular diagnostics may be a useful tool to confirm the diagnosis and help in rationalising antibiotic regimes in these cases.

OP4.104

Hospital acquired bacterial conjunctivitis in neonates needing intensive care

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Introduction: Background: Bacterial conjunctivitis is one of the most frequent hospital-acquired infections in neonates, which if untreated, can lead to serious consequences such as blindness. However, it is less studied than potentially life-threatening infections. The aim of this study was to determine the incidence of hospital acquired bacterial conjunctivitis in the neonatal and paediatric Intensive Care Unit in Malta.

Methods: Data were collected retrospectively from patient records and laboratory databases from 2012 to 2017. The Centers for Disease Control/National Healthcare Safety Network (CDC/NHSN) diagnostic criteria were used to define hospital-acquired conjunctivitis in neonates who acquired the infection >48 hours after admission to intensive care.

Results: Hospital-acquired bacterial conjunctivitis was diagnosed in 33% ($n=120$) of 368 neonates and children who had a conjunctival swab taken during the 5 year study period. Most of the episodes were in neonates (68%), with a mean age of 26 days. The mean annual incidence of conjunctivitis was 6.72/100 admissions to NPICU. The predominant pathogens were *Staphylococcus aureus* (37%), *Serratia marcescens* (12%), *Enterococcus faecalis* (7.5%), and *Escherichia coli* (6%). Only two pathogens were multiresistant from the 125 isolates, one being ESBL positive and the other being carbapenemase positive. Analysis of the antibiogram showed that 93% of isolates were sensitive to gentamicin making this antibiotic the first line choice for empiric topical treatment for hospital acquired conjunctivitis.

Conclusion: Hospital-acquired bacterial conjunctivitis is an infection that may be prevented by implementing appropriate infection control measures.

OP4.105

An evaluation of the conservative management of fractures with plaster in primary care

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Introduction: Fracture management still remains a grey area in primary care internationally. In Malta, conservative fracture management operates as the Plaster Slab Service, a service which has never been evaluated. The purpose of this study is to assess this service in Mosta Health Centre (MHC) – the only polyclinic with a 24/7 X-ray service. The objective is to find common trends and to increase primary care awareness on conservative fracture management.

Methods: In this cross-sectional study, all patients who had a plaster cast done at MHC between August and December 2017, were included. Data taken retrospectively included demographic data (age, gender, locality), time of application, type of injury and plaster, problems related to the slab and wound healing as well as whether a repeat X-ray was taken.

Results: Most plaster casts were required for the younger age group with another peak in the 60 to 70 age group. Younger patients showed a significantly increased risk of having a scaphoid or radial fracture. There was a significant link between patients' locality and time of presentation. Only 44.6% of scaphoid fractures had a repeat X-ray done as follow-up. Complications to fracture healing amounted to 1% whilst 5% had problems with the cast.

Conclusion: The results of this study are discussed and compared to existing studies. They show that primary care is capable of caring for a wide range of fractures with promising results. There is still space for improvement. This should be taken as an incentive to adhere to guidelines and evaluate more services in other practices.

OP4.106

Acetabular liners with focal constraint in revision total hip replacement

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Introduction: Compared to the primary procedure, revision total hip replacement (THR) is associated with an increased risk of dislocation and loosening. Constrained acetabular liners improve femoral head coverage with an aim to decrease the risk of dislocation but lead to a reduced primary arc which may lead to loosening. Suggested advantages of acetabular liners with focal constraint are to decrease the risk of dislocation by having elevated rims, whilst maintaining an adequate range of movement due to rim cutouts. The aim of this study was to assess the outcome of patients who had a revision THR using the Longevity HXPE (highly crosslinked polyethylene) Constrained Liner, and whether this implant was associated with an increased risk of dislocation or early failure.

Methods: We retrospectively reviewed the records of all patients who underwent revision THR using Longevity Constrained Liners at the Nuffield Orthopaedic Centre in Oxford between August 2012 till December 2016. The follow-up period ranged from 13 months to 5.5 years.

Results: There were 64 revision THRs using these liners, in 60 patients. The indications for use of this implant were recurrent dislocations ($n=40$), peri-prosthetic fractures ($n=16$), and for instability combined with other factors ($n=10$). Five required re-revision THR after the use of the focally restrained liner, for infection ($n=4$), and peri-prosthetic fracture ($n=1$). There were no recorded dislocations at the time of data review.

Conclusion: The Longevity Constrained Liner implant is associated with a decreased risk of dislocation in patients who have had revision THR.

OP4.107

The centre of rotation of the femoral head being below the tip of the greater trochanter on the pre-op ap radiograph is an independent risk factor for leg length discrepancy

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Introduction: Anatomically reproducing the centre of rotation of the femoral head (COFH) and subsequently ensuring restoration of leg length during total hip arthroplasty surgery can be challenging. Most surgeons use the tip of the greater trochanter (GT) as a reference point for achieving this after pre-operative planning, and previous studies (Theivendran, 2009) have suggested this is reliable. However, the evidence for this is inconclusive. We aimed to determine whether or not using the tip of the GT to estimate the COFH is an independent risk factor for leg length discrepancy post-operatively.

Methods: We retrospectively analysed pre- and post-operative radiographs for primary total hip replacements performed in our unit over a 64-month period. In all radiographs, the centre of rotation of the femoral head (or prosthetic head, post-op) and its relation to the tip of the GT was established and patients were grouped according to pre-operative COFH (positive [POS-COFH], negative [NEG-COFH] or neutral [NEUT-COFH] in relation to the GT). Pre- and post-operative length lengths were measured using the method described by Woolson (1999) for both the operated and non-operated leg.

Results: A total of 632 patients were identified. Sixty nine were excluded due to inadequate clinical information. There were 242 males and 321 females with a mean age of 69.3 years. Forty one were POS-COFH, 462 were NEG-COFH and 60 were NEUT-COFH pre-operative. The proportion of patients who were lengthened greater than 0.5cm in the NEG-COFH group was 66%, compared to 38% in NEUT-COFH and 11% in POS-COFH. This represents a strong statistically significant difference. It is also in the numerically largest group, NEG-COFH.

Conclusion: Identifying that the COFH lies below the tip of the GT on the pre-operative radiograph is a simple and independent risk factor that is associated with an unacceptable degree of limb length discrepancy (lengthening). We recommend that with this information, the surgeon can be alerted to pay close attention the prosthetic femoral stem on insertion (and reproduce a COFH that is below the tip of the GT), potentially reducing limb lengthening and the poor clinical outcome associated, as well as avoiding litigation.

OP4.108

Adjacent joint arthritis progression and arthrodesis risk after first metatarsophalangeal joint arthrodesis, a 10 year follow-up study

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Introduction: Hallux rigidus is a degenerative condition of the first metatarsophalangeal (MTP) joint. Arthrodesis remains the gold standard for advanced stage symptomatic hallux rigidus. Based on several ankle arthrodesis studies, it is well known that adjacent joints are put under more stress leading to secondary osteoarthritis. However, the direct association between first MTPJ arthrodesis and the progression of adjacent joint arthrosis remains unclear.

Methods: Using a retrospective study design, all patients undergoing first MTP joint arthrodesis for idiopathic hallux valgus from 2003 to 2008 were identified from our regional centre in south Wales. Data was obtained from our institution's electronic clinical workstation which included demographic information, radiographs and clinical letters. A telephone survey with a pre-determined written script to determine whether they had pain in either their IPJ or mid foot joints in patients who had no follow-up

Results: A total of 154 MTPJ fusions for idiopathic hallux valgus were included with a complete 10 year follow-up. There was a 3:1 female to male ratio, with an average age at time of operation being 63 (27-83.) A total of 19 (12%) of patients had confirmed adjacent foot pain, with 12 patients with confirmed IPJ OA and 7 patients with 1st TMTJ OA. Five patients required operative treatment in the form of IPJ fusion or 1st TMTJ fusion. In our series a total of 17 patient required removal of metalwork.

Conclusion: This study provides evidence of a 12% risk of developing adjacent joint arthritis following first MTPJ fusion.

OP4.109

Negative Poisson's ratios in tendons: an unexpected mechanical response

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Introduction: Tendons are visco-elastic structures that connect bones to muscles and perform the basic function of force transfer to and from the skeleton. They are essential for positioning as well as energy storage when involved in more abrupt movements such as jumping. Tendons display a crimped or helical structure histologically.

Methods: *Ex vivo* experiments were carried out on a number of tendons: human, pig and sheep in origin.

Tendons were clamped using Fessel-style clamps and the Poisson's ratios tested using a tensile loading machine with a camera video-extensometer following a pre-conditioning step. *In vivo* experiments were carried out on the left leg Achilles tendon of two individuals, using Magnetic Resonance Imaging (MRI) in conjunction with a dedicated ankle/foot quadrature coil.

Results: Through *in vivo* and *ex vivo* tests, we show that healthy tendons are highly anisotropic and behave in a very unconventional manner when stretched, exhibiting a negative Poisson's ratio (auxeticity) in some planes when stretched up to 2% along their length, i.e. within their normal range of motion.

Conclusion: We report that human tendons including the Achilles tendons exhibit the a negative Poisson's ratio (auxetic) meaning that they get fatter rather than thinner when stretched, for strains which correspond to those experienced during most normal everyday activities. We also show that this property is present across various mammalian species. Since the Poisson's ratio is highly dependent on the material's microstructure, which may be lost if tendons are damaged or diseased, this property may provide a suitable diagnostic tool to assess tendon health.

OP4.110

An evaluation of infection rates after spinal surgery in Malta – a 7-year audit

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Introduction: Surgical site infection following spinal surgery remains a dreaded complication and is recognised as a major cause of patient morbidity and an enormous economic burden on the healthcare system. This audit is the first of its kind in Mater Dei Hospital since introducing a specialised unit in spinal surgery in 2010. The number and type of open spinal surgeries, as well as the number of wound infections after spinal surgery are evaluated.

Methods: Data was collected retrospectively on patients who underwent open spinal surgery in the Orthopaedics department between the years 2010 and 2017. The data compiled includes patient demographic data, the type of spinal surgery, spinal level of surgery, use of implant and wound swab cultures.

Results: Six hundred and thirty two open spinal surgeries were carried out. Wound swabs taken post-operatively following clinical suspicion of wound infection were evaluated and the type of organism cultured was recorded. Files of such positive wound swab cultures are gathered to determine whether the wound site infection is superficially- or deeply-sited, and whether other known risk factors come into play.

Conclusion: This audit assesses local infection rates after open spinal surgery and is compared to other centres in the published literature. We hope that this increases local awareness about post-operative wound infection following spinal surgeries to allow for early targeted therapy.

OP4.111

Guided Growth using “eight-Plates” (Orthofix®) for knee coronal plane deformity correction

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Introduction: Deviations along the coronal or sagittal planes of the lower limbs are common presenting complaints in paediatric orthopaedic clinics. Physiological deformities are usually mild and tend to involve both lower limbs symmetrically. These can be considered normal variations and are usually managed expectantly. Deformities that are severe and asymmetric tend to be cosmetically unappealing, may lead to functional limitations and possibly early onset osteoarthritis. In view of this, surgical correction is indicated in the majority of such cases. Corrective osteotomy has classically been employed to treat such pathologic deformities - it is a major reconstructive procedure associated with significant morbidity. Guided growth or growth modulation, is a relatively recent technique whereby the physis in skeletally immature children is tethered with a plate on the convex side of the deformity thereby allowing differential growth and angular deformity correction. Owing to its relatively recent introduction, literature relating to its efficacy is still being published.

Methods: We retrospectively reviewed 22 guided growth procedures, from 2008 till 2017, using “eight-Plates” (Orthofix®). These were performed for coronal plane deformities about the knee and by a single surgeon. Radiological results were compared using leg length views on Centricity Universal Viewer®. Both pre- and post-operative films were assessed for each patient and the mechanical axis, medial proximal tibial angle and the lateral distal femoral angle were measured. Functional outcome was also measured using the Knee Society Score, Harris Hip Score and Lower Extremity Functional Scale. These questionnaires were aimed at investigating whether the surgery met the expectations of the child and the parents.¹⁰

Conclusion: Guided growth using “eight-Plates” (Orthofix®) for the correction of coronal plane lower limb deformities gives good, predictable radiologic and functional results.

OP4.112**L-glutamate delays aspirin-induced apoptosis of redox-compromised yeast cells by restoring the GSH/GSSG ratio and the mitochondrial respiratory rate**

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Introduction: We showed that aspirin induces apoptosis in *Saccharomyces cerevisiae* EG110 cells deficient in manganese superoxide dismutase (MnSOD) cultivated in ethanol medium, but not in wild-type EG103 cells. Our microarray study revealed an aspirin-induced downregulation of *SNO1* and *SNZ1* in the mutant strain. Together, these genes encode a glutamine amidotransferase complex that produces glutamate: a key metabolite involved in synthesising the antioxidant glutathione (GSH) and the tricarboxylic acid (TCA) cycle intermediate, α -ketoglutarate.

Methods: Upon confirmation of gene expression by RT-qPCR, the growth of aspirin-treated EG110 cells supplemented with L-glutamate was monitored via optical density measurements (OD600). The effect of glutamate was confirmed by viability studies, based on colony forming units (CFUs) and flow-cytometric analysis. Further experiments involved the measurement of intracellular GSH and GSSG levels, as well as respirometry measurements.

Results: We observed that aspirin-induced apoptosis of EG110 cells is significantly delayed by the addition of 200mM L-glutamate. Furthermore, we show that this rescuing effect is due to a restored GSH/GSSG ratio, as well as a restored mitochondrial respiratory rate.

Conclusion: The influence of aspirin on glutamate metabolism in our redox-compromised cells, suggests that their death is preceded by redox imbalance, as shown by a lowered GSH/GSSG ratio and oxidative stress accompanied by decreased respiratory rate. Rescuing by exogenous glutamate is likely mediated by increased synthesis of cellular GSH and the anaplerotic supply of α -ketoglutarate to the TCA cycle. This aspirin-induced effect on glutamate metabolism may help us better understand the antineoplastic effect of aspirin on early-stage cancer cells which are also redox-compromised.

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OP4.113**Tracing Maltese genetic origins**

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Introduction: Malta has a rich demographic history. Historical records trace population origins to the Temple people. However, contemporary Maltese are descendants from those who re-populated the islands at the turn of the first millennium AD.

Methods: Maltese mitochondrial DNA (mtDNA) and Y chromosome data are not publicly available. High-quality datasets were generated to evaluate Maltese lineages: mtDNA control region (CR) and Y-STR chromosome markers. A total of 798 samples were collected randomly Maltese mitochondrial DNA (mtDNA) and Y chromosome data are not publicly available. High-quality datasets were generated to evaluate Maltese lineages: mtDNA control region (CR) and Y-STR chromosome markers. A total of 798 samples were collected randomly with associated ancestry data from Malta and Gozo. The dataset is archived in the Malta BioBank (BBMRI.mt). The EMPOP protocol was used to amplify and sequence a subset of 300 samples with a minimum of four EMPOP sequencing primers. mtDNA haplotypes were checked on EMPOP and Phylotree and haplogroup frequencies were calculated. The PowerPlex[®] Y23 system was used to analyse 400 unrelated males. NevGen was used to predict Y-STR haplogroups. SNP analysis by HRM was used to confirm Y haplogroups.

Results: The major Maltese mtDNAs and Y haplogroups could be attributed to West Eurasian haplogroups. mtDNA: H (35%), T (18%), K (12%), J (5%), U (5%), X (1%), W (1%); predicted Y chromosome clades: R1 (29%), J2 (22%), E1b1b (12%), G (12%), and I (10%). African mtDNA lineages were also present: L1 (0.4%), L2 (10%), L3 (1%), M1 (0.4%).

Conclusion: The genetic profile obtained from the population of Malta and Gozo provides a first insight into the origins of the Maltese. The datasets can be used as the first national reference database for mtDNA and Y chromosome applications in forensic and population genetic studies.

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OP4.114

Demographic data on chronic pain referrals in Mater Dei Hospital, Malta

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Introduction: Literature on the epidemiology and demographic data on patients referred to the chronic pain clinic at Mater Dei Hospital (MDH) is lacking. A pilot study to analyse such data was done. The aim of this prospective study was to determine the demographic details of patients being referred to the chronic pain outpatient clinic via a ticket of referral over a period of two months. The primary aim was to evaluate the basic picture of the current trends in the Maltese population referred for consultation under the care of one specialist pain consultant.

Methods: The prospective study included analysis of tickets of referrals sent to the MDH pain clinic in February and March in 2017. A template was prepared with the necessary data. Data collection included referrals for non-cancer related pain, age, gender, locality, referring doctor and presenting complaint all obtained from the ticket of referral.

Results: Eighty two cases were eligible for analysis. Females were the majority of these cases ($n=48$; 59%). The average age of patients referred was that of 56 years (ranging between 23 to 86 years). Localities were classified into districts following the National Statistics Office district categories. This showed that the majority of patients were from the Northern Harbour District (26%), followed by the Southern Harbour District and South Eastern District (21% respectively). Thirteen percent were from the Western District and 12% from the Northern District. Seven percent were from Gozo. The reason for referral were several. The vast majority of patients were referred for chronic low back pain (46%). Shoulder pain and other forms of back pain (neck and thoracic pain) were also common, accounting for 10% of requests respectively. Other complaints included foot and leg pain, sciatica, buttock pain, periauricular pain, periscapular pain, chest pain and fibromyalgia. Five percent had multiple pain complaints while only 2% were referred due to post-operative pain.

Conclusion: The lack of referrals for common causes of pain such as gynaecological pain, post-operative pain and neuropathies indicates lacunae with regards to referrals from these specialities. Further knowledge on the epidemiology and patterns in Chronic Pain among the Maltese population is needed. This study will be followed up by looking into why referrals from other common cause of chronic pain are not being referred to the Pain Clinic at MDH.

OP4.115

The influence of anaesthesia and genetic factors on the outcomes following Total Knee Arthroplasty

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Introduction: Around one-third of patients who have undergone a Total Knee Arthroplasty (TKA) will suffer from chronic pain, which could be due to perioperative causes, or due to genetic factors. This research investigates the influence of anaesthesia and genetic factors on acute and chronic pain after a TKA.

Methods: In this single-blinded randomised study, patients completed a baseline Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC). They were then randomised to receive either a general anaesthetic (Group GA), or a spinal anaesthetic (Group SP). A blood sample was taken in the perioperative phase for genetic profiling. A standard postoperative analgesic plan was used for all patients. Patients were followed up for 24 hours, and again at three and at six months by a telephone interview. The primary outcome was difference in WOMAC after 6 months between GA and SP. Genetic analysis of 20 SNPs over 6 genes will be done.

Results: A total of 200 patients were recruited, with 101 patients in Group GA and 99 in Group SP. The NRS at rest on day 1 postoperatively was 2.7, which increased to 5.0 during physiotherapy. The mean morphine consumption was 11.6mg over the first 24 hours, with patients in Group SP requiring significantly less morphine (6.9mg vs 16.2mg; $p<0.001$). Patients in the Group SP showed a greater decrease in WOMAC at 3 months (28.5 vs 22.6; $p=0.024$, $n=175$), and at six months (26.1 vs 22.9; $p=0.25$, $n=112$). Genetic profiling of the patients using realtime PCR is still ongoing.

Conclusion: Spinal anaesthesia may not influence outcomes at 24 hours, but may have a long-lasting effect. The role of genetic factors in outcomes after surgery is still under investigation.

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OP4.116

Investigation of renal colic using CT KUB: an audit on local practice

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Introduction: Computed tomography of kidneys, ureters and bladder (CT KUB) is the investigation of choice when investigating renal colic. Latest Royal College of Radiologists' standard state that CT KUB should detect calculi in 44-64% of patients, with alternate diagnosis noted in a further 6-18%. The objective of this audit was to determine the local rate of positive CT KUB and analyse our practice accordingly.

Methods: A retrospective survey of 275 patients who presented to the Department of Accident and Emergency at Mater Dei Hospital (MDH) during the months of April and July 2015 and who were investigated with a CT KUB were included in the audit. Data including CT KUB indication, results and urinalysis were acquired from iSoft system at MDH.

Results: The rate of positive CT KUBs confirming nephrolithiasis during these two months was 48.2%, 14.2% had an alternative diagnosis identified while 37.6% had no acute pathology detected. The amount of normal CT KUBs was higher in females (54.2%) than in males (24.7%). Patients with an alternative diagnosis detected on CT KUB were of an older age group when compared to the others. In patients with diagnosed ureteric stones, 71.4% had concomitant haematuria whilst 8.9% had normal urinalysis and the rest had no documented urinalysis.

Conclusion: The use of CT KUBs in our hospital correlates well with international guidelines. An incongruity in the amount of normal CT KUBs between females and males was identified and encourages further investigation, pushing forward considerations for assessing these patients primarily using ultrasound, in order to identify hydronephrosis prior to requesting radiation imaging.

OP4.117

Audit on surgical admissions to Intensive Therapy Unit (ITU)

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Introduction: Level 3 care involves nurse-to-patient ratio of 1:1. This definition holds in most specialised centres but it can be a challenge in a main general hospital with limited bed space. This audit was carried out to assess the nature of surgical admissions to ITU at Mater Dei Hospital.

Methods: All surgical patients admitted to ITU over the span of 3 months were included ($n=173$). Demographic details and reasons for admission were documented. The American Society of Anaesthetists (ASA) score was recorded together with outcomes following ITU stay.

Results: Total of 173 patients (116 males) having a mean age of 61.2 years. A total of 47% ($n=82$) were elective admissions; 68% ($n=117$) were admitted after a surgical procedure. The cumulative number of ITU days occupied by surgical patients was 589 days, or 6.5 beds per day for surgical patients with a mean ITU stay of 3.3 days. The most common ASA score was 3 ($n=73$). Forty three percent ($n=75$) required single organ support. Few others were admitted as routine post-operative cases and required non-invasive monitoring.

Conclusion: There is a clear mix of patients with varying physiological reserve being cared for in ITU. Those who are not fit for a normal ward but do not have the criteria for intensive care may benefit from admission to a Surgical High Dependency Unit (level 2). This will help relieve the shortage of ITU bed space that is sometimes present with a sudden influx of multiple emergency admissions, without compromising healthcare delivery to selected patients.

OP4.118

Intensive Therapy Unit discharge and follow-up audit, 2016.

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Introduction: Patients discharged from the Intensive Therapy unit (ITU) undergo a stepping down of care upon transfer to other wards. This involves a significant decrease in monitoring and a lower nurse to patient ratio. This study seeks to ascertain the quality of stepping down care in the first twenty-four hours following discharge from ITU to general wards at Mater Dei Hospital (MDH) in June 2016.

Methods: Sixty-two consecutive patients discharged from ITU to general wards at MDH were recruited during June 2016. A proforma was utilised. Data about patient demographics, mean lag time for first parameter charting in the ward, frequency of vital parameter charting, and time and grade of medical officer performing the first review following ITU discharge were collected retrospectively. The data was coded and analysed using MS Excel.

Results: The majority of patients (72.6%) were transferred to surgical wards. The mean lag time between the last parameter charted in ITU and first entry in the ward's nursing report was 30 minutes in acute wards, 54 minutes in medical wards and 71 minutes in surgical wards. The most common frequency of vital parameter charting was 4 hourly. Twenty-nine patients were first reviewed the next day following discharge. Only a third of the cohort ($n=20$) were first reviewed by a consultant, during the daily morning round of the day following ITU discharge.

Conclusion: Our study highlights a number of lacunas in both nursing and medical care provided during the step down of patients following their discharge from ITU to general wards.

OP4.119

The importance of oral health education in patients receiving orthodontic treatment in Malta

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Introduction: Evaluation of the effectiveness of a well targeted educational campaign specially designed towards the improvement of oral health, and maintenance of removable orthodontic appliances should be considered during an orthodontic treatment.

Methods: The study involved 40 patients who were equally assigned to the intervention and control removable orthodontic treatment groups. Data was collected by means of questionnaires, soft-tissue examination, breath checker, and staining the appliance with methylene blue disclosing solution.

Results: The plaque score of both groups at Review 2 emphasized a significant difference ($p=0.021$), yet no differences at baseline ($p=0.989$) nor Review 1 ($p=0.786$) were found. The odour score of both groups at Review 2

showed a significant difference ($p=0.012$). All interventional patients and only 10% of the control group patients were aware of appliance removal during sport. There was no significant difference ($p=0.211$) between the responses of patients concerning the cleaning method of the appliance. The patients showed a higher user rate of mouthwash, and they were more successful with respect to when it should be used.

Conclusion: The educational campaign proved to be effective in improving the participants oral health status, and oral hygiene procedures.

OP4.120

The Malta HIV Cohort

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Introduction: By the end of 2017 there were 36.9 million people living with Human immunodeficiency virus (HIV) worldwide. Estimated new HIV infections have been decreasing globally since 2010, but despite this, 1.8 million people were newly infected with HIV in 2017 alone. HIV is still one of the most important communicable diseases in Europe. In this study of the Malta HIV Cohort, we aim to have a better understanding of the epidemiology, identify the local key population groups and compare the effectiveness of clinical interventions with the UNAIDS 90-90-90 targets.

Methods: For this study, we recruited all patients that made contact with Malta HIV clinic since 1996. Demographic and clinical data was collected and analysed.

Results: Since the beginning of the HIV clinic in 1996, 525 patients have made contact with the service. By the end of 2017, 331 patients were actively attending the clinic. The vast majority of the patients (76%) are males and 42% of the patients are Maltese. Fifty percent of the patients are homosexual, 46% heterosexual and the remaining 4% have acquired HIV through intravenous drug use, mother-to-child transmission or administration of infected blood products. More than 98% of the patients are on anti-retroviral therapy with 88% having viral suppression by the end of 2017. In 2017, 46% of patients presented with CD4 count of <350 and 27% had advanced HIV with CD4 <200 .

Conclusion: HIV infection in Malta is most prevalent in males and homosexuals. The majority of patients presenting to the clinic are early presenters, but a significant proportion still present late. Almost all patients are on treatment with viral suppression almost reaching UNAIDS targets. Improvements in prevention interventions are recommended to lessen transmission and detect the disease earlier.

OP4.121

Establishment of a Home Antibiotic Therapy service at Mater Dei Hospital – a description of the service and its users

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Introduction: An increasing proportion of patient needing intravenous antibiotics in hospital are relatively well and no longer need inpatient care. Many can be safely

discharged if antibiotics are administered at their homes. Outpatient intravenous antibiotic services have become an essential part of most modern healthcare systems. The advent of long-lived safe Intravenous access devices such as peripherally inserted central catheters (PICC) are an asset to improving patient comfort and reducing unnecessary phlebotomy.

Methods: The Home Antibiotic Therapy (HAT) service in Mater Dei Hospital (MDH) was started in 2016 with the recruitment of a motivated nursing team that makes part of the Discharge Liaison Team of the same hospital. They underwent a brief internship with an established Outpatient Antibiotic Service in the UK and training in the care of vascular access devices. An efficient vascular access service was set up by the medical imaging department and a dedicated clinic was set up for following up patients on the HAT service. We will describe the first 62 patients that have made use of this service.

Results: Sixty two patients have been enrolled in the service between November 2016 and July 2018. Durations of antibiotics have ranged between 4 and 60 days (mean 27 days) - a total of 1,627 patient days. The commonest indication for HAT was Diabetic Foot osteomyelitis ($n=18$) followed by patients with various abdominal collections ($n=8$) and infective endocarditis ($n=6$). Antibiotics tend to be once or twice daily agents namely ceftriaxone, ceftazidime, ertapenem, teicoplanin and tigecycline. Adverse events have been few with only 2 patients having line-related venous thrombosis and no episodes of line related sepsis so far.

Conclusion: HAT is an effective way to reduce hospital stays and thus nosocomial complications. There is scope for expanding the service by including patients with a shorter duration of antibiotics.

OP4.122

Primary health care reforms in Malta: an analysis of the policy process

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Introduction: The World Health Organisation has repeatedly encouraged the development of primary care, viewed as an essential component for health systems to fulfil their core objectives. However, the Maltese health system is to date relatively weak in terms of primary care performance. Historically, several initiatives to reform the Maltese primary care system yielded limited results. The purpose of this study is to analyse the local policy-making process in primary care spanning the last six decades.

Methods: This qualitative case study employed a snowball sampling technique. A self-designed tool was utilised to conduct semi-structured interviews. Triangulation of results was achieved through documentary analyses. Seventeen interviews were conducted yielding a response rate of 81%.

Results: A new conceptual framework based on Kingdon's theory combined with an inspired concept of actors from Sabatier's theory was devised as the analytical framework. The attempted reforms studied include: the 1987-1993 family doctor scheme, the 1999 proposals in improving primary care services, the 2008-2010 doctor of your choice scheme and the 2013 public sector contractual agreement. The main focus of attempted local reforms revolved around implementing a patient registration scheme in order to introduce a gatekeeping role. Despite being very close in achieving such a system in the 1987-1993 initiative, all these efforts were futile and such a system was never implemented. Moreover, participants elicited how the ten-year medical-political dispute influenced all subsequent primary care policy negotiations. The sensitive nature of health in a locally highly charged political context was perceived to have dominantly shaped primary care policy-making throughout the years. Findings further revealed how different stakeholders shifted ground between one attempt at reform and another, highlighting the relationship of veto players in policy-making processes.

Conclusion: This is the first study of its kind to have been attempted locally. The obstacles in reforming the Maltese primary care setting are mainly perceived to be political and financial factors. Interviewees suggested the importance of formulating policy according to local contextual needs and circumstances rather than based on what is observed in other countries. The importance of creating and implementing gradual, subtle changes was emphasised in order to minimise resistance. It is recommended that promoting public involvement and aiming for innovative approaches to render the sector attractive for young newly qualified doctors who seem to hold the potential for future improvements in the Maltese primary care sector, are actions that should be pursued. Hence, key implications suggest to meticulously include all stakeholders from initial policy formation stages and to invest more efforts in long-term, culturally and contextually appropriate sustainable policy goals.

OP4.123

Structured physical education – an answer to obesity crisis?

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Introduction: Malta is currently struggling through a childhood obesity epidemic, having the highest overweight and obesity rates in Europe and North America. The enrolment of schools to provide adequate levels of moderate-to-vigorous physical activity (MVPA) levels during physical education (PE) lessons, through a structured PE curriculum, has not yet been studied in Malta.

Methods: After necessary ethical approval, a time-series non-equivalent control group study design was used to examine 120 children aged between 9 and 10 years attending the state primary school. Sports, Play and

Active Recreation for Kids (SPARK) PE curriculum was implemented as the intervention PE programme ($n=76$) during one scholastic year. The national PE curriculum was delivered in the control group ($n=44$). Measurements included: BMI z-score, waist circumference, resting heart rate, Physical Activity Questionnaire for Children (PAQ-C) scores, MVPA levels, jump height, posturography and annual exam results.

Results: Significant improvements were registered in BMI z-scores ($p=0.007$), resting heart rate ($p=0.009$) and balance parameters (8 of 9) in intervention group but not in control group. Moderate-to-vigorous physical activity levels achieved in the intervention group were 60.43% vs 39.06% in control group. Significant jump height improvement ($p=0.020$) was seen in one of 2 intervention schools, possibly dependent on high MVPA levels achieved (68.77%). No significant decline in academic achievement was noted.

Conclusion: The innovative concept of biomechanical fitness tests in school children is introduced as an efficient and objective tool in fitness progress monitoring. This study proposes targeting school children and providing them with a structured PE curriculum as a public health initiative in the fight against childhood obesity.

Disclosures: This study was partially funded by the Endeavour Scholarship Scheme.

OP4.124

Managing the obese diabetic patient

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Over the last couple of decades, once the impact of obesity on public health has been recognised, there is growing clarity on causes and consequences of obesity on individuals through an ever increasing body of research. We have a long way to go before we can deploy precision medicine approaches for the majority but what is clear is that even though prevention is key this requires major changes in our obesigenic environment which is challenging. Meanwhile managing obesity effectively brings considerable benefits for those with complications like diabetes and other cardiovascular diseases. Modest weight loss was promoted but while scientifically valid, it has proved difficult for most patients to maintain weight lost. Massive weight loss followed by maintenance, and surgical interventions have gained more credibility with growing evidence of effectiveness. The experience of a multidisciplinary severe and complex obesity service will be presented.

OP4.125

An analysis of hypocalcaemia post total thyroidectomy: Diagnosis and predictors

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Introduction: Post-thyroidectomy hypocalcaemia is a common complication with significant short and long term complications. The aim of this study was to determine the incidence and predictors of post-thyroidectomy hypocalcaemia (corrected calcium <2.1mmol/l).

Methods: A total of 183 patients who underwent total thyroidectomy between 2012 and 2015 in a national general hospital were included in this retrospective study. Clinical and biochemical data were obtained from electronic and hard copy medical records.

Results: Out of a total of 183 patients, 142 (77.6%) were female, while 41 were males (22.4%). Ages ranged from 15 to 84 years, with a mean of 50.6 years (± 15.84 years). There was variation in the incidence of hypocalcaemia dependent on the timing of measurement of calcium on post-operative day 1 (POD1) and the measuring of calcium on subsequent days. The incidence of post-operative hypocalcaemia on day 1 was 17.5% ($n=32$). The indications for surgery included Graves' disease ($n=62$, 33.88%), multi-nodular goitre ($n=50$, 27.32%), malignancy ($n=28$, 16.39%), the presence of a thyroid nodule ($n=22$, 12.02%), hyperparathyroidism ($n=18$, 9.83%) and in 3 patients (1.63%) the indication was unclear. A lower pre-operative uncorrected calcium was associated with post-thyroidectomy hypocalcaemia ($p=0.048$). However, it was found that the incidence of post-thyroidectomy hypocalcaemia was underestimated by 55.5% if only POD1 measurement was used.

Conclusion: Measuring calcium on POD1 may miss patients who would subsequently develop hypocalcaemia. Other possible contributing factors for post-operative hypocalcaemia, including age, gender, histology and indication for surgery were not found to be statistically significant, and could not be used to predict who will develop hypocalcaemia. This emphasises the need for stringent guidelines for assessing and managing patients undergoing total thyroidectomy and possible associated hypocalcaemia.

OP4.126

Functional adrenal tumours in Malta

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Introduction: The majority of adrenal tumours are non-functional. However, a small subset secrete excess hormones (cortisol, mineralocorticoid, androgen or

catecholamine excess). The aim of this study was to characterise functional tumours in Malta.

Methods: This was a retrospective analysis of all functional adrenal tumours presenting to Mater Dei Hospital between January 2010 and June 2018. Detailed analysis with regards to presentation, functional analysis, radiological investigations, management and follow-up was performed.

Results: Forty three patients were identified; 10 had cortisol excess, 16 mineralocorticoid excess, 1 androgen excess and 18 had a pheochromocytoma/paraganglioma. Mean age for all patients was 52 years (± 12). Cortisol secreting tumours showed a female preponderance with all patients being female except for one, whereas in the mineralocorticoid and pheochromocytoma group there was a male preponderance with a ratio of 2:1 and 5:3 respectively. The standardised incidence rate was 1.7/million/year for cortisol secreting tumours, 2.8/million/year for aldosterone secreting tumors and 3.3/million/year for pheochromocytoma. Mean longest radiological tumour size was 31mm (± 3) for cortisol secreting tumours, 18mm (± 8) for aldosterone secreting tumours, and 55mm (± 30) for pheochromocytomas, whereas histological tumour size was 31mm (± 4) for cortisol secreting tumours, 20mm (± 10) for the operated aldosterone secreting tumours, and 66mm (± 37) for pheochromocytomas. Largest tumours were pheochromocytomas but this did not reach statistical significance probably because of the small sample size. All cortisol secreting tumours were operated upon. Eighty one percent of the pheochromocytoma group were operated, with the other patients presenting late with metastatic disease and surgery not deemed beneficial. Seventy nine percent of the aldosterone producing tumours were treated surgically whereas the rest were treated with mineralocorticoid receptor blockers. One patient with androgen secreting adrenal tumour had an aggressive adrenocortical carcinoma and died soon after diagnosis.

Conclusion: Adrenal tumours comprise functional and non-functional tumours, the latter being by far the largest group. By comparing and analysing these tumours we can establish the health burden of the functional adrenal tumours in Malta with a view to extending this study to include analysis of the non-functional adrenal lesions.

OP4.127

Expression of cell cycle regulators and biomarkers of proliferation and regrowth in human pituitary adenomas

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Introduction: The pathogenesis of pituitary adenomas (PA) is complex. Ki-67, pituitary tumour transforming gene (PTTG), vascular endothelial growth factor (VEGF), cyclin D1, c-MYC and pituitary adenylate cyclase-activating

peptide (PACAP) protein expression were analysed and correlated with tumour and patient characteristics.

Methods: A total of 74 pituitary tumour samples (48 non-functional PA, 26 functional PA); Immunohistochemical analysis of protein expression, retrospective analysis of MR images and *in vitro* analysis of octreotide treatment was carried out on GH3 cells.

Results: PTTG expression was negatively associated with age and positively with PA size, regrowth and Ki-67 index. Cyclin D1 correlated with Ki-67 and tumour size. c-MYC negatively correlated with size of tumour and age; and correlated with PTTG expression. Somatostatin analogue treatment was associated with lower Ki-67, PTTG and Cyclin D1 expression while T2 hypointense PA we associated with lower PTTG, cyclin D1, c-MYC and Ki-67. *In vitro* analyses confirmed the effect of somatostatin analogue treatment on PTTG and Cyclin D1 expression.

Conclusion: Interesting and novel observations on the differences in expression of tumour markers studied are reported. Correlation between Ki-67 expression, PTTG nuclear expression and recurrence/regrowth of PA, emphasizes the role that Ki-67 and PTTG expression have as markers of increased proliferation. c-MYC and PTTG nuclear expression levels were correlated providing evidence that PTTG induces c-MYC expression in PA and we propose that c-MYC might principally have a role in early pituitary tumorigenesis. Evidence is shown that the anti-proliferative effect of somatostatin analogue treatment *in vivo* occurs through regulation of the cell cycle.

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OP4.128

Ultrasonographic features and management of thyroid nodules undergoing ultrasound-guided fine needle aspiration

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Introduction: Nodular thyroid disease is a highly prevalent disorder, and its incidence has increased significantly over recent years, with 7-15% of thyroid nodules being malignant. We aimed to evaluate the different approaches to management of thyroid nodules and the ultrasound characteristics of thyroid nodules undergoing ultrasound-guided fine needle aspiration (FNA).

Methods: Data was collected on ultrasonographic nodule characteristics, FNA histology and management of all thyroid nodules undergoing ultrasound guided

FNA between July 2013 and December 2017, which were identified using Centricity Universal Viewer*.

Results: A total of 1,420 patients who had 1,522 FNAs were identified. They had a mean age of 57.4 (± 15.3) years and the majority (76.1%) were female. Most patients (58.4%) had a multinodular goiter. The majority of nodules were benign (69.3%), while only 1.9% and 4.0% were suspicious of malignancy or malignant respectively. A total of 21.5% of patients underwent surgical therapy, 42.2% of nodules were followed up with an ultrasound, whereas 20% of nodules had a repeat FNA. Where documented on ultrasound, most nodules confirmed to be malignant post-operatively, were at least 2cm in size (37.2%), had chaotic intranodular vascularity (35.7%), were hypoechoic (62%), had irregular borders (22.6%) and microcalcifications (27.7%).

Conclusion: When comparing our results to a similar audit done between 2008 and June 2013, FNAs have more than doubled. However, incidence of thyroid cancer (confirmed post-operatively) did not increase over the years (11.9% identified in the first audit versus 8.9% identified in the second audit). Papillary thyroid cancer was the predominant thyroid cancer. A repeat ultrasound was the preferred method for follow-up of benign nodules.

OP5.129

In-patient falls at Mater Dei Hospital

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Introduction: According to The Royal College of Physicians, an 800-bed acute hospital in the UK NHS will have approximately 1,500 inpatient falls per year with an average cost of £2,600 (€3,000) per patient. Only 20 falls reported through Mater Dei Hospital, Msida, Malta's (MDH) SA Learn incident reporting system in 2016. The aims of this study were to shed light on the gap between actual and reported falls at MDH using a prospective approach, while also looking into some aspects of the harm and financial cost related to selected inpatient falls through a retrospective approach.

Methods: In the retrospective study, inpatient imaging requests booked in 2016 which included the words 'fall' or 'fell' in the clinical details were identified and the files of these patients were then retrospectively reviewed. In the prospective study, charge nurses of MDH wards were requested to document inpatient falls over a 6 week period.

Results: The retrospective study identified 47 inpatient falls. Eleven patients suffered a fracture and 4 patients had multiple fractures. Orthopaedic surgery was required in 8 patients. Hospital costs reached €53,000 in one particular patient. 10 falls were reported in the first week of the prospective study which would translate to 520 falls per year. Reporting dropped to insignificant levels after the first week.

Conclusion: The study demonstrates the underestimated morbidity and financial burden brought about by inpatient falls at MDH. The findings also highlight the poor reporting culture locally and the need for local inpatient falls prevention programmes to be established.

OP5.130**Vitamin D supplementation in Systemic Lupus Erythematosus patients with vitamin D deficiency and insufficiency: the effect on disease activity, fatigue and interferon signature gene expression**

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Introduction: Vitamin D deficiency is highly prevalent among patients with systemic lupus erythematosus (SLE). The principal aim of this study was to establish any potential effect on the level of fatigue, disease activity and interferon signature gene expression, from vitamin D supplementation to SLE patients with vitamin D deficiency or insufficiency.

Methods: Thirty-three SLE patients, 13 with vitamin D deficiency and 20 with vitamin D insufficiency participated in the study. This consisted of an interview, filling in the Fatigue Severity Scale (FSS), and blood tests. The patients were advised to take vitamin D3 8000IU daily for 8 weeks if they were vitamin D deficient, or 8000IU daily for 4 weeks if they were insufficient. This was followed by 2000IU daily maintenance. The patients were re-assessed after 6 months of vitamin D supplementation.

Results: After 6 months, there was an improvement in disease activity measured by SLE disease activity index-2K (SLEDAI-2K) and in FSS; however this did not reach statistical significance. A statistically significant decrease in anti-double stranded DNA titre was noted ($p=0.032$). SLEDAI-2K improved significantly ($p=0.030$) for the 13 patients who had vitamin D deficiency at baseline. The expression of the interferon signature genes, was noted to decrease following vitamin D supplementation; reaching statistical significance for OAS1 and SOCS1 ($p=0.017$; $p=0.004$).

Conclusion: The results indicate that vitamin D supplementation, in SLE patients who are deficient or insufficient, results in an improvement in disease activity and possibly also in the level of fatigue. This could be explained by the decrease in the expression of interferon signature genes.

Disclosures: The study has been funded by the Faculty of Medicine and Surgery, University of Malta.

OP5.131**Structural and biochemical analyses of human xanthine oxidoreductase**

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Introduction: Xanthine Oxidoreductase (XOR) is a complex enzyme that plays important roles in health and disease. In the human body, XOR is associated with the production of superoxide, hydrogen peroxide, nitric oxide and uric acid. The production of reactive oxygen species has been attributed to various pathological conditions. Due to the presence of xanthine oxidase in patients suffering from cardiovascular disease, the enzyme is now considered as a reliable biomarker. The principle objectives for this study are: the characterisation of the biochemical properties of human recombinant XOR and its mutants; high resolution structures of human XOR; and the design and synthesis of novel inhibitors of human XOR and their effectiveness on enzyme activity.

Methods: Human XOR and mutants were overexpressed and purified from *Escherichia coli*. Various enzymological assays were used, structural determination was performed using X-ray crystallography and initial inhibitor syntheses have been completed.

Results: Expression and purification protocols were optimised to obtain the highest amount of soluble and pure protein respectively. Enzymological assays determined that the protein was active and comparisons between mutants could be drawn. Initial crystallographic results have determined the structure of the enzyme. The effects of synthesised inhibitors are being characterised.

Conclusion: Human XOR and its mutations were characterised to determine the possible effect of the mutations on health. Currently, allopurinol and febuxostat are the only XOR inhibitors approved for medical use. However, several side effects are attributed to these inhibitors. In this study, structural analyses are being utilised to design and synthesise novel inhibitors.

Disclosures: The research work disclosed is funded by the Endeavour Scholarship Scheme (Malta). The scholarship is co-financed by the European Union Social Fund (ESF) under Operational Programme II – Cohesion Policy 2014 - 2020.

OP5.132**Polyhedral oligomeric silsesquioxane poly(carbonate-urea) urethane (POSS-PCU) - its use in regenerative medicine.****K. Wismayer¹, N. Mehrban¹, J. Bowen², M. Birchall³**¹*Division of Surgery, University College London, London, United Kingdom*²*The Open University, School of Engineering and Innovation, Milton Keynes, United Kingdom*³*Royal National Throat, Nose and Ear Hospital, University College London, London, United Kingdom*

Introduction: Polyhedral oligomeric silsesquioxane polymer poly(carbonate-urea) urethane (POSS-PCU) has previously shown great promise as a tissue-engineering scaffold. Porogen-leaching coagulation creates a porous sub-structure through which cells can migrate freely, but results in the formation of a non-porous membrane at the surface, preventing cell entry. Here we aim to introduce surface perforations to coagulated POSS-PCU scaffolds and investigate these effects on the polymer.

Methods: Laser and mechanical techniques were used to modify the polymer surface and scanning electron microscopy (SEM) images were taken. Mechanical properties, surface topography and chemistry were characterised. Micro computed tomography (microCT) provided a non-destructive means of generating a 3-dimensional model to obtain porosity data. Scaffolds were seeded with cells, investigated histologically and the proliferation studied. Incubation and time effects were assessed using SEM and tensile testing.

Results: Laser-cutting perforated the polymer and the mechanical method increased surface area, without negatively affecting tensile properties. MicroCT demonstrated that laser perforation connected the substructure with the ex-scaffold environment, increased porosity and interconnectivity. Different laser intensities produced a different pore architecture. Cellular studies confirmed improved cell viability, drawing a useful comparison between the methods and intensities used. Histology showed cells adherent to the scaffold surface, cells within perforations and indicated that cells migrated into the scaffolds. After 15 days of incubation, SEM images revealed an 11% reduction in pore diameter whilst tensile testing confirmed a decrease of Young's Modulus.

Conclusion: The introduction of surface perforations by laser-cutting presents a viable method of improving cellular migration in POSS-PCU.

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OP5.133**Assessing patients' compliance to biologics and their beliefs towards rheumatic disease progression****E. Cefai¹, D. Balzan², C. Mercieca¹, A. Borg¹**¹*Department of Rheumatology, Mater Dei Hospital, Msida, Malta*²*Department of Medicine, Mater Dei Hospital, Msida, Malta*

Introduction: Compliance to medication depends on several factors such as medication beliefs, psychosocial factors and illness beliefs. The consequences of non-compliance are not insignificant, both from the clinical and health economic aspects.

Methods: Forty-four patients attending a dedicated biologic clinic and treated with tumour necrosis factor (TNF) inhibitors for various rheumatic conditions, were interviewed. Treatment compliance and concerns, adverse effects and patients' perception of disease progression, together with demographic and disease activity data, were recorded.

Results: Seventy-five per cent of the patients reported minimal to no pain, 78% reported mild to no fatigue and 77.2% had no restriction of activities of daily living. Medication adherence was described as high by 68.2% and as moderate by 31.8%. There were no patients who had a low level of adherence. 31.8% of patients were unaware of the need to omit their biologic when ill or before surgery. Twenty-five per cent reported to have experienced adverse events, most commonly infections. 18.2% claimed to be moderately or very concerned about these adverse effects. 68.8% believed that the biologic had successfully stopped further joint damage. This perception was based on the absence or reduction of symptoms.

Conclusion: In this cohort of patients with low disease activity/remission, a third of patients still reported sub-optimal adherence to TNF inhibitor use. Clarifying the benefits of adherence to biologics and addressing the factors leading to non-adherence, such as adverse effects, at every patient visit is crucial. Patients' perception of disease progression needs to be explored and made more understandable to our patients.

OP5.134**Factors related to fatigue in Systemic Lupus Erythematosus: a cross-sectional cohort study****R. Magro¹, L. Camilleri², A. A. Borg¹**¹*Department of Rheumatology, Mater Dei Hospital, Msida, Malta*²*Department of Statistics and Operations Research, University of Malta, Msida, Malta*

Introduction: Fatigue is the most prevalent symptom in Systemic Lupus Erythematosus (SLE). The aim of the study was to characterise the relationship between fatigue and other factors, including disease activity (measured by SLE disease activity index-2K (SLEDAI-2K)), vitamin D, pain, depression, anxiety, sleep quality and exercise in SLE. Moreover the prevalence of fatigue in SLE patients was established.

Methods: Ninety-two SLE patients gave informed consent to participate in the study. This consisted of

an interview, blood and urine tests, and filling the questionnaires. Fatigue Severity Scale (FSS), visual analogue scale (VAS) for fatigue, Hospital Anxiety and Depression Scale (HADS), VAS for pain, Pittsburgh Sleep Quality Index (PSQI) and modified Health Assessment Questionnaire (mHAQ).

Results: 56.5% had an abnormal level of fatigue (FSS >3.7). Fatigue, measured by FSS, had a significant correlation with VAS Pain (R=0.536, $p<0.001$), HADS-D (R=0.535, $p<0.001$), HADS-A (R=0.395, $p<0.001$), PSQI (R=0.551, $p<0.001$) and mHAQ (R=0.435, $p<0.001$). VAS fatigue had a significant correlation with SLEDAI-2K (R=0.247, $p=0.018$). There was no significant relationship between fatigue and vitamin D level or regular exercise. ANCOVA analysis showed that fatigue measured by FSS and VAS fatigue was significantly dependant on depression measured by HADS-D ($p<0.001$) and VAS pain ($p<0.001$).

Conclusion: Fatigue is highly prevalent in SLE patients. This study identified a number of factors that are significantly related to fatigue; it is most strongly dependent on depression and pain. This suggests that the aetiology of fatigue in SLE is multi-factorial and that in SLE patents reporting fatigue, the underlying cause needs to be identified and treated.

OP5.135

Hypertension in Malta - A tackled disease?

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Introduction: Hypertension is of serious public health concern, associated with considerable morbidity and mortality as well as other non-communicable diseases. This is one of the most frequently screened conditions among the general public in Malta. Understanding the burden of hypertension at population level could help target public health strategies according to needs. The aim of this study was to measure the prevalence of hypertension while comparing to previous studies.

Methods: A representative cross-sectional health examination study was conducted among adults in Malta. Medical data was gathered by validated questionnaires while blood pressure was measured. Prevalence rates of known and new hypertension were calculated. The overall hypertension prevalence was age stratified and compared to three epidemiological studies previously conducted in Malta (WHO in 1981, MONICA in 1984, European Health Examination in 2010).

Results: Adult hypertension prevalence stood at 31.87% (CI 95%: 30.04 – 33.34) with a male preponderance (57.95% CI 95%: 56.05 – 61.64). The majority was already aware of the disease (75.04% CI 95%: 72.57 – 77.35%) and on treatment (57.23% CI 95%: 54.48 – 59.94). Those

on treatment were mostly controlled (90.14% CI 95%: 87.73 – 92.12). However, 7.96% (CI 95%: 7.15 – 8.84) were unaware of having hypertension. By comparing blood pressure prevalence with past local studies, it was observed that hypertension prevalence had declined over time.

Conclusion: Lowered prevalence may be linked to other lowered cardiovascular disease across Europe. The main cause of this trend remains unclear given the risk factor profile.

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OP5.136

Clinical outcomes of trastuzumab treatment in HER2-positive breast cancer patients

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Introduction: Human epidermal growth factor receptor 2 (HER2) – positive breast cancer constitutes about 11% of local breast cancers. These patients are candidates for targeted treatment with the anti-HER2 monoclonal antibody trastuzumab (Herceptin®), in conjunction with chemotherapy and hormonal therapy if required. The clinical response rates to treatment have not yet been recorded locally.

Methods: A retrospective clinical review was carried out in collaboration with the Sir Anthony Mamo Oncology Centre. All HER2-positive breast cancer patients diagnosed between 2010 and 2015 and treated with trastuzumab (n = 119) were included. Information about the patients' diagnosis (date and age), tumour (stage, pathological grade, hormone receptors), treatment (adjuvant, neo-adjuvant, metastatic), and follow-up was collected from the clinical database and treatment files. The impact of specific patient and tumour characteristics on overall survival (OS) and recurrence or progression-free survival (RFS/PFS) was assessed.

Results: Mean OS was of 42.4 months, while mean RFS/PFS was of 38.9 months. Cox regression modelling showed neo-adjuvant and metastatic disease treatment types and elevated follow-up tumour markers (CA15-3, CEA) as indicators of poor event-free survival. As expected, the worst prognosis was in patients being treated for metastatic disease. However, an important finding of note was the development of distant metastases in four (5.13%) patients receiving adjuvant trastuzumab, without any local recurrence, following around two years' RFS. The secondary tumours retained their positive HER2 status.

Conclusion: The local trastuzumab response trends reflect well those reported internationally. Continuous patient monitoring, especially by liquid biopsies, is needed to ensure early detection and treatment of recurrence.

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OP5.137

Charting the endometrial cancer care pathway – A baseline audit

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Introduction: Longer waiting times from diagnosis to surgical resection have been found to negatively impact the overall survival and quality of life of women with endometrial cancer. The Cancer Care Pathway Directorate adopted the UK National Waiting Times Monitoring Dataset Guidance, to improve the timeliness of services along the cancer care pathway. From this, three key targets were identified: 1) Maximum 14-day wait from urgent GP referral for suspected cancer to first outpatient attendance (operational standard of 93%), 2) Maximum 31-day wait from decision to treat to first definitive treatment (operational standard of 96%), and 3) Maximum 62-day wait from urgent GP referral for suspected cancer to first treatment (operational standard of 85%). The aim of this baseline audit was to chart the time-frames of the various stages in the endometrial cancer pathway of patients diagnosed with this disease between 2015 and 2016 to assess for and identify delays in referral, investigation and care.

Methods: A tool was developed following consultation with key stakeholders. Data protection clearance was obtained. Patient medical and oncology files, hospital databases, and MDT documentation for confirmed endometrial cancer cases were reviewed between September 2017 – March 2018.

Results: A total of 101 endometrial cancer cases were included in the audit. The proportion of cases which met the 14-day, 31-day and 62-day wait KPIs operational standards were 39.1%, 81.2% and 17.2% respectively. Seeking a private gynaecological consultation or referral to the emergency department were shown to be the most efficient pathways for patients to get timely investigation and treatment when compared with GP referral to gynaecological outpatients.

Conclusion: The endometrial cancer care pathway timeframes did not meet the 14-day, 31-day and 62-day wait KPIs operational standards. The recent introduction of the post-menopausal bleeding clinic is a step in the right direction to improve on these outcomes and decrease the load from emergency services. Fast-track coordinators and nurse navigators could also improve continuity and coordination of patient care.

OP5.138

Ovarian survival rates in Malta between 2008-2016

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Introduction: The EURO CARE-5 Study, assessing the survival rate of cancer patients who were diagnosed between 1999 and 2007, concluded that in Malta the 1-year survival rate of ovarian cancer patients was low when compared to other European countries; 59.6% (54.2-65.5) as compared to 70.3% (69.9-70.7). The aim of the study is to assess survival rates for women diagnosed with ovarian carcinoma in Malta between the years of 2008 and 2016.

Methods: The study was a retrospective study, where all the abnormal histological results processed at the Mater Dei Hospital, Msida, Malta Pathology department suggestive of abnormal ovarian pathology were assessed. Furthermore, data was collected by reviewing the electronic medical records histology results and imaging and each case was re-staged using the 2014 FIGO classification.

Results: Three hundred and eighteen patients were identified. The average age of diagnosis is 59.5 years. In 2008 there were 35 cases, 91.4% (n=32) were of the serous epithelial type, one case of germ cell, one case of sex cord and one undifferentiated. The overall survival rates in 2008 1-year survival 76% and 5-year survival is 32%. Dividing according to staging FIGO 1 – 1-year 83%, 5-year 66.7%, FIGO 2 – 1-year 80%, 5-year 0%, FIGO 3 – 1-year 70.6%, 5-year 17.6%. Between 2013-2016, there were 144 cases identified, the average age at presentation was 60.9. 91.7% (n=132) were of the serous epithelial type whilst 4% were sex cord tumours 3% germ cell tumours and 3% were poorly differentiated. The overall 1-year survival rate was 84.7% (n=122). 25.7% of cases passed away after the first year. Sixty-one cases were staged as FIGO 1, 18 at FIGO 2, 47, FIGO 3 and 18 cases staged at FIGO 4. The 1-year survival rate related to staging was found to be 100%, 83.3%, 70.2%, 18% respectively.

Conclusion: Overall survival rates for ovarian carcinomas between the years of 2008-2016 have improved and are becoming comparable to the rates achieved by other European countries.

OP5.139

A ten-year review of vulval malignancies in the Maltese islands

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Introduction: Vulval carcinoma is a relatively uncommon malignancy with an average of seven new cases diagnosed locally each year. It is commonly diagnosed in elderly women over 65 years of age, but may present earlier when associated with human papilloma virus. This retrospective study aims to review the management of vulval malignancies in the Maltese islands.

Methods: A retrospective analysis of vulval malignancies diagnosed between 2008 and 2017 was performed. This included mean age, pre/co-existing lesions, tumour grade and stage at presentation. Management of these patients was audited with respect to 'Guidelines for the Diagnosis and Management of Vulval Carcinoma' (RCOG). Criteria assessed included pre-operative radiological staging and adequacy of surgical management.

Results: Seventy-three cases of vulval cancer were diagnosed in this ten-year period with a mean 7.3 cases per year and a mean age of 69 years. 91.7%(n=67) of malignancies were squamous cell carcinoma of which 47.9%(n=35) were well-differentiated, while 12.33% (n=9) were poorly differentiated. Non-squamous histologies comprised 8.22%(n=6) of cases and presented at a higher mean age of 79 years. 56.16%(n=41) of patients had lichen sclerosus, while a smaller proportion (31.1%) were diagnosed with vulval intra-epithelial neoplasia. Meanwhile, 28.77% of patients (n=21) had no obvious pre/co-existing lesion diagnosed on histology. No preoperative radiological staging was performed in 76.71%(n=56) of cases. Of these, 31.5% underwent postoperative imaging, in which eight patients were then upstaged radiologically to FIGO III disease and one to FIGO IV. 41.1%(n=30) of FIGO IB SCC cases did not have lymphadenectomy or sentinel biopsy as part of their surgical management. Lymphadenectomy was performed in six of eight cases with suspected FIGO III disease at clinico-radiological assessment.

Conclusion: There is significant room for improvement in the local management of vulval carcinoma mainly with regards to pre-operative radiological staging and inguinofemoral lymph node excision where indicated. There has been remarkable emphasis on these two aspects of care in recent years due to their proven impact on morbidity and mortality, particularly following the introduction of the multidisciplinary gynae-oncology meetings.

OP5.140

Adding tumour size to the Risk Malignancy Index improves its Area Under the Curve performance

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Introduction: The Risk of Malignancy Index (RMI) is a simple scoring system to standardize and improve the preoperative evaluation of adnexal masses. Since 1990, three versions of the RMI have been validated in different clinical studies. Recently, a fourth version of the RMI (RMI-4), which includes tumour size as an additional parameter, was introduced. The aim of this study was to determine the ability of RMI-4 to discriminate between benign and malignant adnexal masses, and to compare its performance with RMI-1 in the local scenario.

Methods: Women scheduled for surgery for an adnexal mass from September 2015 to February 2016 at Mater Dei Hospital were included. Ultrasonographic characteristics, menopausal status, and serum CA 125 level were reported preoperatively and combined into the RMI.

The performances of RMI-1 and RMI-4 were assessed and statistically tested for differences.

Results: A total of 97 patients were included: 86 benign, and 11 malignant tumours. The RMI-1 had a sensitivity of 73%, specificity of 94%, positive and negative predictive values (PPV and NPV) of 61% and 95%, accuracy of 92% and an area under the curve (AUC) of 0.87. The RMI-4 had a sensitivity of 74%, specificity of 95%, PPV of 67%, NPV of 96%, accuracy of 92% and an AUC of 0.91. The AUC value of RMI-4 was higher than that of RMI-1 ($p<0.001$).

Conclusion: Both RMI-1 and RMI-4 were able to discriminate between benign and malignant adnexal masses, with similar performances. However, RMI-4 and consideration of tumour size gives better AUC performance.

OP5.141

Prevalence and type distribution of Human papilloma (HPV) in Maltese women: an updated estimate

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Introduction: Human Papillomavirus (HPV) infection has been established as the main causative agent of cervical lesions worldwide. Previous studies among women worldwide have demonstrated that infection with specific types of human papillomaviruses (HPV) is central to the pathogenesis of cervical neoplasia. Similar to other infections, HPV may rest in a latent phase up to the trigger of a transformation event, where lesions are induced.

Methods: Following initiation of HPV DNA testing in May 2011, a total of 4402 consecutive women with previous abnormal cervical cytology in Mater Dei Hospital were investigated. Cases for HPV typing were predominantly chosen according to EU guidelines. Cytologic diagnosis was accomplished using conventional smear tests and liquid based cytology. HPV detection was performed using the real-time polymerase chain reaction assay to detect 14 high risk HPV (hrHPV) genomic types.

Results: Three thousand one hundred and eighty six (72%) of the 4402 patients tested were positive for HPV DNA. The predominant HPV subtype was found to be HPV16 with a prevalence rate of 20%, followed by HPV56 (10%), HPV31, HPV 51, HPV52 (9%), HPV39, HPV58 (8%), HPV 18 (7%), HPV 33, HPV 59 (6%) HPV 45 (4%), HPV 35 (2%) and HPV 66, HPV 68 (1%).

Conclusion: To our knowledge, this is the most comprehensive assessment of the overall prevalence of HPV genotypes in Maltese women. We have established that HPV 16 is the predominant subtype and that High-Risk (HR) HPV prevalence appeared to be different from other areas of the western world. Based on this update we highly recommend the administration of existing prophylactic vaccines and to increase hrHPV screening.

OP5.142

Breast cancer audit: A histopathological perspective

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Introduction: Breast cancer affects 1 in 8 women (12%) accounting for 25% of female cancer and is responsible for the highest number of cancer-related deaths (15%) in females. Breast cancer subtypes are hallmarked by the expression of the Human Epidermal Growth Factor receptor 2, Oestrogen and Progesterone receptors (HER2, ER and PR). Here, we present a histological breast cancer audit of cases diagnosed at Mater Dei Hospital, Msida, Malta

Methods: Anonymised breast cancer histopathological data was available for this study. Ethical approval for the use and processing of this data was sought and granted (Index: 010/2017). Histopathological reports of breast cancer diagnosed between 2009-2016 were extracted. 8635 reports were processed and standardised using text processing software (OpenRefine 2.6 Beta). 284 breast cancer large specimens (175 HER2 3+ cases and 109 HER2 2+ cases) were immunohistochemically stained for HER2 expression to assess staining heterogeneity as a measure of tumour heterogeneity.

Results: Breast cancer is diagnosed at a median age of 58 years. Most breast cancer is of ductal morphology (77%) followed by the lobular type (11%). A higher incidence of ER positive breast cancer was observed (86%) compared to European statistics, accompanied by a lower incidence of HER2 positivity (11%). The ductal and mucinous histological types are more often HER2 positive compared to other subtypes. A trend of smaller tumours has been observed for tumours diagnosed in later years corroborating the screening impact. Tumour heterogeneity in the context of HER2 positivity was identified in 17% of breast cancer.

Conclusion: The first histological overview of breast cancer diagnoses in Malta is presented, including distribution of histological subtypes, breast cancer subtypes and prognostic factors.

Disclosures: Project "Accurate Cancer Screening Tests" financed by the Malta Council for Science & Technology through FUSION: The R&I Technology Development Programme 2016 University of Malta, Msida MSD 2080, Malta.

OP5.143

Cognitive impairment on the elderly presenting to the emergency department

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Introduction: With an ever increasing elderly population, the Royal College of Emergency Medicine has set up guidelines for detecting cognitive impairment in elderly patients presenting to the Emergency Department. This states that all patients aged 75 years and older need to have a cognitive assessment done in order to better identify patients with delirium, delirium superimposed on dementia and dementia.

Methods: This is a retrospective study which was carried out on all patients 75 years or older presenting to the emergency department in the first 10 days of January 2018. Data was gathered from electronic sources and medical notes and inputted into a table on Excel. Data analysis was then carried out.

Results: A total of 723 visits were logged by elderly patients during this period out of a total of 4274 patient visits, an average of 72 geriatric logs per day. Only 85 patients had a documented history of dementia. From them 66% were resident in a geriatric institution. Confusion was the presenting complaint in 4%. In those presenting with an altered mental status, only 27% had a history of dementia. None of the patients had a cognitive assessment documented in the emergency department notes. In those who were admitted, the electronic discharge summary never specified whether a geriatric review or a cognitive assessment was done in the wards.

Conclusion: Cognitive impairment is a common presentation to the emergency department and offers great challenges to the patient and reviewing clinician. Better screening should be carried out in order to detect this condition earlier

OP5.144

A qualitative study assessing parents' perspective on young people with autism spectrum disorder in relation to the benefits of sport; comparing individual to group sport.

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Introduction: There are few studies comparing effects between individual and group sport in young people (YP) with autism spectrum disorder (ASD), and on whether sport can benefit these individuals at present and future.

Methods: Parents of YP with ASD were selected by stratified random sampling from the Child and Young People's Services (2016-2017). - Semi-structured questionnaire written up and readability testing and translation/back-translation carried out, followed by pilot study before interviews. - Parents recruited/interviewed. Thematic analysis carried out to evaluate parents' perspective on benefits of group and individual sports, followed by suggestions to implement sport as therapy for YP with ASD in Malta.

Results: Themes: 1) Group sports, social interaction and communication; 2) Individual sports, self-esteem and venting one's frustration; 3) Lack of public awareness; 4) Lack of motivation in sports; 5) Physical and mental burden on relatives; 6) General improvement in physical and mental health; 7) Technology and Internet addiction. General lack of physical exercise was reported (3/10 reported weekly exercise). Younger age groups and those with severe ASD were more physically active. Parents of YP with severe ASD were less physically active than milder forms of ASD. Parents preferred group over individual sports for their children, whilst children preferred individual sports.

Conclusion: This highlighted the importance of sport in YP with ASD. YP preferred individual sports, reflecting ASD symptomatology. Parents felt burnt out and unsupported by society. Sport therapy services for ASD should be YP-centred and include public/parent psychoeducation. This opens new fields of research in aid of national service.

OP5.145

Depression in type 2 diabetes patients in Maltese primary care.

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Introduction: Type 2 diabetes and depression are two common chronic conditions having significant and costly effect on health. Multiple studies have highlighted the bidirectional relationship between the two, with approximately 40% of diabetic patients found to be suffering from depression. Good management, via patient education, lifestyle modification, psychological support and pharmacological treatment, is central to improving the outcome of either condition.

Methods: A quantitative, cross-sectional, retrospective descriptive study was performed among the type 2 diabetic patients attending diabetic clinics within the public health centres in Malta. Patients completed a self-administered questionnaire to quantify depressive symptoms and to study patient and disease characteristics. Convenience sampling was used to collect the data. A pilot study aiming to investigate the feasibility and translatability of the questionnaires was conducted amongst sixteen individuals.

Results: The pilot study highlighted two main issues which might impact the final results: privacy, as the study was conducted in a waiting area with most individuals preferring to have the questionnaires read out to them rather than completing them on their own; and recall bias, as the glycaemic control was assessed on self-report. The sample used for the pilot study was too small to elicit any results, however it was instrumental in helping to adapt the questionnaires to better collect the required information.

Conclusion: Screening for depression in type 2 diabetic patients is important due to the high prevalence and significant impact on health. Appropriate management can significantly improve the outcome of both conditions and consequently improve both health and quality of life.

OP5.146

Evidence that the urban environment moderates the level of familial clustering of positive psychotic symptoms

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Introduction: If the shared familial risk factors that predispose to psychotic disorder interact with early-life exposures in the urban environment, familial correlations of psychosis proneness measures should be higher in the exposed environment. We tested the hypothesis that in sib-pairs with one member affected by psychotic disorder, the familial correlation of psychotic experiences, but not depression, negative symptoms, or intelligence quotient (IQ), would be higher if the nonaffected sibling was raised in an urban environment until age 15 years.

Methods: The sample analyzed consisted of 959 sib-pairs of whom one was affected with psychotic disorder. Lifetime self-reported psychotic and depressive experiences were measured using the self-reported "Community Assessment of Psychic Experiences" (CAPE).

Results: In the unadjusted model of the sibling-patient association in CAPE positive symptoms, there was a significant interaction by urban environment (B interaction = 0.079, 95% CI: 0.021 to 0.137, $p=0.007$, $n=828$). Stratified analyses revealed a strong sib-pair association in the urban environment (B = 0.077, 95% CI: 0.037 to 0.117, $p<0.001$) and absence of association in the rural environment (B = 0.002, 95% CI: 0.044 to 0.039, $p=0.920$). Associations were not affected after taking into account confounders and outliers, and there was no evidence that sibling associations in IQ, depression, or negative symptoms were moderated by the urban environment.

Conclusion: The results agree with previous work indicating that the effects of the genetic and environmental factors that occasion familial clustering of psychotic disorder depend on whether or not an individual spends his early life in an urban environment.

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OP5.147

The prevalence of problematic internet use in Malta among young persons aged 13 – 16 years

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Introduction: This research study investigated the prevalence of problematic Internet use among 13-16 year-olds in Malta and Gozo, with special attention to this age cohort's engagement with the Internet for entertainment.

Methods: A total of 869 students of Years 9, 10 and 11 (Forms 3, 4 and 5) from a total of eighteen (18) schools that comprised of fifteen (15) State schools from the ten

(10) different State colleges, two (2) Church schools and one (1) Independent school, participated in this study between November 2016 and January 2017, by submitting their response to the quantitative Problematic Internet Entertainment Use Scale for Adolescents (PIEUSA).

Results: The results enabled the identification of a four-tiered Internet for entertainment user categorisation: occasional users (13.9%), habitual users (65.5%), at risk users (15.4%) and problematic users (5.2%). Problematic users reported experiences of withdrawal, preoccupation and loss of control.

Conclusion: The identification of these experiences provides a more comprehensive understanding of their experience of problematic use of the Internet for entertainment. It also informs the debate concerning recognition of problematic Internet use and broader behavioural addiction as official disorders. Findings from this study support policy development of targeted adult education and lifelong learning, as well as enhanced media literacy. Recommendations for practice include investment in community-based non-formal educational interventions that combine online and offline interactions. When including sports, these interventions would capitalize on empirical evidence supporting physical exercise as a replacement for online activity that maintains dopamine levels. Future research should account for a more sophisticated pilot study design to allow test and retest of quantitative data, as well as consider the use of mixed-methods research to include qualitative investigation, particularly of home dynamics.

OP5.148

Translation of the clinical outcomes in Routine Evaluation Outcome Measure (CORE-OM) into Maltese.

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Introduction: The Clinical Outcomes in Routine Evaluation – Outcome Measure (CORE-OM) is a 34-item self-report questionnaire measuring the client's status in the four domains of Wellbeing, Problems or Symptoms, Functioning and Risk. It has been translated into 25 different languages and features in over two-hundred publications in various fields of mental health including psychiatry, counselling, clinical psychology and psychotherapy, learning disability, forensic services, and health and social care.

Methods: A description of the process of the translation of the CORE-OM into the Maltese language, following good practice guidelines on translation. A discussion of the methodology outlines the principles followed in the recruitment of independent forward translators, followed by the review of these translations in the 'focus group' held in Malta in June 2018, producing the initial draft

translation. This was followed by field-testing and back-translation and the agreement on the final translation.

Results: Although the main result is undoubtedly the presentation of the final version of the Maltese translation of the CORE-OM, the translation process itself presented challenges and yielded unexpected insights into the relationship between a population's concept of mental health, their culture and the language used to describe symptoms of mental and emotional distress.

Conclusion: The availability of the completed translation invites further psychometric exploration of the translated instrument to improve its reliability and validity. The observations made during the process evoke questions for further research and shed light on how culture-specific factors, including inter-generational, geographical and socioeconomic factors impact understanding of the items in the measure and the final scores.

Disclosures: Marija Farrugia has used study leave and special interest days from her affiliated trust with permission from clinical supervisor. Chris Evans is a trustee of CORE System Trust who owns the copyright on the CORE instruments.

OP5.149

Improving health monitoring of psychiatric inpatients through augmentation of physical health check forms – An audit cycle

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Introduction: The importance of physical health monitoring in patients with severe mental illness (SMI) has critically influenced academic dialogue on psychiatric inpatient care. Evidence indicates SMI patient populations are at an increased risk of all physical health problems due to extensive contributing factors, including a lack of healthcare access and focus on their physical well-being. This study identified areas for improvement in physical health checks and implemented changes in data collection to enable a more consistent approach to physical health in this population.

Methods: The audit, conducted in a UK forensic trust, comprised of 93 inpatients in three groups; Male Mental Illness, Women's Care and Personality Disorders. A preliminary audit conducted in 2016 analysed points of weakness in physical health monitoring for these patients. Changes were then implemented to administrative forms to increase the calibre and consistency of data collection by primary health physicians. A re-audit which replicated the previous data collection model was then conducted in 2018 with a sample population of 45 randomly selected patients to evaluate changes.

Results: Outcomes indicate statistically significant improvement in the current audit data compared to previous data on both Physical Health Screening form detail ($p < 0.0028$) and blood tests ordered ($p < 0.01$).

Conclusion: These findings illustrate the significant impact that altering data collection forms for primary

health physicians has on ensuring thorough physical health examinations for each patient. Such changes may be implemented in a diverse array of inpatient healthcare settings where the primary focus may be on mental illness rather than physical well-being.

OP5.150

Preparing to prescribe medicines: Delivering better training to the next generation of doctors

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Prescribing medicines is a core activity for all healthcare systems, both in hospitals and primary care. In the UK, an average of around 20 prescriptions are written for every member of the population each year. Prescribing is a challenging task for any healthcare professional. Prescribers have to select the correct medicine, dosage, route, and frequency of administration, sometimes in the face of diagnostic uncertainty, taking into account potential individual variability in pharmacokinetics and response as a consequence of co-morbidity, genetics, and interacting drugs. Given that individual patients have different ideas and expectations, and the outcome of any prescription is uncertain, the prescriber also needs to be able to counsel the patient and plan an appropriate strategy for monitoring and follow-up for evidence of benefit and/or harms. Given these complexities, it is perhaps not surprising that poor prescribing is common: around 5 to 10% of UK prescriptions contain an error. These errors result from a combination of poor performance of individual prescribers and the increasing demands they face as a result of the increased age and frailty of patients, the growing complexity of treatment regimens, and an increasingly pressurised healthcare system. In these circumstances it is important that undergraduate and continuing education provides the training to ensure that all prescribers meet minimum standards of prescribing competency. However, recent studies show that junior prescribers often feel underprepared for and anxious about prescribing, a concern echoed by their supervisors and the regulatory bodies. In response to these concerns, the British Pharmacological Society and UK Medical Schools have developed the Prescribing Safety Assessment (PSA) as a summative assessment of knowledge, judgement and skills related to prescribing and supervising the use of medicines in a modern healthcare system. The PSA is intended to enable final-year medical students at the end of their undergraduate training to demonstrate that they have achieved the necessary competence to prescribe, and supervise the use of, medicines in a modern healthcare system. This presentation will describe the development of the assessment items, the online system used to deliver of the PSA, the performance of the UK candidates and medical schools, and the basic psychometric properties of the assessment. It will go on to describe the various international collaborations that have developed and the opportunities that exist to create global standards of prescribing practice.

OP5.151

The contemporary adult Maltese smoker phenotype

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Introduction: Cigarette smoking has been associated with the development of many chronic diseases, including type 2 diabetes mellitus. This study aimed to determine current smoking prevalence as well as the anthropometric and biological phenotypes associated with tobacco smoking among adults in Malta. Additionally, this study could explore any existing links between glycaemic control and smoking at a population level in Malta.

Methods: A cross-sectional study was conducted on a randomized sample of the adult population in Malta between 2014 and 2016. Socio-demographic characteristics were determined while anthropometric and biochemical measurements allowed phenotype profiling. Multivariate analysis was performed to establish links between smoking status (current, former, passive, none) and glycaemic status (normoglycaemia, impaired fasting glucose, diabetes mellitus).

Results: Current smoking prevalence in Malta was higher than in neighbouring countries (24.30% CI 95%: 22.98 – 25.66), with a male preponderance (29.73% CI 95% 27.77-31.77). Current and passive smokers had the lowest median systolic blood pressure (120mmHg respectively). Current smokers had the lowest body mass index (27.82Kg/m²) among all. The opposite was true for former smokers who had higher median BMI levels (28.83Kg/m²), the highest fasting blood glucose (5.56mmol/L) and triglyceride levels (1.02mmol/L). Being a former smoker was significantly linked with having a higher glycemic status when compared to current and non-smokers (OR: 1.41 CI 95%: 1.07 – 1.85 $p=0.01$) after adjusting for confounders.

Conclusion: Among adults in Malta, former smokers present higher biochemical and glycaemic risks. This warrants preventive care both at individual and population levels.

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OP5.152

Plethysmography and its relationship with biochemical parameters among the Maltese population

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Introduction: Plethysmography is an ever increasing test being performed at Mater Dei Hospital, Msida, Malta. The aim of the study was to obtain descriptive data regarding plethysmography in the Maltese population as well as to investigate the association of these lung function tests to various biochemical parameters.

Methods: Two hundred and eighty-two patients who had plethysmography between June 2015 and March 2016 at Mater Dei Hospital were enrolled in the study. The indications for referral, demographic data, lung function parameters, white cell count (WCC), urea, potassium and fasting blood glucose were noted. The mean BMI of the population cohort was 29.06.

Results: BMI was found to be negatively correlated to serum potassium levels (r value: -0.14) and residual volume (r value: -0.2). DLCO, total lung capacity and forced expiratory flow in one second were negatively correlated to the WCC (r value: -0.2, -0.17 and -0.12 respectively) in the population. The current study confirms a significant association between lung function testing, diabetes, BMI and total serum white cell count after correcting for confounding factors. This highlights the need for clinicians to be more aware of the possibility of underlying lung disease in these patients.

Conclusion: A good clinical evaluation using history and examination of such patients is essential so as to identify which patients should be referred for lung function testing. Such early referrals could potentially avoid progression of undiagnosed lung disease thus reducing the burden on the health care service with particular emphasis on acute hospital admissions and respiratory outpatient clinics.

OP5.153

Beta-blocker induced asthma in Malta

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Introduction: Beta-blocker induced asthma has been described for over 50 years, and several guidelines recommend the avoidance of beta-blockers in asthma. The authors aimed to study the local frequency and symptomatic benefits of stopping beta-blockers in asthmatic patients.

Methods: The study included patients who received beta-blockers followed by inhaled asthma treatment on their free medicines entitlement locally. Subjects were interviewed by telephone and data was collected relating to medication use and asthma symptoms.

Results: The total study cohort included 100 patients, with a mean age of 67 years (range 46-87). 43% recalled asthmatic symptoms while receiving the beta-blocker, including 21% cough, 14% dyspnoea and 10% wheeze. Beta-blockers included atenolol, carvedilol and propranolol. 51% of the total cohort stopped their beta-blocker on being diagnosed with asthma, and this was more

frequent when patients were diagnosed by a respiratory specialist (59.3%), than by a general practitioner (46.9%) or general medical physician (40.9%). 48.9% experienced symptomatic improvement on stopping the beta-blocker: 52.4% in cough, 50% in dyspnoea and 40% in wheeze.

Conclusion: Asthmatic symptoms are common while on beta-blockade. There is a need for increased awareness on beta-blocker induced bronchospasm, particularly since symptoms often improve on withdrawal of the beta-blocker.

OP5.154

Environmental factors effecting the incidence of spontaneous pneumothorax

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Introduction: Spontaneous pneumothorax (SP) is a common occurrence especially in young male asthmatics and smokers. Several studies have shown that this condition occurs in clusters although other reports showed the contrary. There is evidence that clustering of cases occur as a result of severe changes in atmospheric pressure. The literature is however very limited with regards to the relationship between air pollution and spontaneous pneumothorax.

Methods: Observational study on consecutive patients admitted with SP from January 2010 to December 2014. The data regarding dates of admissions, gender, age, residential address, smoking history, relevant medical history and sequential management of the pneumothorax were collected and tabulated. The admission dates were analysed to test for clustering of admissions of patients. The patients were identified by location to assess the incidence of SP in different locations or areas. The Environment and Resources Agency (ERA) of Malta supplied daily particulate data from 3 different sites in the archipelago for the years 2010-2014.

Results: There were 112 patients presenting with 134 episodes of SP. The mean age was 29 years and 86.6% were males. No admission date clustering occurred and therefore linkage to atmospheric pressure changes cannot be made. There was however a very significant increase in incidence in patients hailing from the harbour area ($p < 0.00001$). ERA data shows that there was a similarly significant increase in particulate material in the air of the harbour locality when compared to non-harbour areas.

Conclusion: SP is commoner in men and smokers. There was no evidence of admission day clustering but areas with increased air particulate matter had an increased incidence of patients with SP. Increased air pollution seems to increase the incidence of SP either directly or indirectly.

OP5.155

The outcome of a group of patients post-bariatric surgery in Malta

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Introduction: Bariatric surgery (gastric bypass and sleeve gastrectomy) was introduced in Malta in 2014. An audit of the results of operative complications, post-operative weight loss, comorbidity resolution and patient satisfaction was carried out.

Methods: Fifty-seven patients were included in this study. It was carried out by review of patient progress post-bariatric surgery and completion of the Short Form 36 Health Survey to assess patient outcome. No specific guideline was used. Comparison was drawn between the data collected in this study and a local pilot study carried out in 2016, as well as to other similar international studies.

Results: Fifty-seven patients: 18 males, 39 females; age range 22-65 years. 54.4% underwent gastric bypass, 45.6% underwent sleeve gastrectomy. Average hospital stay was 3-4 days. A general resolution of comorbidities was noted, particularly in obstructive sleep apnoea and asthma, followed by diabetes mellitus, dyslipidaemia and hypertension.

Conclusion: Bariatric surgery has been proven to be beneficial to the physical wellbeing of our patients with a general reduction in medical comorbidities and overall patient satisfaction. There seems to be a role for bariatric surgery in Malta.

OP5.156

Surgery for upper gastrointestinal cancer: an individual surgeon's outcomes

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Introduction: Laparoscopic cancer surgery is routinely used locally, particularly for colorectal neoplasms. This audit highlights the outcomes of upper gastrointestinal (GI) cancer surgery from a single firm at Mater Dei Hospital, with particular emphasis on the laparoscopic approach.

Methods: The period of data inclusion spans from 1st July 2013 till 30th June 2018. Patient demographic details were noted as well as surgical approach, post-operative stay, complications, survival and histological details of the resected specimen.

Results: Thirty-seven patients (mean age 68.8 years) were subdivided by cancer site (oesophageal [n=5], junctional [n=9], gastric [n=18]). Gastrointestinal stromal tumours (GIST) (n=5) were documented separately. Thirty patients (81.1%) were alive at time of data collection. Median survival time was 815 days. Highest survival was for GIST, which were all gastric. Intra-operative complication rate was 5.4% (n=2) and unrelated to surgical technique. Thirty-day mortality was 2.7% (n=1) following small bowel infarction in a patient with known arterial disease. The majority of tumours were adenocarcinomas on histology.

Conclusion: Several studies confirm that laparoscopic upper GI surgery carries less risk of intra-operative blood loss and complications with no difference in number of lymph nodes harvested and oesophageal anastomotic leaks

compared to open. In particular to gastric surgery, the laparoscopic approach allows for a faster return of bowel function, oral intake and reduced hospital stay.

OP5.157

Endoscopic ultrasound: a new diagnostic and therapeutic tool at Mater Dei Hospital

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Introduction: Endoscopic ultrasound (EUS) is a technique which enables endoscopists to visualise and carry out interventions on lesions outside the gastrointestinal tract lumen, lesions which were previously inaccessible endoscopically. It is also very accurate in the staging of luminal gastrointestinal and pancreato-biliary tumors. This abstract gives an overview of the indications for EUS at Mater Dei Hospital between June 2016 and June 2018.

Methods: A total of 299 diagnostic EUS procedures have been performed; 194 and 105 procedures were carried out with the linear and radial scopes respectively. Two interventional cystogastrotomies were performed to drain pancreatic fluid collections. Fine needle aspiration/biopsy was performed in 128 procedures. EUS and ERCP were carried out in the same session in 40 patients.

Results: Indications for EUS included pancreatic pathologies (135), staging of luminal tumors (51), submucosal lesions (31), biliary pathologies (60), lymphadenopathy (5), thoracic masses (3) and ampullary lesions (14). Cystic lesions of the pancreas (51), cancer (56) and neuroendocrine tumors (10) were the leading indications for pancreatic EUS. Commonest requests for staging of luminal malignancies were oesophageal (17), rectal (4) and gastric (30) cancers. Gastro-intestinal stromal tumors and lipomas (9) were the most common submucosal lesions. Cholangiocarcinoma (18), biliary abnormalities (32) and choledocholithiasis (7) represented the majority of biliary pathologies.

Conclusion: Since its introduction, EUS has revolutionised the investigation and staging of lesions which were previously considered to be inaccessible radiologically and endoscopically. Endosonography should be considered in the work-up of patients with these lesions.

OP5.158**A study of antibiotic resistance patterns in *Helicobacter pylori* strains isolated from gastric biopsies at Mater Dei Hospital**

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Introduction: *Helicobacter pylori* (*H. pylori*) is a Gram-negative micro-organism associated with dyspepsia, mucus-associated lymphoid tissue lymphoma, gastritis, and peptic ulcer disease. Current treatment regimens include triple-therapy which consists of a proton pump inhibitor and two antibiotics such as amoxicillin, clarithromycin, metronidazole and fluoroquinolones. Eradication failure of *H. pylori* has been documented abroad. Aim: To determine the resistance rates for clarithromycin and fluoroquinolones in patients with *H. pylori*.

Methods: Patients above 18 years of age, scheduled for an elective oesogastroduodenoscopy were recruited. Exclusion criteria included: previous *H. pylori* treatment and recent antibiotic usage. Four gastric biopsies were collected, two from the antrum and two from the corpus. All four biopsies were combined and digested with tissue-lysing buffer and Proteinase K. Automated DNA extraction was performed followed by real-time polymerase chain reaction for *H. pylori* DNA detection. Positive samples were tested for clarithromycin and fluoroquinolone resistance using amplification and reverse hybridization techniques.

Results: Two hundred patients (range 20-92 years) were recruited (females = 54.4%) with the majority (80%) being non-smokers. *H. pylori* was present in 25% of patients. Gene mutations indicating fluoroquinolone resistance were present in 23% of patients. A further 23% of patients exhibited clarithromycin resistance, while dual resistance to both clarithromycin and fluoroquinolones was detected in 6.3% of patients.

Conclusion: This is the first study in Malta to define local *H. pylori* resistance patterns. Current data suggests that treating *H. pylori* empirically may not be ideal. Determining antibiotic susceptibilities would enable the clinician in prescribing targeted treatment and thus enabling its eradication.

OP5.159**Endoscopic submucosal dissection (ESD) for minimally invasive management of gastric and rectal neuroendocrine tumours (NETs): An international collaboration**

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Introduction: Gastric and rectal neuroendocrine tumours (NETs) are potentially aggressive tumours originating from neuroendocrine cells. In the early stage, they present as small submucosal lesions and are often indolent. Endoscopic submucosal dissection (ESD) is an established advanced endoscopic technique, which allows en-bloc R0 resection of mucosal and submucosal lesions as a minimally invasive alternative to surgery.

Methods: Retrospective review of gastric and rectal NETs resected by ESD at Jichi Medical University Hospital, Shimotsuke, Japan and the Royal Free Hospital, London, UK between July 2014 and February 2017. Demographic, endoscopic, histopathological and follow-up data were collected and analysed gastric and rectal NETs. To assess the effectiveness and safety of ESD for the management of gastric and rectal NETs.

Results: Twenty ESDs were performed in 19 patients (median age 58±12.1 years). Five NETs were located in the stomach (25%) and 15 in the rectum (75%). Mean lesion diameter was 9.5 mm ± 2.9 mm. Histopathological analysis showed 15 (75%) well-differentiated grade G1 NETs and 5 (25%) well-differentiated grade G2 NETs. R0 resection was obtained in 19 lesions (95%) while R1 resection was encountered in only 1 case (5%). Microvascular invasion was observed in 6 cases (30%) but these patients did not require any further treatment. Deep muscle injury occurred in only 1 case and was managed successfully with prophylactic endoscopic clipping. No significant adverse events (i.e. perforation, bleeding, sepsis or need for surgery) were observed. At >3 months follow-up all 19 patients have shown no evidence of local recurrence.

Conclusion: ESD appears to be an effective, minimally invasive and safe alternative to surgery for resection of gastric and rectal NETs.

Disclosures: Dr Despott receives research support from Aquilant Medical and Fujifilm. Dr Hayashi has received honoraria from Fujifilm Corp. All other Authors disclosed no financial relationships relevant to this publication.

OP5.160

Practice patterns for the management of concomitant gallstones and choledocholithiasis

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Introduction: Patients with concomitant gallstones and common bile duct (CBD) stones should have endoscopic retrograde cholangiopancreatography (ERCP) followed by cholecystectomy. We studied the success rate of ERCP and recurrent choledocholithiasis in those who did and did not have cholecystectomy post-ERCP.

Methods: All patients, diagnosed with CBD stones on imaging between September 2015 and July 2017, and had subsequent ERCP and sphincterotomy, were retrospectively included in this study. Data was collected from medical notes.

Results: One hundred twenty-six patients underwent ERCP for stone extraction. CBD was cannulated in 94%. Twenty per cent had normal ERCP. Ninety-two patients had CBD stones at ERCP. Fifty-eight (63%) had complete stone extraction with 1 ERCP (76%), 2 ERCPs (19%), >2 ERCPs (5%). Nineteen (21%) were lost to follow up or deemed unfit for repeat ERCPs. Thirteen (14%) were still undergoing regular ERCPs. Two (2%) had surgical CBD exploration. Only 41% (29/71) underwent cholecystectomy post-ERCP. Ninety-three per cent (27/29) remained CBD stone-free at a mean follow up of 1 year (5 - 23 months). In the 59% (42/71) who did not have cholecystectomy post-ERCP, 95% (40/42) remained CBD stone-free at a mean follow up of 1 year (1 - 24 months). Five per cent developed new CBD stones requiring another ERCP.

Conclusion: Ninety-five per cent with choledocholithiasis achieve CBD stone clearance with 1-2 ERCPs. Cholecystectomy post-ERCP was not performed in 60%. Choledocholithiasis-free survival was comparable at 1 year in patients who did and did not have a cholecystectomy post-ERCP. This suggests strong benefits from sphincterotomy alone, however cholecystectomy would still be necessary to prevent cholecystitis, biliary colic, cholangitis or biliary pancreatitis.

OP5.161

Diagnostic yield of Endoscopic Ultrasound-guided fine needle biopsy in solid gastrointestinal lesions

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Introduction: Tissue acquisition during endoscopic ultrasound (EUS) has become routine practise in gastrointestinal disease. With a quoted sensitivity of 85%, we studied the local diagnostic yield of such biopsies, based on combined cytological and histological analysis, since the introduction of EUS in Malta in June 2016.

Methods: All patients who had EUS-guided fine needle biopsy (FNB) of a solid lesion in the gastrointestinal tract between June 2016 and June 2018, at Mater Dei Hospital,

Msida, Malta, were retrospectively studied. Data was collected through the medical notes.

Results: Out of 314 EUS procedures done over the first 2 years, 104 FNBs in 95 patients were carried out. The pancreas was the most prevalent location (72%; stomach 17%; lymph nodes 5%; others 6%). 31/104 cases had inadequate sample, while the targeted lesion was not reached in 3/104, achieving an intention-to-diagnose sensitivity of 67.5% (63% in the 1st year; 72% in the 2nd year). The sensitivity was least favourable in gastric lesions (55% vs 72% pancreatic) and when using small gauge needles (20G 80% vs 22G 58% vs 25G 62%). Out of 70 FNBs with adequate sample, malignancy was diagnosed in 66% (benign disease 34%).

Conclusion: The local diagnostic yield of EUS-FNB is suboptimal compared to international standards, likely due to calibration issues in the first few weeks. In fact 2nd year results are much better than the 1st. Focus should be made on gastric submucosal lesions and in particular using a larger needle in pancreatic lesions when possible. Pancreatic malignancy is the most prevalent indication for FNB locally.

OP6.162

The influence of roflumilast combinatory treatment on molecular targets related to chronic obstructive pulmonary disease.

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Introduction: Chronic obstructive pulmonary disease (COPD) causes restricted airflow to the lungs and is presented as dyspnoea, sputum production and chronic cough. Roflumilast is a highly selective PDE4 inhibitor for once-daily treatment of COPD. The aim of this study was to evaluate the effects of roflumilast alone and in combination with other COPD drugs on CRE, AP-1 and NF-kB mediated transcription.

Methods: A549 cells were co-transfected with an appropriate luciferase reporter [NF-kB, AP-1 or CRE] and Renilla luciferase, and exposed in a dose-dependent manner, to roflumilast alone and in combination with salbutamol and/or tiotropium at physiologically relevant concentrations. The cells were then stimulated with appropriate agents (TNF α , PMA, forskolin respectively, as well as cytokine cocktails representative of stable and acute COPD) for 6 hours and assayed for dual luciferase activity. Dexamethasone was used as a positive control.

Results: Roflumilast and all drug combinations increased CRE-mediated transcription. AP-1 and NF-kB mediated transcription were reduced by roflumilast with or without tiotropium as well as by triple drug combinations, but increased with the salbutamol/roflumilast combination. Stimulation with cytokine cocktails in the presence of the three drugs increased AP-1 and NF-kB activity. Dexamethasone reduced AP-1 and NF-kB activity and increased CRE-mediated transcription in all cases.

Conclusion: Roflumilast on its own increased cAMP and anti-inflammatory effects, potentially via its PDE4

activity. However, combination drug outcomes, especially in the presence of salbutamol, gave different AP-1 and NF- κ B effects, which did not follow CRE-activity profiles, thus suggesting novel non-cAMP mediated actions on these transcription factors.

Disclosures: The Endeavour Scholarship Scheme for funding of the Master of Science in Molecular Pharmacology.

OP6.163

Re-auditing concordance to guideline recommendations in chronic obstructive pulmonary disease at Mater Dei hospital

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Introduction: A 2013 audit by Gauci *et al* reviewed 124 patients admitted with an exacerbation of Chronic Obstructive Pulmonary Disease (COPD) and showed 36.0% concordance with the optimal pharmacological therapy prior to admission recommended in the 2012 Global initiative on Obstructive Lung Disease (GOLD) guidelines. The GOLD recommendations have been revised in 2017, hence the authors aimed to re-audit concordance to GOLD 2017 recommendations on pharmacological therapy prior to admission

Methods: The study group collected data on all patients admitted with a COPD exacerbation to Mater Dei Hospital, Malta starting July 2018. The authors collected data on demographics, level of dyspnoea (using the modified Medical Research Council score, mMRC), exacerbation history over the previous 12 months, co-morbidities, COPD treatment prior to admission and spirometry over the previous two years.

Results: The study cohort up to end July 2018 included 33 patients, with a mean age of 69.2 years (range 48-85). The mean mMRC score was 2.6 and the mean number of exacerbations over the past year was 4.1. The majority of patients were graded as Group D (60.6%) followed by Group C (21.2%), Group B (15.2%) and Group A (3.0%). The re-audit showed 31.3% concordance with current 2017 GOLD guidelines. Further results are awaited.

Conclusion: Most patients admitted with COPD are frequent exacerbators belonging to Group D. Concordance with GOLD guidelines is still poor, possibly due to the lack of availability of long-acting antimuscarinics (LAMAs) on the local free medicines entitlement.

OP6.164

Completing the audit. Have oxygen prescription patterns improved with the introduction of the oxygen prescription chart?

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Introduction: Oxygen is a widely used drug, which is essential in the management of hypoxaemia. An oxygen prescription audit carried out in Mater Dei Hospital in 2013 found that only 38.8% of patients actually had

Oxygen prescribed in their treatment chart. This result closely compares to the 42.5% of patients receiving supplemental oxygen with no valid prescription in the 'The British Thoracic Society Emergency Oxygen Audit Report' published in 2015. In November 2016, a new treatment chart was introduced at Mater Dei Hospital which incorporated an oxygen prescription chart as an aim to improve oxygen prescribing.

Methods: Patients admitted to Mater Dei Hospital on medical admissions (excluding cardiology, neurology and haematology admissions) in June 2018 were included in the audit. A standard proforma containing details on the prescription, administration and monitoring of oxygen use was filled in for each patient.

Results: This audit was performed on 109 patients who required oxygen therapy during admission. Oxygen was prescribed on the treatment chart in 64.2% of cases, a significant improvement from 38.8% in 2013, having been prescribed by the A&E physicians in the majority of cases (69.5%). Out of those patients having had oxygen prescribed in the drug chart, only 5.6% did not have the delivery device specified and 2.8% did not have flow/concentration specified. 25% of patients had no specified target range documented on the treatment chart. 47% of those who had a target range indicated were found to have SpO₂ outside the target range. Only 18.3% of patients had the nurse's signature at every oxygen check on the drug chart.

Conclusion: A hospital drug chart with an assigned oxygen section has led to an overall improvement in oxygen prescription. This study has however identified the need to improve the documentation for oxygen target range values. Medical staff should also ensure and document that oxygen saturation matches the target range specified for the individual patient.

OP6.165

Endobronchial Ultrasound Transbronchial Needle Aspiration (EBUS-TBNA) – A new diagnostic service at Mater Dei Hospital

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Introduction: Linear (convex probe) EBUS-TBNA is a specialised bronchoscopic technique that utilises ultrasound to enable visualisation and sampling of structures within and outside the bronchial wall via transbronchial needle aspiration.

Methods: All patients who underwent EBUS-TBNA at Mater Dei Hospital since its introduction in September 2016 were included. Data was collected retrospectively from I-soft, Electronic Care Summary (ECS) and digital imaging systems. Patients were followed up to ascertain their final diagnosis.

Results: 45 EBUS-TBNA procedures were carried out (mean age 59 years; range 17-86 years). EBUS-TBNA sampling revealed malignancy in 21 patients (47%); 16 cases (36%) were consistent with a lung primary (6 small cell; 5 adenocarcinoma; 5 squamous) and a remaining 5 cases were consistent with metastatic disease from other

sites. One additional patient was correctly down-staged through EBUS-TBNA sampling and referred for curative pneumonectomy. Malignancy was therefore diagnosed and staged correctly in 88% of cases (22/25). In 13 patients (29%) EBUS revealed granulomatous disease, with 6 (13%) having a diagnosis of TB confirmed and another 7 patients (16%) diagnosed with sarcoidosis. In total, granulomatous disease was diagnosed and staged correctly in 81% of cases (13/16). Seven procedures (16%) revealed benign or reactive lymph node tissue with a further 3 (7%) being inadequate samples. In terms of total diagnostic yield, cytology/culture alone was diagnostic in 73% of procedures (33/45), with histology alone being diagnostic in 82% of procedures (37/45). The combined diagnostic yield was 87% (39/45). Appropriate sampling was achieved in 93% (42/45). There were 6 minor complications reported with 5 patients (11%) admitted overnight for observation.

Conclusion: EBUS-TBNA is a safe and sensitive diagnostic and staging tool with local results obtained so far achieving targets set by the British Thoracic Society recommendations and reaching an 88% diagnostic sensitivity for malignancy.

OP6.166

Safety and Diagnostic Accuracy of CT-guided Lung Biopsies in Malta

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Introduction: Aim: To assess local practice in computed tomography (CT)-guided lung biopsies and compare to British Thoracic Society (BTS) standards as well as to previous departmental audits.

Methods: All CT-guided lung biopsies performed at Mater Dei Hospital in 2015 and 2016 were included. Data collected included maximal diameter of lesion, distance of lesion from pleura, emphysema severity, whether fissures were crossed, patient position, pneumothorax on completion, pneumothorax needing chest drain insertion and haemoptysis.

Results: The results of this audit show that current local practice is meeting recommendations in terms of diagnostic accuracy of biopsies. A slightly higher rate of complications is seen locally when compared to guidelines; the reasons for this are currently being analysed however, the main contributor is felt to be the ever-decreasing size of lesions targeted. Smaller lesions were rarely targeted when the last set of international guidelines were issued. Various positive and negative correlations were found including between lesion size and incidence of pneumothorax, lesion size and haemoptysis and patient position and incidence of pneumothorax. To the best of our knowledge, the latter has never been published in literature.

Conclusion: CT-guided lung biopsy has evolved rapidly since the publication of the BTS guidelines. Local practice does not completely meet recommended guidelines; this is thought to be due to an increasingly technically challenging workload as opposed to shortcomings in local practice. A number of interesting correlations were also found, one of

which appears to have never been published in literature. Re-audit is planned after the end of 2018.

OP6.167

Development and testing of the RiBridge artificial rib

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Introduction: Defects resulting from resection of lung cancers invading the chest wall are conventionally repaired using a two-layer prolene mesh and bone cement sandwich. This carries a 25% risk of respiratory complications including respiratory failure. Ribs have complex shapes in that they are curved in three different directions – in-plane curvature, out-of-plane curvature and a helical twist. Current rib plates must be twisted manually using large pliers and the result is often an approximation. We aimed to develop an artificial rib, capable of easily follow rib curvature, which could be covered with pericardial sheets to maintain respiratory function.

Methods: An artificial rib was manufactured in 0.5mm medical-grade Titanium-alloy (Ti6Al4V) with two narrow parallel struts anchoring into curved fixation plates. This design gave flexibility to mould to rib contours in all three geometric planes when twisted by surgeons' hands. Mechanical and computer finite-element-analysis (FEA) testing were performed.

Results: Maximum physiological force was determined at less than 200 Newtons (N). Maximum device tensile failure testing was 3.14 kN. Maximum bending moment in three-point bending test was 48 Nm. FEA testing confirmed the mechanical tensile and compressive strength testing and indicated a bending moment of 54 Nm.

Conclusion: Mechanical and computer analyses are a European regulatory requirement before in-vivo testing. The RiBridge artificial rib provides a physiological solution to repair of chest wall defects following resection. The device can be contoured by hand to fit differing rib curvatures, offering the surgeon a chest wall repair technique that can be used in patients with limited respiratory reserve.

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OP6.168

Lung cancer resection in 2015 and 2016 at Mater Dei hospital

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Introduction: An audit on lung tumour resection in Mater Dei Hospital throughout the period of 2015 and 2016 was done, with an aim to compare the proportion of lung tumours resected locally with the national recommended standard.

Methods: Data on resected lung tumours was obtained from medical notes and iSoft Clinical Manager. Lung tumours were staged by a radiologist using the TNM 7th edition. The standard used was the one set by the Royal College of Physicians National Lung Cancer Audit team in 2017 which emphasises that the proportion of patients with NSCLC undergoing surgery should be >17%.

Results: A total of 75 lung tumours were resected throughout the above period, where 85% ($n=29$) and ($n=35$) in 2015 and 2016, respectively) were primary lung tumours, while 12% ($n=4$) and 15% ($n=6$) were metastatic, respectively. The proportion of primary lung tumours resected was 15% in 2015 and increased to 18% in 2016. This showed improvement when compared to the resection rate of 9% in 2005 (2). Nineteen percent ($n=27$) of patients diagnosed with NSCLC had surgical resection of the tumour in 2015. This significantly increased to 33.7% ($n=35$) in 2016, thus following the National Lung Cancer Audit standard. Lobectomy was the commonest mode of resection in 2015 (59% ($n=20$), while wedge resection was favoured the following year (68% ($n=28$)).

Conclusion: The proportion of primary lung tumours being resected has doubled from 9% in 2005 to 18% in 2016. Moreover, the proportion of patients with NSCLC undergoing surgery at our local general hospital is beyond the 17% national standard, achieving 19.2% in 2015 and 33.7% in 2016. This can be attributed to the improved diagnostic and therapeutic facilities available.

OP6.169

Assessment of head injury (HI) management in the paediatric population at Mater Dei Hospital

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Introduction: Paediatric HI accounts for a large proportion of A&E visits and admissions yearly. Although most paediatric head trauma results in minor injuries, the presence of long-term sequelae in some, emphasizes the importance of detailed assessments to identify children that may benefit from further imaging/management. Our aim was to assess the management of paediatric HI at our institution.

Methods: Retrospective study of paediatric patients admitted with HI between July 2016 & July 2017 using patients' A&E records. Standards for imaging +/- admission established based on NICE guidelines.

Results: Over 214 patients were admitted with HI within this period, most commonly following falls (~75%) and MVAs (11%). In terms of radiation exposure doctors erred on the side of caution with only 28 patients (13%) with moderate-severe HI undergoing CT scanning within 4 hours of presentation to A&E. Based on NICE guidelines a majority of patients did not possess sufficient clinically significant symptoms to warrant hospital admission. For example, 92% of patients had a GCS of 15 on arrival to A&E. Additionally a majority of patients denied >3 episodes of vomiting (81%), abnormal drowsiness (68%) and loss of consciousness >5 minutes (82%). In a number of cases

clinically significant symptoms, essential in determining the risk of brain injury/need for imaging/admission were undocumented; including GCS (7), loss of consciousness (33) and abnormal drowsiness (6).

Conclusion: Although only a few CTs were performed, the high number of unsubstantiated admissions and undocumented information indicate the need for a paediatric HI proforma for thorough patient assessment and management.

OP6.170

Time to fluid administration in paediatric diabetic ketoacidosis

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Introduction: Diabetic ketoacidosis (DKA) is a medical emergency and merits prompt treatment. Our aim is to evaluate whether fluids are started within a target time of one hour of presentation to hospital for children with DKA.

Methods: This is a retrospective audit of children presenting to the paediatric emergency department (PED) at Mater Dei Hospital with DKA between 2008 to 2017. DKA was defined as per local protocol. Time at hospital presentation, medical visits in PED and wards and fluid administration were recorded. T-test was used for significance.

Results: Sixty episodes of DKA (in 56 patients) were included: 34 males (60.7%); mean age 7.42 years; 7 episodes occurred in known diabetics. Mean values for capillary blood glucose, venous pH and bicarbonate were 28.48 mmol/l, 7.17 and 10.59 mmol/l. Fluids were started at a median [interquartile range (IQR)] of 95.5 (70.5, 128.3) minutes after presentation to the PED. Fluid administration occurred within the one hour target time in 12 DKA episodes (20%), with a higher number of these patients needing fluid boluses when compared to the remaining patients (75% vs 23.9%, p 0.0009); this was the only significant difference. Most patients (49/60) received initial fluids in the admitting wards. The longest delays occurred between PED and ward medical visits - median (IQR) duration of 60.3 (36 - 79) minutes.

Conclusion: Fluids were delayed more than one hour from presentation in the majority of paediatric patients with DKA. Consideration should be given to commencing fluids in PED, to decrease this time lag in starting treatment.

OP6.171

An audit of first afebrile seizure management in Maltese children reviewed in mater dei hospital after professional development was given to paediatric department staff

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Introduction: Medical audits are part of the continuous quality improvement process that focus on specific issues or aspects of health care and clinical practice. When an audit is carried out, a specific clinical outcome or process is examined against well-defined standards. The aim of

any audit is to highlight the discrepancies between actual practice and standard in order to identify the changes needed to improve the quality of care. This audit is the first of its kind which reviewed the management of the children admitted to the general paediatric wards over a two year period in Mater Dei Hospital with a first afebrile seizure.

Methods: The audit involved reviewing of the child's hospital notes on two separate occasions in time and core standards for history, seizures characteristics, physical examination, investigations and information given to family pre discharge was recorded.

Results: The first part of the audit showed that there was a low percentage of proper record keeping. Following the first audit cycle and preliminary educations half of the doctors failed to document developmental history and school performance while recording of details of seizure event had improved. This shows that the doctors are well aware of the importance of detailed seizure event history. However, they lacked in asking about possible factors that could be related to seizure aetiology or factors in the child's development that might cause a predisposition to seizures.

Conclusion: This audit reflects the strengths and the weaknesses in medical note recording in the scenario of a first afebrile seizure. A number of learning points have arisen. It showed that timely teaching and the presence of a specific check list had improved some aspects of the overall clinical management.

OP6.172

Inhalant allergens in Maltese children with Allergic Rhinitis

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Introduction: Allergic rhinitis (AR) is a common condition with significant morbidity and burden on health resources. It is diagnosed by eliciting characteristic symptoms and demonstrating allergen sensitization. Environmental factors may explain differences in sensitizations between different populations. Aero-biological studies and population sensitization studies aid the clinician in choosing the right battery of allergens to test for in each patient. Determining the allergen in the individual patient helps optimize treatment. The aim of this study was to describe the prevalent allergens that cause sensitization of children with respiratory symptoms and to construct a testing panel of aeroallergens that is more relevant to the local population.

Methods: Children aged 2 to 16 years were recruited through the paediatric respiratory and allergy clinic. A clinician conducted questionnaire sought to determine the presence of AR. Patients with characteristic AR symptoms were tested for an extensive battery of allergens by serum specific immunoglobulin E (sIgE).

Results: 51 children were included in the study. Thirty eight children (74.5%) were sensitized to ≥ 1 allergen, while 13(25.5%) tested negative to all allergens despite having symptoms. The predominant allergen was house dust mite, with 89% testing positive to *Dermatophagoides pteronissus* (DP) and *Dermatophagoides farinei* (DF). Allergens, not previously tested by the local department, were shown to

be important in the paediatric population. These included *Parietaria*, olive and nettle.

Conclusion: The study revealed that house dust mites (DP and DF) were the predominant allergens in children with AR. Taken together, pollen allergens, particularly *Parietaria* and olive, constitute a frequent cause of sensitization.

OP6.173

Implications of a mixed methods study on the behaviours and perceptions of paediatricians in Malta towards child protection work

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Introduction: Health professionals fulfil an essential role within the multiagency response to safeguarding concerns. This study aimed to explore the experiences, attitudes and perceptions of paediatricians relating to Child Protection (CP) work in a country characterised by the absence of mandatory and statutory guidance with regard to CP work.

Methods: A mixed-methods approach was adopted, using the explanatory sequential design. The quantitative strand involved a population survey of paediatricians ($n=56$). Data were analysed and used to inform a subsequent qualitative phase, in which data were collected using one-to-one interviews and analysed using thematic analysis.

Results: The response rate was at 95% ($n=53$). Both strands indicated that CP work was perceived as complex, emotive and stressful. Paediatricians perceived themselves to be working within an unstructured system. Despite most reporting to have assessed CP cases, 77.4% ($n=41$) had never received training. The majority reported that response pathways and reporting procedures were unclear and that they were not involved in tasks beyond identification. These factors contributed to lack of confidence and ambivalence towards CP, particularly child sexual abuse. Participants felt reassured by having a designated consultant, however, this role also enabled them to offload responsibility. Overall, CP work was not being fully owned. Trainees appeared more willing to be involved than specialists.

Conclusion: This study suggests that the lack of mandatory and statutory guidance, results in significantly suboptimal practice. Investment in structured training and support systems are recommended to engage professionals. Designated professionals should complement, rather than minimise, the role and responsibility of other professionals

Disclosures: Submitted to the University of Warwick in partial fulfilment for the award of the degree of Master's in Child Health. The research work was funded by the Malta Government Scholarship Scheme.

OP6.174

Underlying diagnoses in neonates admitted to intensive care with tachypnoea

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Introduction: Respiratory distress is a common neonatal problem that may be caused by a wide pathological spectrum. The objectives of this study were to describe the diagnoses and management of neonates admitted to the Neonatal Paediatric Intensive Care Unit (NPICU) with tachypnoea.

Methods: A retrospective study was carried out at the NPICU in Mater Dei Hospital, Malta between January 2012 and December 2014. All newborns aged 0 to 28 days admitted with tachypnoea were included. The underlying diagnoses were classified into respiratory or non-respiratory. Neonates with a respiratory diagnosis were further evaluated according to how they were managed including: administration of surfactant, nCPAP or observation.

Results: A total of 275 neonates were included in this study. The majority, 62.9%, were males, with a median gestational age and birth weight of 36 weeks and 2.76kg respectively. Just more than half (55.6%) were premature, <37 weeks gestation, and 39.3% had a low birth weight, <2.5kg. Although 246 neonates were investigated for sepsis, only 3 had a pathogen isolated from their blood cultures. The 272 babies who had a respiratory diagnosis, namely respiratory distress syndrome or transient tachypnoea of the newborn, were managed on nCPAP (56.4%), surfactant (10.9%), supplemental oxygen (7.3%) or observation (23.6%).

Conclusion: The most common cause of respiratory distress in newborns is caused by an underlying respiratory problem with the most common being respiratory distress syndrome and transient tachypnoea of the newborn.

OP6.175

A study of the Public Knowledge on the Management of Jellyfish Stings

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Introduction: Jellyfish envenomation is common across the Maltese islands. Despite most being harmless, some species may cause local and systemic reactions. The aim of this study is to assess the knowledge of the Maltese general public in managing jellyfish stings.

Methods: A random sample of adults older than 18 years were interviewed in July 2018. The data of 200 respondents was included in the study.

Results: Fifty-nine percent of participants experienced a jellyfish sting. Burning pain (85%) and itching (82%) were listed as symptoms of jellyfish stings. 60% of respondents would clean the area with fresh water rather than seawater (40%). 16% would rub the area. 93% of participants responded that anaphylaxis, a complication of jellyfish stings, warrants medical attention. The following were recognised as symptoms of anaphylaxis; swelling (78%),

rash (71%), difficulty breathing (49%), dizziness (42%) and nausea and vomiting (31%). Vinegar (93%) was the most common treatment modality, followed by ice packs (56%) and hot water immersion for 20 minutes (9%). 11% of participants identified uncomplicated jellyfish stings as an indication for antibiotics. 38% of participants would visit the local health centre and/or Accident and Emergency Department for a review following a jellyfish sting.

Conclusion: Jellyfish stings are frequent in Malta however uncertainty regarding their management is prevalent. Ways of improving the current situation include public campaigns about appropriate treatment modalities, adequate signage at beaches to notify jellyfish risk and introduction of national treatment guidelines based on local species.

OP6.176

Cytoreductive surgery and multivisceral small bowel transplantation. A technically feasible option for patients with end-stage pseudomyxoma peritonei

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Introduction: Cytoreductive surgery and HIPEC can cure Pseudomyxoma. With extensive small bowel involvement or recurrence inevitable disease progression causes small bowel obstruction, abdominal wall failure with fistulation and nutritional failure. Poor quality of life results and is eventually fatal. TPN improves nutrition but not palliate massive abdominal distention and abdominal wall failure. Multi visceral small bowel transplantation could offer life prolonging option in endstage disease.

Methods: Between 2013-2018, 8 end stage pmp patients, following discussion at the Peritoneal Malignancy SMDT and National Transplant MDT, underwent small bowel transplantation. The peritoneal malignancy and transplant teams jointly performed the procedures.

Results: 3 patients radical debulking, 5 complete cytoreduction; followed by transplantation. Organs transplanted: 2 isolated small bowel transplants 6 modified multivisceral transplants including stomach, duodenum-pancreatic complex, small bowel and abdominal wall; 4 received colon and 1 kidney. Mortality: 5 alive at time of review, 36, 31, 20, 17 and 6 months from surgery; 3 died (Day 26, 64 and 5 months) anastomotic leak GVHD and chest sepsis, GI bleed and anastomotic leak, GVHD and bone marrow failure (perfect match).

No rejection of intestinal graft seen. Surviving patients independent of TPN and well at home. One radiological progression of disease and symptomatic new thoracic disease and two with areas of suspected radiological recurrence.

Conclusion: Multi-visceral small bowel transplantation is technically feasible for endstage PMP. It is life transforming giving extra 6-36 months independent of TPN and excellent quality of life. Long term outcomes remain to be determined. This major surgical intervention requires close collaboration of peritoneal malignancy and transplant teams.

OP6.177

Molecular approach to familial breast and colon cancer

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Introduction: Early detection of cancer greatly increases the chances for effective treatment. Currently, relatives of genetically confirmed breast and colon cancer patients participate in a hereditary cancer genetic cascade screening programme. Diagnostic cancer gene panels analysed by Next Generation Sequencing (NGS) have proved to be suitable in identifying mutational signatures of different cancers. NGS technology, also known as massive parallel sequencing has expanded in the last decades with significant improvements, especially in the onco-genetic sector.

Methods: Genetic testing was offered in the Molecular Genetics Laboratories in Mater Dei Hospital. Patients with history or family history of breast ($n=90$) and colon ($n=22$) cancer were tested abroad by NGS using a diagnostic cancer panel that constituted 27 cancer predisposition genes. Cascade screening followed, in which family members of the affected proband were tested locally for the specific mutations. Genetic counselling was then provided to the effected families to discuss further the required screening programs and family planning issues.

Results: Several mutations have been identified in breast cancer (18%) and colon cancer (9%) patients. All cases were heterozygous for the respective mutations, except for one mutation in the BRCA2 which was found as homozygous for the variant allele.

Conclusion: Most of the mutations identified are found in tumour suppressor genes whilst others are involved in DNA mismatch repair mechanism. Most of these lead to loss of function, hence increasing predisposition to tumour formation. All asymptomatic family members that tested positive for a specific mutation have been offered predictive genetic testing, to increase the likelihood of detecting the tumour at an early stage. Each specific mutation affects different pathways and therefore there is a dire need to focus on personalised medicine which constitute mainly tumour inhibitors alongside immune activators.

OP6.178

The role of computed tomography colonography (CTC) in detecting colonic and extra-colonic pathologies

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Introduction: Computed tomography colonography (CTC) is a minimally invasive colon imaging technique for detection of colonic neoplasms. In addition to the colorectum, organs, vessels, bone, and soft tissue are also depicted, with the possibility of diagnosing pathology

outside the large bowel. The aim of our retrospective study was to determine the frequency of colonic and extra-colonic pathologies detected on CT colonography in patients above 50 years of age without any alarm symptoms.

Methods: Patients over 50 years old were identified through our database of patients referred for CTC. The clinical indications and findings were recorded.

Results: 203 patients were recruited. The mean patient age was 62.3 years (range: 50-82 years), 65% being female. The clinical indications were change in bowel habit (68.5%); abdominal discomfort and lower GI symptoms (19.2%); iron deficiency anaemia (8.9%) and raised CEA (3.4%). The clinical findings were diverticular disease (DD) (44.3%); colonic polyps (6.9%); colonic cancer 1%; colonic strictures secondary to DD (0.49%); hepatic steatosis and cirrhosis (15.3%); adrenal adenomas (1.48%); pancreatic neoplasm (0.49%); urinary tract malignancy (2.46%); aortic aneurysms (1.97%). Significant findings needing further medical / surgical care and /or interventions were present in 30.1% of patients, these being colonic pathologies (8.4%), hepatic (15.3%) and other extra-colonic pathologies (6.4%).

Conclusion: This data demonstrates the reliability and importance of CTC in patients who have abdominal and lower GI symptoms even in the absence of alarm symptoms. Its reliability is not only in detecting colonic pathology but also extra-luminal pathology for which patients are asymptomatic and previously undiagnosed.

OP6.179

Incidence of low anterior resection syndrome and its impact on quality of life

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Introduction: Low anterior resection syndrome (LARS) comprises a collection of symptoms affecting patients following restorative surgery for rectal carcinoma. The study aimed to evaluate the incidence of anterior resection syndrome in patients who had undergone anterior resection for rectal cancer, to identify correlation between anterior resection syndrome and risk factors and to assess the impact of anterior resection syndrome on quality of life.

Methods: Adult patients (>18 years) who undergone anterior resection at Mater Dei Hospital from January 2014 to December 2016 were included in the analysis. Patients with recto-sigmoid junction lesions, permanent or persistent stoma, known disseminated or recurrent disease were excluded. Patients who did not have a reconstructed transit for at least one year since closure of stoma were not included in the analysis. Variable factors for LARS were collected retrospectively from clinical records. Eligible patients were asked to participate by filling in validated questionnaires. Approval from Data Protection unit and Research Health Ethics Committee was obtained.

Results: The incidence of anterior resection syndrome was assessed by LARS scale. The impact of anterior resection syndrome on quality of life was analysed using EORTC QLQ-C30 questionnaire. Statistical analysis was used to assess the relationship between the variable factors

and LARS. The association between LARS and patient's quality of life was identified.

Conclusion: LARS score enables quantification of the severity of intestinal and defecatory dysfunction following anterior resection. Identification of factors contributing to LARS and its impact on the quality of life allows for better patients stratification in treatment groups and provision of individualised management plan.

OP6.180

Heat shock protein expression in patients with rectal carcinoma: is it a good predictive biomarker for response to neo-adjuvant therapy?

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Introduction: The expression of Heat Shock Proteins (HSPs) is elevated in various cancers and has been shown to correlate with tumour behavior in animals and humans. This study aimed to evaluate the expression of HSP70 in rectal adenocarcinomas and to analyse its utility as a predictive biomarker by determining its association with tumour features and its ability to predict response to neo-adjuvant therapy.

Methods: A retrospective study was conducted by identifying a total of 71 patients who underwent surgery following neo-adjuvant therapy for rectal adenocarcinoma between January 2009 and December 2014. Rectal biopsies from these subjects were analysed and HSP70 expression was determined in these samples. HSP70 expression in correlation with tumour properties and with response to neo-adjuvant therapy was analysed.

Results: Twenty-six cases (36.6%) expressed HSP70 minimally, 21 (29.6%) had a moderate expression and the remaining 24 (33.8%) had a high HSP70 expression. HSP70 expression showed no statistically significant correlation with AJCC/UICC staging ($p=0.983$), cT ($p=0.168$), cN ($p=0.221$) or cM ($p=0.157$) status. Tumour regression grade based on the Dworak et al model and clinical down-staging based on AJCC/UICC TNM Staging were both utilized as measures of tumour response to neo-adjuvant therapy. Correlation analysis showed no statistically significant association with HSP70 expression in rectal adenocarcinoma ($p>0.05$).

Conclusion: HSP expression was not found to be associated with tumour clinico-pathologic features and response to neo-adjuvant therapy. The findings in this study do not demonstrate HSP70 as a useful predictive biomarker for response to neo-adjuvant therapy in rectal adenocarcinoma.

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OP6.181

Compliance to driving regulations amongst epileptic patients in Malta

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Introduction: The Maltese law sets out strict regulations restricting driving of motor vehicles for a certain period, determined by the type of epilepsy. The objectives of our audit were to evaluate adherence to driving regulations in Maltese epileptic patients, determine reasons for non-conformity, and explore methods to improve adherence.

Methods: Patients were randomly selected from the epilepsy database collected by the Neuroscience Department at Mater Dei Hospital, as well as from outpatient clinic visits and hospital inpatients. Patients were excluded if they had a seizure within a year of the audit or were not in possession of a driving licence. The selected patients were asked to fill in an anonymised questionnaire regarding demographics and adherence to driving regulations post diagnosis. The patients' opinions on methods to improve adherence was also sought.

Results: Forty-four patients met the inclusion criteria from a total of 109 patients interviewed. 80% ($n=35$) of the cohort claimed they were aware of the driving restrictions. 52% ($n=23$) admitted to breaking the law at some point from diagnosis. Out of these, 9% ($n=2$) were involved in a motor vehicle accident leading to an injury to self and/or others. Further education, verbally (by doctor or nurse) and/or via leaflets, better public transport and free public transport for epileptic patients were all mentioned as initiatives to improve adherence amongst those who were not compliant. 9% claimed they would still drive regardless.

Conclusion: More than half of the cohort were found to disregard the driving regulations as stated by Maltese law. Better education, including the introduction of an epilepsy specialised nurse and public transport initiatives could possibly help in improving adherence.

OP6.182

Antimicrobial resistance in the medical curriculum - a European-wide study

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Introduction: Antimicrobial resistance (AMR) is a very serious concern in medicine and many efforts are being made to promote the proper use of antimicrobials. Nonetheless, medical students do not have the necessary knowledge about AMR and get a first hand experience of the inappropriate use of antimicrobials through their clinical attachments.

Methods: A literature review to understand current guidelines was carried out. Information about AMR practices was gathered from 40 European medical faculties by means of a survey sent to student representatives. The study took place over 10 months, from January to October 2017.

Results: Ninety percent of students understood the general principles about the importance of AMR however only 25% of students experienced preventative measures to control AMR. 44% of medical faculties around Europe

included AMR in their medical curriculum and 20% of student organisations organised projects related to AMR. 23% of hospitals introduced initiatives to prevent AMR. 77% of healthcare professionals appreciated the threats related to AMR, however only 8% of patients understood AMR's sequela.

Conclusion: Medical students are important collaborators in antimicrobial stewardship and should be prepared appropriately to prescribe antimicrobials. By including medical students as stakeholders in AMR promotion, there is an increase in AMR awareness in patients and other healthcare professionals. The study findings highlight the need for optimising medical education in the field of AMR. Recommended areas of improvement include increased training opportunities in antimicrobial prescribing, the inclusion of AMR in the medical curriculum and the inclusion of medical student organisations as stakeholders in the fight against AMR.

OP6.183

Developing a trustworthy quality improvement framework within a community-based NHS trust

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Introduction: To develop a dynamic and facilitated Quality Improvement Project (QIP) Framework within a community NHS Trust for Doctors-in-Training to improve junior doctor engagement with Quality and Service Improvement Projects

Methods: The Chief Registrar-led project involved evaluation of prior facilities and support for doctors requesting to lead or involve themselves in QIPs. This included investigation of other Trusts' experience in implementing similar frameworks. The Trust commenced offering training and educational opportunities to doctors with optional drop-in sessions. Project registration was included to provide ease of communication with a plan for future project database creation. The current shift is towards further QIPs and we highlighted the need for improved support for doctors. The requirement for a QIP to be mandated as a part of all trainees' portfolio indicated a need for the Trust to provide facilitation and support.

Results: The number of QIPs at six months increased from none to five doctor-led projects. This equated to over a quarter of the Trust's doctors-in-training being involved in a QIP. Two of the QIPs were presented at a Trust Showcase event. One of the QIPs showed a cost saving of £40k - £80k when taking staff time only into consideration.

Conclusion: Continued QIP support and education is to be introduced to all newly inducted doctors. Eventual project database will be available on the intranet. The results of future QIPs could be used to calculate cost savings for the Trust. The initial QIP framework was targeted towards doctors-in-training but after further consultation with the consultant team it was to be rolled out to any interested doctors.

OP6.184

CPR training in Malta: the role of the Malta Resuscitation Council

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Introduction: Cardiac arrests make up a third of adult deaths in Europe and the US, with one person suffering a cardiac arrest every 45 seconds, amounting to 2-3,000 deaths each day. Most victims of cardiac arrest will die and <10% of 'out-of-hospital' (OOH) arrests survive to discharge from hospital. Yet early and effective intervention via good CPR and, where indicated, defibrillation via an AED may result in the return of spontaneous circulation (ROSC) and survival in up to 60% of victims. In Malta, despite numerous initiatives, the likelihood of effective bystander intervention is no more than 39% and survival to discharge just 6%. The MRC, in conjunction with like-minded partners, is committed to improve these somewhat dismal figures.

Methods: The Malta Resuscitation Council (MRC) was set up in 2004 and immediately became a full member with voting rights on the European Resuscitation Council (ERC), and a registered Voluntary Organisation (VO889) in 2014. Its statute highlights its mission to set the standard of CPR as well as to promote training and disseminate education. In line with ERC regulations, instructors must complete rigorous training and retraining at intervals, and offer their expertise on a voluntary basis. Funds raised from courses are recycled to buy manikins and equipment, support instructor training and, more recently, to donate equipment to third parties.

Results: To-date, the MRC regularly organises BLS, ILS, ALS, EPLS, NLS, ETC and GIC courses (6,8,6,2,2,1 and 1 per annum, respectively), and will launch its first EPiLS in 2018. Collectively, these courses have trained >2,000 Malta-based individuals in adult and paediatric resuscitation. The award to Malta for the best team in the annual ERC CPR competition is testament to the high standards achieved. Support and training of teachers has resulted in >300 schoolchildren having achieved CPR skills, and the impetus is now to include CPR onto the National Educational Curriculum. Donations of numerous manikins and AEDs have helped launch a campaign for populating Malta with operative AEDs and bystanders capable of using them. A pan-country app to identify potential bystanders as well as the nearest AED is work in progress.

Conclusion: Resuscitation has become a new subspecialty: through the MRC, Malta has made considerable strides in the establishment and training in resuscitation, both for medical/paramedical staff as well as laypersons. The workload in resuscitation has increased inexorably and, if Malta is to achieve the high survival rates as proposed by the ERC, more commitment by the MRC and its partner institutions involved in resuscitation is required.

OP6.185

Together we learn: a 3 year study of near peer clinical teaching and learning.

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Introduction: Medical students are expected to independently learn how to undertake a patient interaction. Without direction, students often stumble at this vital hurdle. As such, there is an opportunity to provide guidance for these students using the experience of more senior peers, facilitated by the Near to Peer Assisted Learning (N-PAL) pedagogy.

Methods: The N-PAL teaching focused upon clinical history taking, physical examinations and case presenting. Students were drawn from the 3rd and 4th academic years upon a voluntary basis, with a target ratio of 2:1, tutee:tutor. The students' confidence was evaluated in these areas before and after the series of 10 sessions and compiled the data from three consecutive years.

Results: Overall the response given by the 3rd year students was positive, with their average confidence rising in taking histories (from 2.84 to 3.98), examinations (from 2.62 before and 3.79 after) and presenting (from 2.66 to 3.75). The levels of significance were; $p=0.008$, $p=0.068$ and $p=0.012$, respectively. Similarly, 95% of the tutees felt they were given constructive feedback, facilitating an increased sense of capability in using the basic skills of a clinical interaction. This mirrored their expectations prior to the commencement of sessions. Thus, 94.25% of the tutees, felt these sessions were valuable in improving their skills.

Conclusion: Overall, this study indicated the positive impact upon the confidence of 3rd year students through the N-PAL pedagogy in critical areas they are expected to learn independently. This study provides compelling evidence to further promote such teaching and learning strategies within medical education.

OP6.186

A study on the attitudes of foundation doctors towards general practice and their experience during the three-month rotation at health centres

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Introduction: A substantial number of foundation year (FY) doctors have a three month rotation in family medicine at the health centres. The aim of the study was to understand the factors that influence FY doctors' attitudes towards general practice (GP) and the reasons why these doctors would choose a career in GP.

Methods: This was a cross-sectional questionnaire study carried out with FY doctors in Malta. The online server Google Forms was used to collect data and manage the questionnaire. Data was extracted to and analyzed using Excel 2010.

Results: Over the one year study period 61 FY doctors had a GP rotation. The questionnaire response rate was 54%. For 72.7% of respondents, choosing a rotation in GP had been a priority; of these, 88% would consider a career

in GP but it was the preferred career choice for only 50%. 69.6% of doctors gave a very positive rating (>7/10) of their experience at health centres, and 78.8% experienced a positive change in attitude towards the specialty of family medicine after this rotation. The rotation was rated as having the greatest influence on career choice. Quality of life was the most popular factor attracting doctors to GP. Lack of respect towards general practitioners and the challenge of managing clinical uncertainty with patients in family medicine were the two main factors which discouraged doctors from such a career.

Conclusion: The Foundation rotation in GP is one of the main factors influencing career choice and it should be ensured that during this, doctors get an experience which is a true reflection of what the specialty entails.

OP6.187

Setting up a Liver Retrieval Service in Malta

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Introduction: A proper transplantation programme requires an excellent organ donor retrieval service. When there is a donor at our national hospital (Mater Dei), a foreign team comes to retrieve the liver as part of a multiorgan retrieval procedure and takes it back to the recipient centre for transplantation. A local Maltese team doing the retrieval in Malta would achieve better control of the donor operation and increase the efficacy of the local transplantation service.

Methods: A retrieval team consisting of surgeons, a scrub nurse, a perfusionist and ancillary staff will do the local retrieval and then send the liver to the respective recipient centre via commercial or other designated flights.

Results: At time of writing of this abstract a retrieval team from King's College Hospital comprising a Maltese surgeon has already been twice to Mater Dei Hospital to retrieve the liver as part of a multiorgan retrieval operation.

Conclusion: A liver retrieval service in Malta by the Maltese is an imminent reality and is the first step in giving a liver transplantation service to the Maltese population.

OP6.188

Male urology infertility clinic – an adjunct to assisted reproductive technology. adapting to a rapidly changing cultural, familial, legal and social national scenario.

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Introduction: Data on male factor infertility in the Maltese islands is lacking. This retrospective study aims to determine the aetiologies, clinical characteristics, biochemical and radiological investigations of males referred to the Male Urology Infertility Clinic in the years 2015 – 2016. It compares the pregnancy rate of the female partner and the birth rate in couples with the male

suffering from male factor infertility to the pregnancy rates and birth rates of the general Assisted Reproductive Technologies population in Malta.

This study also proposes a dynamic role to the Male Urology Infertility Clinic in the current changing social, legislative and familial structural societal scenarios.

Methods: A total of 274 ($n=274$) male patients were seen at the Male Urology Infertility Clinic from January 2015 till December 2016. The clinical data pertaining to the complete cohort of the clinic during these two years was digitized from the notes and analysed.

Results: From a total of 274 male patients, 117 female partners underwent IVF and 25 healthy babies were born. This results in 42% of male patients where the female partner undergoes IVF and 21% of these patients fathered a child.

Conclusion: The trend appears to closely follow the pregnancy and birth rates of the general Assisted Reproductive Technologies population locally.

OP6.189

ART clinic - the Maltese experience

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Introduction: It is estimated that infertility affects around one in 4-6 couples worldwide. Prior to 2014 infertility services offered on the National Health Services in Malta were limited. Couples were investigated but then advised to seek treatment elsewhere. With the setting up of the Assisted Reproductive Technology (ART) clinic, this changed. Referrals are accepted from gynaecologists within Mater Dei hospital and also from within the private sector. The care offered is multidisciplinary and includes investigation of both the male and female partners, counselling, genetic testing and various treatment options eventually leading to In Vitro Fertilisation (IVF) if all else fails. The clinic is manned by various specialists including obstetricians and gynaecologists, embryologists, nurses, a geneticist, a urologist, a counsellor and secretarial staff. Cycles are at present carried out every 8 weeks but plans are in place to start a continuous programme which should spread the workload more evenly and hence improve the success rates. Couples eligible for treatment are at present offered 3 cycles between the age of 25-43 as laid down in the Embryo Protection Act which came into force in 2013 however amendments to this law are currently being discussed on a national level.

Conclusion: Here we present the total number of cycles done so far, including a total of 789 couples from January 2014 till July 2018. Out of these, 648 underwent a fresh cycle while 141 underwent a frozen cycle. Outcomes of such pregnancies and factors leading to infertility are further classified.

OP6.190

Pregnant Maltese women on opioids

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Introduction: In Malta, 0.4% of circa 4000 live births are babies born to opioid-dependent mothers. A

comparison between opioid using mothers and the general Maltese pregnant population was undertaken.

Methods: Retrospective data (Jan 2012-Dec 2016) from the National Obstetric Information System (NOIS) was compared to that obtained from Sedqa the National Substance Misuse Agency. Consent was obtained to investigate mothers from the Malta Medical School Ethical Board and King's College London Ethical Committee. Socio-biological characteristics and obstetric outcomes were studied.

Results: All mothers ($n = 71$) who were known or who at the antenatal booking clinic admitted using opioids were included along with their neonates. Methadone-maintained mothers were significantly more likely to be younger ($p<0.001$), unmarried ($p<0.001$), multiparous ($p=0.08$), of lower educational achievement ($p=0.007$), smokers ($p<0.001$) and unemployed compared to the general Maltese pregnant population. Forty-one per cent worked in the sex industry; 72% were never regularly employed ($p<0.001$), 44% were Hepatitis C positive while none were HIV positive. Heroin use decreased with advanced pregnancy while methadone dose/day increased ($p<0.015$). Mothers on opioids gained the same weight during pregnancy as the general pregnant population ($p=0.929$) while their newborns weighed significantly less and had significantly lower occipital frontal circumference ($p<0.001$) regardless of maternal smoking habits ($p=0.081$). Only 11% of opioid-using mothers compared to 64% of the general Maltese population breastfed their newborns in the first 30 days. The hospital stay for newborns exposed to opioids was on average 23 days when compared to 3.6 days for the Maltese population ($p<0.001$). The prediction of the removal of neonates to alternative guardianship was dependent on whether opioid-using mothers were living with a drug using partner ($p=0.019$) or were involved in prostitution ($p=0.072$).

Conclusion: Although Malta is serviced by a single National Hospital and a specialised drug-treatment centre, methadone-maintained mothers had significantly different socio-biological characteristics from the general pregnant population. This is unsurprising but still merits attention as these characteristics influence the wellbeing of the newborn. Health and social policies need to be educational in nature in order to enable improved wellbeing in this population.

OP6.191

Thyroid dysfunction in pregnancy - an observational analysis of a Maltese cohort

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Introduction: Thyroid dysfunction is known to adversely affect pregnancy. This study set out to assess the prevalence of thyroid disorders in the Maltese pregnant population (as yet unknown) and investigate the impact of thyroid dysfunction on the mother and her offspring.

Methods: We retrospectively analysed data from the National Obstetrics Information Service of the Department of Health Information and Research (NOIS) for all births delivered in Malta between 2006 and 2015. Demographic data, past obstetric and medical history and current obstetric outcomes were analysed for each pregnancy. Chi square/Fisher's exact test were used to compare categorical variables while Mann-Whitney U test was used to compare continuous variables. Statistical significance was defined by a two-sided *p* value <0.05.

Results: Data was available for 46294 women (mean [SD] age = 29.2 [5.4] years). 587 pregnancies (1.3%) suffered from thyroid dysfunction. Of these, 395 (67.3%) suffered from hypothyroidism, 19 (3.2%) had hyperthyroidism, 166 (28.3%) had isolated hypothyroxinaemia while 7 (1.2%) had a history of thyroid carcinoma. Hypothyroid women were more likely to have had a previous lower segment caesarean section (LSCS) (16.7% [hypothyroid] vs 13.1% [euthyroid]; *p* = 0.037). Type 1 diabetes (T1DM) (2.0% [hypothyroid] vs 0.36% [euthyroid] and gestational diabetes (5.6% [hypothyroid] vs 3.3% [euthyroid]; *p* =0.012) were more common associated co-morbidities in hypothyroid than euthyroid pregnancies. Hypothyroidism had no impact on obstetric outcomes. Further data analyses is ongoing.

Conclusion: Hypothyroidism is commoner among pregnant mothers with T1DM and gestational diabetes. Hypothyroid mothers are also more likely to have had a previous LSCS.

OP6.192

Induction of labour in Mater Dei Hospital, Malta

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Introduction: Induction of labour (IOL) is a commonly performed procedure in daily obstetric practice. This audit was aimed at measuring current practice in local induction of labour at Mater Dei Hospital, Malta between the months of September and December 2017, determining local outcomes of induction of labour and comparing against international recommendations.

Methods: All mothers who have been referred for IOL within the proposed timeframe were deemed adequate to participate. IOL was considered such in women who have been administered vaginal prostaglandin E2 and/or those who underwent amniotomy while not in labour. Data was collected from the monthly labour ward babies' book.

Results: Analysis of data revealed an overall rate of IOL of 27%, relative to all deliveries recorded within the proposed timeframe. The majority of inductions (57.7%) were performed in nulliparous women, with the highest percentage of emergency Caesarean section occurring in this cohort. With regards to gestational age at time of induction, inductions before 40 weeks of gestation accounted for 44.6% of all inductions, while 44.6% were performed at 40 weeks and 7.0% at or beyond 41 weeks gestation. Moreover, over half of (53.9%) of patients undergoing induction before 40 weeks gestation, were documented not to have any antenatal history of note.

Conclusion: With the rising incidence of IOL, the burden on the delivery suite and higher risk of

complications during delivery are also augmenting. Therefore, on evaluation of local outcomes relative to international standards, the need to favour spontaneous delivery is highlighted, together with timely and evidence based indication for IOL.

OP6.193

Gestational dysglycaemia and future cardiometabolic risk at medium-term follow-up

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Introduction: Gestational diabetes (GDM) is known to be associated with increased risk of future maternal cardiovascular disease. However, it is unknown whether this is mediated through dysglycaemia or other factors. The aim was to assess the relationship of gestational glycaemic parameters and of gestational diabetes to future cardiometabolic status.

Methods: This cohort study comprised all subjects who underwent assessment for GDM by means of a 75g oral glucose tolerance test (OGTT) at Mater Dei Hospital, Malta during the year 2009. These patients were consequently followed up through January 2018. Carotid intima-media thickness (CIMT) was assessed as marker of subclinical atherosclerosis in both common carotid arteries.

Results: The mean age of the study population was 38.3±5.4 years. Out of the 203 participants, 43 (21.2%) had GDM. Gestational diabetes and individual glycaemic parameters of intra-pregnancy OGTT were associated with higher HbA1c, fasting plasma glucose, non-HDL-cholesterol, LDL-cholesterol, total:HDL-cholesterol ratio, lower HDL-cholesterol and with presence of the metabolic syndrome after a median follow-up of 8 years. Neither gestational diabetes nor individual glycaemic parameters of intra-pregnancy OGTT were associated with current CIMT.

Conclusion: The results suggest that there is no threshold of glycaemic parameters in predicting future cardiometabolic status. Furthermore, the known association between gestational diabetes and cardiovascular disease is mediated, at least in part, by higher post-pregnancy glycaemia and worse lipid profile even though these metabolic parameters often remain within the normal range.

OP6.194

The workload in obstetric anaesthesia at Mater Dei Hospital - A clinical governance exercise

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Introduction: This project is a clinical governance exercise done to determine if anaesthetic resources deployed to the obstetric unit at Mater Dei Hospital (MDH) are adequate to safely and efficiently meet demand.

Methods: Permission to proceed was granted by the Data Protection Officer at MDH. This prospective study included fifty-eight consecutive days in late 2017. It used a mixed method approach where data was collected from theatre registers, documentation forms and the anaesthesia procedures logbook. On-call obstetric anaesthetists were interviewed at the end of their duty, especially to quantify “hidden workload” such as patient reviews, vascular access, standby requests and organization of high-risk patient care. Data was analyzed using SPSS.

Results: The obstetric anaesthesia workload is both considerable and unpredictable. There are around 4400 deliveries/year, with 33% needing theatre intervention and 28% having an epidural. Time series analysis revealed no pattern for epidural requests and theatre workload. Anaesthetists felt busy during the day, night or both on 90% of days. On 50% of days, not enough rest in a 24-hour period was reported. Understaffing and equipment issues were identified. Despite this, epidural insertion time (mean 41 minutes) and regional anaesthesia use for elective Caesarian section (>97%) are in line with international recommendations.

Conclusion: This data was discussed with the Chairperson and members of the Department of Anaesthesia and recommendations made. This data supports the need for increased staffing in obstetric anaesthesia, for both elective and emergency cover.

OP7.195

Effect of sternal wire twisting on sternotomy closure rigidity

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Introduction: Wire twisting is the commonest method of median sternotomy closure. However, wire twisting weakens the wire and fracture may occur at the base of the twisted portion. We investigated how wire twisting affects the physical characteristics of sternotomy closure since rigid fixation promotes quicker primary bone healing.

Methods: The maximum strength and rigidity of wire closure were tested in a steel sternal model, with varying number of twists, ranging from none to ten twists. Pearson correlation coefficient was used to investigate the relationship between the number of twists versus the maximum closure strength and rigidity. Regression analysis was used to relate closure rigidity with test load and number of wire twists.

Results: Maximum rigidity occurred at two-twists, and decreased from three to ten-twists. Pearson correlation coefficient showed a strong relationship between the number of twists versus maximum closure strength

($r=0.833$, $p=0.003$) and rigidity ($r=0.819$, $p=0.004$). The regression model identified load ($p<0.001$) and number of twists as significant ($p<0.001$), explaining 88.9% of the total variance in displacement. The maximum strength of all twisted closures far exceeded the threshold for wire cutting through bone; suggesting that maximum closure strength is clinically not an important parameter as closure rigidity.

Conclusion: In order to maximize rigidity in the wound closure and optimize primary bone healing, the optimal number of wire twists should be kept low. Excessive number of twists should be avoided as this weakens the closure and increases the amount of foreign material in the wound, theoretically increasing the risk of wound sepsis.

OP7.196

Can age adjusted D-dimer be used to decrease the CTPA burden in a general hospital?

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Introduction: Measurement of serum levels of D-dimer is a valuable tool in the diagnostic workup of patients with suspected pulmonary embolism. While D-dimer assays are highly sensitive, their specificity is however notoriously low.

Methods: A retrospective analysis of patients who underwent investigation for pulmonary embolism over a 6 month period at Mater Dei Hospital was carried out. All patients who underwent investigation by CT Pulmonary Angiography (CTPA) had their scans classified as positive or negative. The age adjusted D-dimer of all patients aged more than 49 was calculated using the formula: age adjusted D-dimer = patient's age multiplied by 10.

Results: A total of 907 (male =419, female =488) patients underwent investigation for pulmonary embolism using CTPA at the Medical Imaging Department in Mater Dei Hospital between June and December 2017. 737 patients (male=351, female =386) aged >49 (age range 50-97 years, mean age 71.8) had CTPA done, with 15.7% ($n=114$) resulting positive. 51.2% of these ($n=378$ of 737) had D-dimer serum levels evaluated, indicating that the patients' risk for PE was calculated to be low (PE unlikely) with a Well's score of less than or equal to 4. Of these patients 7.9% ($n=30$ of 378) underwent investigation by CTPA despite negative D-dimer levels. 87 patients (23%) had positive D-dimer and positive age-adjusted D-dimer levels with negative CTPA, a clear reflection of the low specificity of D-dimer levels. 1 patient with segmental PE on CTPA was found to have both negative D-dimer as well as negative age-adjusted D-dimer levels. 75.9% ($n=287$) of patients were found to have positive D-dimer and negative CTPA. Out of these 287 patients, 200 (69.6%) were found to have negative age-adjusted D-dimer. 10 patients with positive CTPA and positive D-dimer were found to have negative age-adjusted D dimer (4 sub-segmental, 2 segmental, 2 lobar and 2 main pulmonary arterial embolism).

Conclusion: The negative predictive value for age adjusted D-dimer is comparable to that of D-dimer but has

a higher positive predictive value. Use of age adjusted D dimer in low probability PE may help reduce unnecessary imaging investigations.

OP7.197

Sleep Deprivation & Cardiovascular Disease in Type 2 Diabetes Mellitus

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Introduction: Poor sleep quality has been associated with adverse cardiovascular outcomes. The objective was to assess whether poor sleep is an independent predictor of complications in type 2 diabetes mellitus (T2DM).

Methods: A cross-sectional study was performed. Participants comprised T2DM subjects. All underwent blood investigations, measurement of carotid-intima-media thickness (CIMT), echocardiography for assessment of ventricular function, and assessment for distal peripheral neuropathy. Macrovascular disease was defined as one or more of the following: history of ischaemic heart disease, peripheral vascular disease or cerebrovascular accident, and/ or increased CIMT. Albumin-creatinine ratio was assessed as marker of microvascular disease. Sleep assessment was achieved by actigraphy and Pittsburgh Sleep Quality Index (PSQI) score. Subjects were evaluated for depression (CES-D score) and stress (PSS).

Results: The study comprised 108 T2DM subjects. The vast majority were male and obese (mean BMI 32). Macrovascular disease was present in 56.5% and increased CIMT in 50.9%. No association was shown between sleep parameters derived from actigraphy and DM-associated complications. However, sleep quality as assessed by PSQI was significantly associated with macrovascular disease in univariate analysis. Consequently, multivariate logistic regression analysis revealed red blood cell distribution width (RDW) and good sleep quality to be independent predictors of macrovascular disease. With regards increased CIMT, multivariate analysis revealed BMI, RDW and CES-D score were independent predictors.

Conclusion: Poor sleep quality as assessed by PSQI score and higher RDW levels are associated with macrovascular disease in T2DM. Increased BMI and depression also seem to play an independent role in subclinical atherosclerosis.

Disclosures: The study was partly funded by Dean's Funds

OP7.198

Outcomes of Percutaneous Left Atrial Appendage Occlusion at Mater Dei Hospital, Malta

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Introduction: Left Atrial Appendage Occlusion (LAAO) is an innovative procedure for prevention of thromboembolism in patients with atrial fibrillation (AF), high thromboembolic risk, and contraindication to

anticoagulation. It has been performed locally since June 2015. This was the first study to assess indications and outcomes of LAAO locally.

Methods: All LAAOs performed between June 2015 - June 2018 were retrospectively analysed. CHA2DS2-VASc and HAS-BLED scores, indication for LAAO, type of device and treatment with anticoagulants/antiplatelet agents were noted. Peri-procedural, 30-day, 6-month and 1-year complications, 1-year mortality, and length of hospital stay were analysed. Data was gathered from hospital computer systems and analysed using Microsoft Excel, in keeping with the Data Protection Act.

Results: Twelve patients, mean age 71 years (range 57-86 years), underwent LAAO. CHA2DS2-VASc score was >2, with 11 >4. HAS-BLED score was >3 in 11. Anticoagulation was mostly contraindicated due to prior major bleed. Amplatzer Cardiac Plug (27%), Amulet (55%), and Ultraseal (18%) devices were used. One patient had intra-procedural cardiac tamponade. Average hospitalization was 1 night. Two patients had minor access-site complications at 30 days. There were no procedure-related adverse events at 6 months and 1 year. One patient had minor para-device flow on TOE. None had LAAO thrombosis. One procedure-related death occurred at 1-year, secondary to a dislodged device. Two patients had embolic events >1 year post-procedure. 55% were anticoagulated previously. All had dual antiplatelet agents for 6 months, followed by a single agent.

Conclusion: LAAO has a good success rate and complications are rare. These data compare well with international registries.

OP7.199

A long-term comparative survival study after aortic valve replacement: Mitroflow versus other bioprostheses

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Introduction: Recent case reports of early structural degeneration of the Mitroflow valve have cast doubts on the suitability of this bioprosthesis, particularly in the smaller sizes, and in younger patients. We studied long-term patient survival, in a comparative study, as a marker of success after aortic valve replacement.

Methods: Long-term survival in 142 consecutive patients implanted with the Mitroflow valve was compared, using the Kaplan-Meier method, with a control group of 149 patients receiving alternative bioprostheses. Ninety two percent of patients were over 70 and the Mitroflow was used preferentially in smaller sizes.

Results: Four documented cases of premature structural valve degeneration (3 Mitroflow, 1 Perimount) required a second intervention. Long-term survival in patients who received a Mitroflow valve was equivalent to controls.

Conclusion: The Mitroflow compared favourably with other valves in our practice. Although a few patients required further treatment, this had no significant adverse impact on overall survival.

OP7.200

A Retrospective Analysis of Implantable Cardioverter Defibrillator Therapies in Malta

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Introduction: Studies have shown that Implantable Cardioverter Defibrillator (ICD) therapy in primary and secondary prevention, improved survival when compared to anti-arrhythmic therapy or placebo. Locally, the first ICD was implanted in 1999. The aim of this study is to retrospectively study all patients with ICD and cardiac resynchronisation therapy with ICD (CRT-D) implanted since 2013. Indication for device, therapies given and number of patient lives saved, were studied.

Methods: CVIS, Electronic case summary and pacemaker files were used for data collection.

Results: 270 patients had an ICD or CRT-D implanted since January 2013. 81% males and 19% females ($p < 0.0001$). Mean age was 62 years. 65% of ICDs were implanted for a primary indication vs 23% for secondary indication. Almost equal numbers of ischaemic (49%) and non-ischaemic (43%) indications. 62% had no therapies whereas 27% had only appropriate therapies for ventricular tachycardia/fibrillation (VT/VF), 3% had only inappropriate therapies and 8% had both appropriate and inappropriate therapies. 90% of the inappropriate therapies were for a supraventricular tachycardia (SVT). 43% of patients who had appropriate therapies had only painless anti-tachy pacing (ATP) and 47% experienced shocks, of which 5.3% had more than 10 successful shocks since device implant. 89% of patients are still alive up to 5 years of follow-up. There was no significant difference in survival between ischaemic and non-ischaemic indications ($p = 0.8$) and between primary and secondary indications ($p = 0.75$).

Conclusion: 78 patients (35%) were saved with an ICD. 43% of patients who received appropriate therapies did so with painless ATPs. Survival rate at up to 5 year follow-up was 88%.

OP7.201

Assessment of intravascular ultrasound and angiography co-registration's influence on percutaneous intervention strategy

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Introduction: Intravascular ultrasound (IVUS) is superior to angiography in accurately delineating the extent of a lesion and providing precise measurements for sizing of coronary stents. During percutaneous intervention (PCI) it may be challenging to identify corresponding segments between intravascular ultrasound and angiography. Computer based co-registration may aid target segment identification resulting in changes to the PCI procedure.

Methods: Cases which were performed using intravascular ultrasound angiography co-registration (IVUS) pre-PCI were reviewed by 4 experienced retrospectively operators. The operator was asked to indicate how he would perform the procedure based on

the angiographic data including quantitative coronary angiography. At a second sitting the operator was given access to the co-registration data and again asked how he would perform the procedure. Differences in stent length, stent diameter and stent optimization were noted.

Results: 24 cases performed using IVUS co-registration were identified and reviewed by 4 operators. In total 86 stenoses were assessed. In 33.7% cases ($n = 29$) there was a change in the diameter of the stent. In 53% ($n = 46$) there was a difference in the length of the stent chosen. A difference in decision to post-dilate was taken based on co-registration in 16.2% of case ($n = 14$) and there was a difference in diameter of the balloon chosen for post-dilatation in 33% of cases ($n = 29$).

Conclusion: Co-registration of IVUS with angiography changed percutaneous intervention procedure when compared to use of angiography alone with regards to stent diameter, stent length, and optimisation of stent deployment.

OP7.202

Venous thromboembolism in Multiple Myeloma

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Introduction: Patients with multiple myeloma (MM) are at increased risk of venous thromboembolism (VTE). The International Myeloma Working Group (IMWG) has published recommendations for the prophylaxis of thrombosis based upon a risk assessment strategy. The aim of this study is to determine the incidence of VTE in patients treated for MM and to assess whether thromboprophylaxis was being prescribed adequately according to IMWG recommendations.

Methods: Patients with newly diagnosed MM and solitary or multiple plasmacytomas requiring treatment between January 2009 and December 2017 were retrospectively identified. Data on baseline clinical parameters and radiologically confirmed VTE events were collected. The baseline VTE risk was determined and the type of thromboprophylaxis prescribed during initial therapy was recorded.

Results: 135 patients were included in the study, with a median duration of follow-up of 44.8 months (range 7.9–114.7 months). The median age was 66 years (range 28–97 years) 60.0% were males and 40.0% were females. Thrombosis occurred in 11.1% of patients during follow-up (18 events in 15 of 135 patients). There were 12 deep vein thromboses (DVT) (66.7%) and four pulmonary emboli (22.2%). The median time to VTE from diagnosis was 144 days (range -8 to 3013 days) with 8.9% of patients developing VTE within six months of diagnosis. There was no difference in overall survival (OS) between the patients with and without thrombosis (OS at 3 years 84% vs 73%, $p = 0.83$). Data on the type of thromboprophylaxis used was available in 123 patients (91.1%), 81 (65.9%) were high-risk for thrombosis. Only 56 (69.1%) conformed with IMWG recommendations. In the 12 patients sustaining DVT

during first-line therapy, 10 patients (83.3%) were receiving thromboprophylaxis. Nine (75%) of these patients were high-risk for thrombosis, of whom five (55.6%) received prophylactic LMWH, two (22.2%) aspirin and two (22.2%) no thromboprophylaxis.

Conclusion: Patients with MM are at a significantly increased risk of VTE, and some studies have shown an association between thrombosis and poor outcomes. Thrombosis prevention using adequate thromboprophylaxis based on careful risk assessment is an important goal in the management of these patients.

OP7.203

An audit regarding appropriateness of platelet transfusions in Mater Dei Hospital

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Introduction: An audit was held at Mater Dei Hospital in 2015 to assess appropriate use of platelets. Platelets are either used therapeutically to manage bleeding, or prophylactically.

Methods: Data was collected from the 5th October to 14th December 2015 (10 weeks) and recorded on purposely designed audit for Haematology, Cardiac, ITU and Miscellaneous specialties. Data was analysed using a spreadsheet software programme. The pre-transfusion platelet count, concurrent medication and bleeding site were the main considerations reviewed to deduce appropriateness of transfusion.

Results: Over a span of 70 days an average of 5.84 units were used daily. Single-unit transfusion occurred in 84.04% of episodes and 2 units were transfused in 12.05% of episodes. Approximately half the episodes were administered to patients above 60 years of age. Males were administered 18% more platelets than females. 83% of episodes were administered to Haematology patients, 3% to Cardiac patients, 6% to ITU patients, and 8% were in the Miscellaneous category. Platelet transfusions to Haematology patients were found to be appropriate in 85.48% of cases. In ITU, 50% of patients were transfused platelets appropriately, whilst in the Miscellaneous group 52% of transfusions were appropriately given. Within the Cardiac category, all platelet transfusions were deemed inappropriate, even when considering use of anti-platelet drugs.

Conclusion: Since numbers are small for categories other than Haematology, further study is necessary. Nevertheless it appears that in specialties other than Haematology, there may be a need for more awareness of platelet transfusion indications and consequences of inappropriate use.

OP7.204

Tyrosol as a leukaemia differentiation inducing agent

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Introduction: Though chemotherapy is widely used in the treatment of a variety of cancers including leukaemia, it is broadly cytotoxic to normal tissues, and many patients suffer a relapse. This is due to haematopoietic stem cells which are not affected by chemotherapeutic drugs and regenerate. For acute myeloid leukaemia, five year survival rates are estimated to be around 30%. For these reasons, efforts have been made to develop alternate methods of treatment, one of which is differentiation therapy, whereby following administration of a bioactive compound, a decline in proliferative capacity is induced, followed by apoptosis or terminal differentiation initiation. This method contrasts with chemotherapy which is generally nonspecific and is often accompanied by highly toxic side effects. For acute promyelocytic leukaemia, differentiation therapy has been developed as a treatment using all-trans retinoic acid (ATRA). Remission achieved following ATRA treatment lies in the range between 72% and 95% of patients.

Methods: Following preliminary work on a number of phenolic compounds, tyrosol was selected for this study. Differentiation capacity was assessed using the Nitroblue Tetrazolium and Thiazolyl Blue Tetrazolium Bromide assays. Positive results were confirmed by morphological analysis and the use of cell surface markers associated with differentiation using flow cytometry.

Results: Results show that tyrosol is capable of inducing both differentiation and apoptosis in ATRA resistant HL-60 cells. Differential expression analysis performed following RNA sequencing revealed the upregulation of a number of genes involved in cell differentiation.

Conclusion: As a leukaemia differentiation inducing agent, tyrosol provides a new potential treatment for use in differentiation therapy.

Disclosures: This study was partly financed by the Malta Government Scholarship Scheme.

OP7.205

Validation of age-adjusted D-dimer values

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Introduction: D-Dimer assays are used to rule out venous thromboembolism (VTE) in patients with low pre-test probability. D-Dimer levels increase with age and result in a lower specificity when using identical cut-offs as for younger individuals. Our study validates the use of age-adjusted D-Dimer cut-offs in the diagnosis of VTE.

Methods: We retrospectively collected D-Dimer test results between January and December 2016, performed using HemosIL D-Dimer HS on an ACL TOP 500 analyser. The recommended cut-off is 230ng/mL. Imaging results were collected for patients who were 50 years or older. Patients who were on anticoagulation or who had D-Dimer tests without a clear clinical suspicion of VTE were excluded. Patients with a D-Dimer result below the conventional cut-off level who did not have any diagnostic imaging performed, were assumed not to have VTE if no events occurred during 3 months follow-up. We calculated the diagnostic performance of the D-Dimer assay using both the conventional cut-off and an age-adjusted cut-off (defined as age x 5 ng/mL).

Results: We included 1833 patients. The median age was 68 years (range 50–100). Of 705 patients with a D-Dimer below the conventional cut-off, none had VTE diagnosed in the follow-up period. With an age-adjusted cut-off for the whole group, sensitivity was 98.2%, specificity 61.3% and diagnostic accuracy 64.7%. With the conventional cut-off these were 100%, 42.3% and 47.6% respectively. The specificity of the conventional cut-off decreased with age from 62.2% in those aged 50 to 59, to 20% in those aged 80 to 89. With age-adjusted cut-offs specificities improved in all groups, particularly for older patients. The largest increase in specificity occurred in those patients aged 80 to 89, where this reached 50.2%.

Conclusion: This study demonstrates that an age-adjusted D-dimer cut-off may safely be used to rule out VTE, reducing the need for further diagnostic imaging.

OP7.206

Core lymph node biopsies and the implications on tissue diagnosis

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Introduction: Lymph nodes are the major anatomic components of the immune system. In cases of generalized lymphadenopathy, the selection of lymph node to be examined and the method of sampling are of great importance. The objective of this study is to evaluate the extent of use of core needle biopsy and to determine the adequacy of diagnostic information available from core needle biopsy when compared to lymph node excision.

Methods: All histology reports from lymph node biopsies and excisions between January 2015 and December 2016, were examined retrospectively. Lymph nodes associated with breast cancer and colorectal cancer were excluded. Change in the trend of lymph node sampling and the percentages of cases reported as diagnostic, inadequate and indeterminate were calculated. The use of flow cytometry in reaching a diagnosis was noted.

Results: A total number of 230 cases was included in this audit; 64% of which were excised while 36% were biopsied. The use of core needle biopsies has doubled in 2016 when compared to 2015. 69% of the core biopsies could be definitely diagnosed compared to the 86% seen in excised lymph nodes. Less than 1% of the excised lymph nodes were reported as inadequate. In 82% of cases, a sample was sent for flow cytometry.

Conclusion: The use of core biopsies for diagnostic purposes is increasing and it is likely to continue. The local statistics of non-diagnostic core needle biopsies is in keeping with the literature. This states that 23-31% of core needle biopsies are non-diagnostic. The need for established standards for the use of core needle biopsies in lymphoma diagnosis is highlighted, as the optimum size and number of cores are unspecified.

OP7.207

Point-of-Care Haemoglobin Measurement

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Introduction: The aims of the study were to compare the accuracy, sensitivity and specificity of two haemoglobin point-of-care testing (POCT) devices, STAT-Site MHgb and Diaspect Tm, and to assess patient acceptability of haemoglobin POCT.

Methods: Seventy-two subjects were recruited from Cospicua Health Care Centre. Testing was implemented on patients who were undergoing a routine venous blood test and were suffering from chronic kidney disease (CKD) or diabetes, and on patients with no CKD or diabetes (control group). Testing involved finger pricking with a lancet and using the second and third drop of blood to generate a result using STAT-Site MHgb and Diaspect Tm, respectively. A questionnaire was given to the 72 subjects after testing. The test results generated by the POCT kits were compared to the standard laboratory results.

Results: Sixty-one (85%) and 72 (100%) test results were generated with STAT-Site MHgb and Diaspect Tm, respectively. Compared to the laboratory results, 12/61 and 40/72 results were accurate ($\pm 1g/dL$) with STAT-Site MHgb and Diaspect Tm respectively. The sensitivity was 1 for STAT-Site MHgb and 0.89 for Diaspect Tm, while the specificity was 0.16 for STAT-Site MHgb and 0.51 for Diaspect Tm. All 72 subjects tested stated that they would be willing to have this test performed if available from community pharmacies.

Conclusion: The higher accuracy, the balance between sensitivity and specificity, and ease of use of Diaspect Tm render it a better haemoglobin POCT device compared to STAT-Site MHgb. POCT for haemoglobin may be offered from community pharmacies to support patient monitoring.

Disclosures: University of Malta Grant on Point-Of-Care Testing

OP7.208

Differential expression of KLF1 in family studies and their role in globin gene switching L. Grech¹, J. Cutajar², M. R. Caruana³, C. Scerri⁴, R. Galdies², R. Formosa¹, J. Borg⁵, A. Felice⁴

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Introduction: Kruppel like factor 1 (KLF1) also known as the 'Master regulator of erythropoiesis' is located on the short arm of chromosome 2. KLF1 activates a diverse set of genes that have an important role in the regulation of key pathways such as erythropoiesis, cell membrane and cytoskeleton. To date over 65 molecular variants have been recorded. Their haematological phenotypes range from the clinically unremarkable In(Lu) type of Lu(a-b-) blood group, variability in the HbA2 levels, congenital dyserythropoietic anaemia (CDA) and in most extreme cases hydrops foetalis secondary to profound anaemia. In 2010 sequencing revealed a nonsense mutation in KLF1 in a large Maltese family with hereditary persistence of foetal haemoglobin (HPFH). The p.K288X mutation was found to ablate the DNA binding domain of the key erythroid transcription factor.

Methods: We explored the occurrence of additional KLF1 mutations with genotype – phenotype associations among a large number of cases, all from Malta with a borderline HbA2 but without ? globin gene mutations and other ? thalassaemia heterozygotes from the Malta Biobank and the Thalassaemia Clinic. Sequencing of the KLF1 gene was carried out. To study the promoter mutations in the KLF1 gene Dual- Luciferase reporter assays were performed on HEK293T cells and K562 cells transfected with the pGL4.10 vector containing either the wildtype promoter or the mutant promoter. This was followed by Electromobility Shift assays.

Results: Four-hundred and twenty six subjects were collected. After sequencing of the KLF1 gene we identified 5 other families with the p.K288X mutation together with other nucleotide variants, six of which were in the KLF1 promoter. In both cell lines dual-luciferase assays showed a statistically significant difference between cells transfected with the wildtype KLF1 promoter and cells transfected with 7 different KLF1 promoter mutations. Electrophoretic Mobility Shift Assays on nuclear extracts further show DNA:Protein binding evidence and are currently being investigated

Conclusion: This data further highlights the importance of KLF1 function in globin gene control and demonstrate the importance of KLF1 sequencing in patients with haematological features resembling ?-thalassaemia

Disclosures: Dean's Fund

OP7.209

Surviving with cancer and thromboembolism A. Attard¹, J. Grech¹, C.M. Zehlicke¹, R.A Micallef², A.r Gatt⁴

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Introduction: The aim of the study was to calculate the mortality rate of adult patients with solid malignancies receiving chemotherapy on an in-patient and out-patient basis at Sir Anthony Mamo Oncology Centre (SAMOC). The prevalence of thromboembolic events in these patients was studied and the effect on the mortality rate was analysed.

Methods: Study population included all 414 patients who were reviewed for treatment administration at SAMOC during the first three weeks of August 2017. Patient electronic and paper records were reviewed from date of cancer diagnosis to the third week of August 2017 to look for thromboembolic events. The number of deceased patients by 20th July 2018 was documented.

Results: 30.4% (n = 126) of patients investigated were deceased by the end of study, 27.0% (n=34) of whom were dead within 1 year of cancer diagnosis. 55.6% (n=69) were deceased within 2 years of diagnosis, while 88.9% (n=112) were dead within 5 years of diagnosis. 14.0% (n=58) of patients recruited developed a thromboembolic event, 15.5% (n=9) of whom had multiple events. 65.5% of these patients (n=38) developed a thromboembolic event within 1 year of diagnosis. More than half of patients (55.3% i.e. 21 out of 38 patients) who developed a thromboembolic event within one year of diagnosis were dead by the end of the study.

Conclusion: This study highlights the increased mortality rate associated with thromboembolism in the setting of solid malignancies.

OP7.210

The use of neoadjuvant chemoradiotherapy in rectal cancer - a local experience

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Introduction: Neoadjuvant chemoradiotherapy (CRT) is the standard treatment for locally advanced rectal cancer (LARC). It has been shown to improve tumour resection rate and reduce local recurrence rate.

Methods: The number of patients diagnosed with LARC and treated with neoadjuvant CRT between 2012 and 2017 were identified through the Radiotherapy Department. Patients who were treated with neoadjuvant short course RT were excluded. Demographic and clinical data was collected. The TNM classification (7th edition) was used to stage the cohort. Risk stratification was done according to the European Society for Medical Oncology (ESMO) guidelines for rectal cancer published in 2017. The Rectal Cancer Regression Grade (RCRG) was used to classify histological response. RCRG 1 and 2 were

considered to represent significant tumour regression

Results: One hundred and ten patients were treated with neoadjuvant CRT for LARC in the study period, 70% ($n=76$) being male. The age range of our population was from 25-88, with a mean of 66 years. The commonest pre-operative clinical stage was 3b (61%, $n=67$). Forty percent ($n=45$) of the study population were administered long course radiotherapy at 45Gy/25F and 36% ($n=40$) were administered folfox (5-fluorouracil with oxaliplatin). Of the 101 patients who had tumour resection/re-biopsy post-neoadjuvant therapy, 37% ($n=37$) had an RCRG 1 response, while 43% ($n=43$) an RCRG 2 response and 21% an RCRG 3 response. Therefore, 80% exhibited significant tumour regression. According to the German Rectal Cancer trial, the pathological complete remission (pCR) rate is 8%. This is much higher in our cohort since the pCR rate is 18% ($n=20$). Seven percent ($n=8$) of the tumours were not re-biopsied or resected due to clinical reasons. Out of these, 63% ($n=5$) showed partial tumour regression on repeat after neoadjuvant CRT.

Conclusion: Continuous efforts must be made to keep a high pCR rate, while still keeping the long-standing adverse consequences of CRT in mind.

OP7.211

Improved therapy for non-small cell lung cancer

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Introduction: Non-small cell lung cancer (NSCLC) is associated with a frequently deregulated PI3K/Akt/mTOR pathway, which increases availability of active eIF4E, a cap-dependent translation rate limiting component. Levels of functional eIF4E are reduced by mTOR inhibitors. Aim: To enhance the benefits of mTOR inhibitors by using reagents working within or parallel to the PI3K/Akt/mTOR pathway, so as to decrease eIF4E effects in NSCLC. These said reagents are patented antisense oligonucleotides (ASOs), the identity of which must remain unpublished due to ongoing collaborative and patent efforts.

Methods: A panel of NSCLC cell lines were treated with a range of rapamycin and OSI-027 concentrations. Viability assays were then carried out at 24, 48 and 72h time-points. The same cell lines were treated with the ASOs separately, and viability assays were repeated. Following dose and time-point optimization for each reagent, each cell line was exposed to the devised combinatory treatment [mTOR inhibitor + ASOs].

Results: Preliminary results indicate that both rapamycin, as well as OSI-027 were successful in controlling solid tumour growth. OSI-027 was recorded to have achieved greater cell death at conventional concentrations. Furthermore, current data suggest that upon addition of the ASOs, tumour growth was restricted further.

Conclusion: Tolerance exhibited by rapamycin, an mTORC1 inhibitor, may be attributed to activation of Akt by the unsuppressed mTORC2. This problem was partially bypassed by the use of mTORC1/mTORC2 dual mTOR inhibitor, OSI-027. Furthermore, preliminary results are indicative of potential increased beneficial effects by the addition of novel ASOs, making up a combinatory approach with improved therapeutic effects.

OP7.212

Outcomes in elderly patients with diffuse large B-cell lymphoma treated with R-CEOP

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Introduction: R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, prednisolone) is the standard of care for the treatment of diffuse large B-cell lymphoma (DLBCL). The anthracycline component is however associated with significant toxicity, especially in frail elderly patients or those with compromised cardiac function. R-CEOP is an alternative regimen wherein etoposide substitutes doxorubicin. The purpose of our study is to assess the efficacy of R-CEOP compared to R-CHOP in elderly patients with DLBCL.

Methods: Patients with DLBCL treated with either R-CHOP or R-CEOP between January 2010 and December 2017 were retrospectively identified. Only patients aged 60 years or older were included. We analysed progression-free survival (PFS) and overall survival (OS) using Kaplan-Meier curves with log-rank test.

Results: Ninety-three patients were identified. The median age was 73 years (range 61–89 years). There were 51 females (54.8%). R-CEOP was administered to 34 patients (36.6%) while 59 patients (63.4%) received R-CHOP. There was no difference between the groups with respect to gender, Ann Arbor stage and R-IPI score. Patients who received R-CEOP were older ($P<0.001$) and had higher ECOG performance scores ($P=0.001$). The 5-year PFS was similar between patients receiving R-CEOP and those receiving R-CHOP (44% vs 52%, $P=0.436$). The 5-year OS was lower for patients receiving R-CEOP (46% vs 60%) but this was not statistically significant ($P=0.16$). On multivariate analysis the chemotherapy regimen did not have independent prognostic significance for OS (HR: 1.04 [95% CI: 0.53–2.01]; $P=0.918$) when adjusting for R-IPI and ECOG performance status.

Conclusion: R-CEOP is an effective regimen in elderly and frail patients unsuitable for anthracyclines. The outcome in these patients is not significantly different when compared to a similar group treated with R-CHOP.

OP7.213

Bioactivity of natural products – credible science or fiction?

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Introduction: Most physicians are familiar with the natural product-derived pharmaceuticals – Paclitaxel, Etoposide, Doxorubicin and the Vinca alkaloids used in cancer therapy; Artemisinin used for multidrug-resistant malaria and Silymarin used for liver disease. To date, up to 50% of approved drugs are directly or indirectly derived from natural products. Yet approval of a natural product as a drug faces an arduous process. Over the millennia, Man has used a variety of natural products, predominantly derived from plants, to treat ailments and disease. The inconsistent results are the main cause of scepticism amongst the Western medical profession leading many to treat the use of natural products as a pseudoscience. There is now a huge amount of scientific work demonstrating the bioactivity of natural products comparable to the science behind major pharmaceutical drugs in clinical use. Yet in the West, most of this research never makes it beyond scientific publication. The major barriers to use natural products in clinical trials are – one, that natural products often come as a complex mixture of compounds, where it is difficult to assess the action of each individual component and therefore it is unwise to use in a clinical setting; and the second, is that the strong pharmaceutical lobby makes it easier for synthetics to proceed to clinical trials than natural products. The science behind some natural products research carried out locally will be reviewed as well as their potential in future medical applications.

Methods: A variety of methods are used to extract phytochemicals ranging from steam distillation to single or serial solvent extraction. To test the bioactivity of natural products standard MTT assay is used to assess the activity of mitochondria in response to different concentrations and different exposure times to the test chemicals. To assess type of cell death fluorescence microscopy is used, together with flow cytometry, western blotting to probe for caspases and other hallmarks of apoptosis.

Results: Chemical analysis of the phytochemical extracts point to complex mixtures with individual components known to have bioactive potential. Results for the cytotoxic effect give IC₅₀ values that are in the millimolar and micromolar ranges. Hallmarks of cell death point to the selective induction of apoptosis in cancer cell lines but not in normal cells. Additional evidence points to immunomodulation and antimicrobial activity.

Conclusion: The evidence points to multi-target effects of phytochemical extracts, exactly as nature intended them as part of the biological defence repertoire of living organisms. The individual components contribute to synergistic actions which can be effectively harnessed in medical applications such as wound healing.

OP7.214

Development of a pharmaceutical care model at a paediatric- adolescent cancer ward

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Introduction: A high intensity ward such as a paediatric-adolescent cancer ward (PAW) is a setting that requires a pharmacist to participate in direct-patient care. The aim of this research was to develop and implement a pharmaceutical care model (PCM) at the PAW at Sir Anthony Mamo Oncology Centre.

Methods: During Phase I, the PAW was attended to observe the care practice delivered to the patients at the ward. A Gap-Finding Tool based on international clinical pharmacy practice standards was developed to compare local care practice to international care practices and enable the identification of gaps. During Phase II, a PCM was developed, focusing on covering the gaps identified.

Results: The gaps identified and implemented were participation in interdisciplinary care and provision of medicines information to healthcare professionals. Services which were optimised included the discharge process by developing a Discharge Medication Guide for parents, the documentation process by developing a Pharmacy Patient Profile and the current medication management process by reviewing prescriptions and treatment charts, ensuring that they are clear and valid and that the prescribed drugs are appropriate. A total of 545 pharmaceutical care issues (PCIs) were identified over 8 months. The most common PCI categories were counselling ($N=147$), drug selection ($N=129$), dose selection ($N=105$) and monitoring ($N=84$). For every PCI identified, a pharmaceutical intervention was proposed and 95% of these interventions were accepted and implemented.

Conclusion: This research reflects the relevant contribution of the pharmacist at ward level within the interdisciplinary team through the implementation of a novel PCM which optimizes patient care.

OP7.215**Aspirin disrupts acetyl-CoA metabolism in redox-compromised yeast cells – implications for its role in cancer chemoprevention**

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Introduction: Acetyl-coenzyme A (acetyl-CoA) drives the energy-generating tricarboxylic acid (TCA) cycle in eukaryotes. Likewise, it plays an acutely important role in satisfying the high energy demands of proliferating cancer cells. Hence, we investigated the effect of aspirin, which has promising cancer-preventive properties, on acetyl-CoA metabolism using yeast cell eukaryotic models, due to their considerable advantages for laboratory research.

Methods: Wild-type *Saccharomyces cerevisiae* EG103 and manganese-superoxide dismutase (MnSOD)-deficient EG110 yeast strains were grown in aspirin-treated and untreated ethanol medium (YPE). Microarray analysis was performed and validated by RT-qPCR and functional enzyme assays. The response to aspirin, of yeast strains with induced overexpression of alcohol dehydrogenase (ADH2), was assessed by measuring culture growth, cell viability and Adh2 enzyme activity.

Results: We observed that in MnSOD-deficient yeast cells, aspirin significantly impairs transcription and activity of enzymes involved in acetyl-CoA synthesis and its transport to the mitochondria. Moreover, induced overexpression of active Adh2 enzymes, which catalyze the most upstream reaction of acetyl-CoA synthesis during growth in YPE, conferred no benefit to transformed yeast cells, failing to prevent aspirin-induced death.

Conclusion: Aspirin impairs acetyl-CoA metabolism in MnSOD-deficient, redox-compromised yeast cells, causing energy failure linked to critical mitochondrial damage, resulting in apoptosis. Because core cellular processes, including apoptosis, are conserved among yeast and mammalian cells, aspirin possibly behaves similarly in early-stage cancer cells, which manifest downregulated MnSOD and are redox-compromised. Hence, this work may provide further mechanistic insight into aspirin's chemopreventive behaviour, since acetyl-CoA is one of the least-studied targets of aspirin in its propensity to prevent cancer.

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OP7.216**Inhibition of Wnt-suppressing genes regulates non-Canonical Wnt signalling in Pituitary Adenomas (PA)**

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Introduction: The Wnt developmental pathway has been implicated in tumour development in numerous tissues. Both the canonical and non-canonical Wnt pathways, namely the Wnt-Calcium signalling pathway and the Wnt- planar polarity pathway have also been found de-regulated in a number of cancers (Kato et al, 2017). Microarray analysis on locally resected PAs revealed strong down-regulation of a number of Wnt antagonists. The aim of this study was to functionally assess the role of WIF1 in PA in relation to the different Wnt signalling pathways using two established cell lines in the presence Wnt3, Wnt4 and Wnt5a ligands.

Methods: Proliferation analysis was used to assess the effect of Wnt pathway antagonists on cell models of PA. Luciferase reporter, hormone secretion and calcium signalling assays were then used to assess which downstream pathways could mediate these effects. Finally, quantitative expression of target genes was used to identify activated pathways that mediate the effects of non/canonical Wnt signalling.

Results: Preliminary findings indicate that Wnt antagonists reduce GH3 and MMQ proliferation. Additionally, the canonical Wnt pathway appears to be completely inactive in these two PA cell models using real-time PCR and reporter assays. Conversely, free calcium fluxes are clearly influenced by the addition of Wnt ligands and co-treatment with Wnt antagonist Wnt Inhibitor Factor 1 (WIF1) represses these calcium fluctuations, with concomitant effects on hormone secretion.

Conclusion: Preliminary data reveals that the Wnt agonists may activate the Wnt-Calcium signalling pathway and WIF1 could play a role in PA by inhibiting specific aspects of this pathway.

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OP7.217

Pharmacogenetic testing in precision medicine for statin use

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Introduction: The SLCO1B1 c.521T>C gene variant is associated with higher serum simvastatin concentrations and increased risk of simvastatin-induced myopathy. The aim of the study was to classify a cohort of cardiac patients on simvastatin according to SLCO1B1 genotype, SLCO1B1 function and myopathy risk.

Methods: Patients on simvastatin (N=110) were recruited by convenience sampling from the cardiac catheterisation suite at Mater Dei Hospital. Genomic DNA was extracted from an EDTA-blood sample and real-time PCR SLCO1B1 genotyping was performed using the Sacace® Biotechnology kits and Rotor-Gene™ 6000/Q for fluorescence detection. Patients were classified into three genotypes namely TT (homozygous wild-type), TC (heterozygous) or CC (homozygous variant).

Results: The 110 patients (90 male, all Caucasian, mean age 65 +1.02 years) were genotyped as TT (78.2%, n=86), TC (20.0%, n=22) and CC (1.8%, n=2), corresponding to normal, intermediate and low SLCO1B1 function, respectively. Fifteen patients genotyped as TC or CC were on a higher dose of simvastatin (40mg/day) than suggested by the Clinical Pharmacogenetics Implementation Consortium guideline for SLCO1B1 and simvastatin-induced myopathy.

Conclusion: Patients genotyped TC (n=22) have mild myopathy risk, while patients genotyped CC (n=2) have high myopathy risk. The guideline suggests decreasing the dose of simvastatin from 40mg to 20mg daily or prescribing an alternative statin (rosuvastatin/pravastatin) in TC and CC patients. This study serves as an example of pharmacogenetic testing to achieve precision medicine.

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OP7.218

Pharmaceutical care problems across transitional care: from hospital to community

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Introduction: The aim of the study was to perform gap analysis to identify pharmaceutical care shortcomings in transition of care from Mater Dei Hospital to community.

Methods: Two Reducing Avoidable Readmissions Effectively (RARE) campaign gap analysis surveys were carried out to identify shortcomings within the process of discharge planning and transition of care. Quantitative surveys targeted the identification of problems encountered during dispensing to discharged patients at Mater Dei Hospital pharmacy and during dispensing within the

community based Pharmacy of Your Choice (POYC) scheme. Problems encountered during dispensing were categorised according to an adapted classification for drug related problem of the PCNE Classification V8.02.

Results: Lack of time available for assessing the patients' understanding of the discharge plan; lack of a system to ensure that post-discharge providers have pertinent information in a timely manner to support effective TOC, lack of support to ensure that the patient or family caregiver is at least able to understand when and how to take medication and that discharge case summary and medication plan are complete and up to date are among the shortcomings revealed by the RARE campaign tools. From the 209 discharges studied, 137 pharmaceutical care issues were identified and from the 177 POYC refills studied, 116 pharmaceutical care issues were identified.

Conclusion: This research identified gaps within current processes. Further research work to establish a pharmacist-facilitated TOC programme that starts while the patient is at Mater Dei hospital Malta and extends for a period beyond discharge is warranted.

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OP7.219

Setting up a 24-hour drug information service

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Introduction: The Pharmacy Department at Mater Dei Hospital (MDH) operates a 24-hour drug information service (DIS) via its Medicines Information section during normal working hours and through shift pharmacists after-hours. This study aimed to identify deficiencies of the after-hours DIS and propose improvements required.

Methods: A three-week research observation placement was attended at the drug information centre at the University of Illinois in Chicago, USA, to detect the framework used. Subsequently, a focus group consisting of nine members was set up to discuss improvements identified based on the observational framework and which are required in the after-hours DIS at MDH. The participants of the focus group included the Head of Pharmacy Services at MDH, one pharmacist from each of the following sections: Medicines Information, Quality Assurance, and after-hours shift pharmacists; two staff nurses, two hospital doctors, and one community pharmacist.

Results: Proposed improvements from the focus group and the three-week observation placement include introducing a pharmacist to serve as a liaison between the Medicines Information section and after-hours pharmacists, increasing training for after-hours pharmacists, organising online and physical after-hours information resources, setting up journal clubs and clinical-based discussions for after-hours pharmacists, introducing an audit system and documentation of clinically relevant requests.

Conclusion: Eliminating weaknesses in the after-hours DIS ensure the constant delivery of high-quality drug information to users of the system, thereby improving patient care and allowing for a 24-hour seamless DIS.

OP7.220

Approaching a Pharmacy-led Interdisciplinary Medication Safety Service

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Introduction: Medication safety is an intrinsic function of hospital quality systems. The study was aimed at analysing patient safety attitudes amongst a segment of Mater Dei Hospital staff members.

Methods: A pre-validated (Agency for Healthcare Research and Quality) AHRQ questionnaire on patient safety attitudes was distributed amongst a pre-selected cohort of 235 participants from areas including pharmacy, hospital administration and anaesthesia. Results were compared with aggregate data from 680 hospitals in the United States of America and also sorted on the basis of contribution to negative responses. An internal hospital audit on high alert medications was also carried out. Medication safety service was developed in line with combined findings.

Results: With a response rate of 45 % (N=105), 36 % of the responses revealed an 'Acceptable' local patient safety attitude (n=37). Participation in error reporting was low with 52 % not being involved in any reporting (n=55). Findings led to the prioritisation of 8 attitude aspects; 'Supervisor expectations promoting patient safety', 'Management support for patient safety', 'Overall perceptions on patient safety', 'Frequency of events reported', 'Teamwork across units', 'Staffing', 'Handoffs and transitions' and 'Non punitive response to error'. A salient observation from the ISMP audit confirmed need for pharmacy involvement within clinical areas.

Conclusion: The approach developed in this study is being extended to other hospital areas. This study can be used as part of a conventional (Plan-Do-Study-Act) PDSA quality cycle and method transfer is appropriate to other hospitals where medication safety services need to be established, updated or aligned with established international targets.

OP7.221

The ePrescription System in Development in the Maltese Healthcare system – Step 1: the General Practitioner Perspective

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Introduction: Electronic prescribing is the computer-generated filling of the medical prescription, replacing the paper based method, with expectations of improved healthcare delivery and patient care. This system was recently introduced in Maltese Health Centres. Despite

being routinely utilized for over a year, there is no formal feedback from end users including patients, general practitioners and pharmacists. The aim of this initial study is to describe the current usability and user experience issues of the ePrescription system from General Practitioner (GP) perspectives (1); explore in detail the experiences of General Practitioners in using e-prescription system in specific healthcare contexts (Malta and Belgium) (2), mainly trying to understand their feedback and the issues that they encounter in their day to day work.

Methods: A mixed methods approach was used, starting with an online anonymised questionnaire distributed to all GPs working in primary care analysing their experience. A similar exercise took place in Belgium, enabling cross comparison which is ongoing. Subsequently, semi-structured interviews with General practitioner and other stakeholders is enabling in-depth evaluation.

Results: The study should be completed by September 2018. Initial results include the completed questionnaires which are being used to inform the semi-structured interviews with end-user GPs. A total of 56 responses were obtained from the questionnaires (34% response rate); with respondents considering system improvements in the operational aspect, despite teething problems. Main Strengths: First analysis of GP end-users of the computer-generated prescription; selected interviewees enabling better understanding; quality control due with a team from Belgium. Main weaknesses: Results are based on end-user subjectivity, limited end-user participation.

Conclusion: Overall, general practitioners perceive the programme as an improvement, despite teething problems in its introduction. KEYWORDS: electronic prescribing; general practitioners; questionnaires; interviews

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OP7.222

Forensic Pharmacy: Drugs and Driving

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Introduction: The aim of this research were: (i) to increase awareness among the general public about the impairing effects on driving caused by certain legal drugs and (ii) to obtain an understanding of Malta's drug driving policies with reference to other European countries.

Methods: A self-administered validated questionnaire developed in English and Maltese was disseminated to the general public through social media and by means of convenience sampling. Descriptive statistics were undertaken. European (including Maltese) drug driving policies related to the influence of drugs were reviewed.

Results: The questionnaire was answered by 255 (64% female, 62% 18-29 years, 44% tertiary level of education, 43% Northern Harbour District, 98% Maltese and 89% driving license holders). Ninety-two percent (n=235) strongly agree or agree that healthcare professionals should

inform patients of any administered drugs impairing driving. Eighty-two percent (n=208) strongly agree or agree of being aware that certain medications may cause dizziness, drowsiness and sedation and 59% (n=151) would temporarily stop driving and take their medicine. In Malta, impaired driving due to drugs is considered as 'negligent driving' while in other EU countries (Czech Republic, Poland and Slovenia) driving under any influence of a drug is penalised. Norway was the first country to introduce blood drug limits (ng/ml) for illegal and legal drugs. No blood drug limits are specified in 21 EU Member States including Malta

Conclusion: Results demonstrate that participants are aware that certain medications may impair their driving ability. Pharmacists should advise patients about specific side effects (drowsiness, dizziness and sedation).

OP7.223

The use of pharmacogenetic testing in a clinical setting for a patient with multiple allergic reactions

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Introduction: A number of drug-related adverse reactions are known to occur when medicines are prescribed, however between 5 to 10% of such reactions develop further into allergic reactions. Symptom of adverse drug reactions include cough, nausea, vomiting, diarrhoea, and headaches that generally lead to a number of skin reactions (i.e. rashes, itching) as some of the most common manifestations of an allergic drug reaction. A research subject known to be severely affected by a number of drugs that include all Non-steroidal anti-inflammatory drugs and antibiotics (penicillins and sulfonamides) presented herself for a Drug Metabolizing Enzymes and Transporters (DMET) genetic assay. This assay was used to characterize the distribution of polymorphisms and DNA variants of pharmacogenetics and pharmacogenomics (PGx) relevance in a clinical test sample and compared to adult healthy controls (N=10) without any history of allergic reactions.

Methods: Genomic DNA was extracted from 10 controls and 1 clinical sample and subject to quality control procedures that included quantification on a DNA Nanodrop and visualization on an agarose gel electrophoresis. The genotyping was accomplished by the DMET Plus, a microarray assay developed by Affymetrix (Affymetrix, Santa Clara, CA, USA) designed specifically to test drug metabolism associations. The DMET array contains 1936 (1931 SNPs and 5 CNVs) drug metabolism markers in 225 genes including 47 phase I enzymes, 80 phase II enzymes, 52 transporters, and 46 other genes. These genetic variants were multiplex genotyped using the molecular inversion probe (MIP) technology. The data were then analyzed using the online platform DMET-Analyzer which automatically selects the relevant SNPs. The current version of DMET Analyzer verified, for each SNP, the association among the presence of SNP and the different classes (Healthy vs Allergic) yet determined through the use of Fisher's test.

Results: We identified 16 SNPs mapped to 15 different genes that were associated with drug-adverse reactions and toxicity together with efficacy. Of these polymorphisms, the most notable findings include a heterozygous genotype for CYP20A1 (NP_803882.1:p.Ser97Leu; rs2043449; $p < 0.05$) and CYP2C19 (NP_000760.1:p.Glu92=; rs17878459; $p < 0.05$) that appear to affect NSAIDs metabolism in vivo, and a homozygous genotype for SLC19A1 (NM_194255.2:c.-50+786A>G; rs60881836; $p < 0.05$) that affects folate metabolism. Each SNP was annotated by Affymetrix and the dbSNP to explain the biological finding of results.

Conclusion: The present study revealed possible applications of pharmacogenetic testing for DMET genes that are known to play a part in a patients' response to treatments. Further data mining to link the genetic data with both clinical and medical history for the research participant is still underway and shall be further improved with additional test subjects enrolled with similar rare but important allergic drug reactions. This study shall attempt to build a much needed framework for public health genomics initiative for adverse drug reactions according to Maltese genotype distribution. In turn this shall assist and facilitate the identification of DNA variants as a prerequisite for engaging it in clinical routine screening in personalized medicine in Malta

OP7.224

The axon, its sheath, and the value of basic science for drug discovery

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In the mammalian CNS, the myelinated axon is responsible for the rapid transmission of information in the form of action potentials. Central myelinated axons originate at neuronal somata in the grey matter and course through the white matter to their targets. Due to its complexity and size the human brain contains a lot of white matter, over 50% by volume. Pathology of white matter is an essential component of almost all neurological disorders. Advances in brain imaging have revealed early and significant white matter changes in neurodegenerative disorders like Alzheimer's disease while classic histological approaches demonstrate the profound white matter damage present in acquired disorders like stroke.

Our research groups in Malta and Plymouth have worked closely together for almost a decade to investigate the cellular mechanisms of injury that operate in white matter. We have shown that axons release the excitotoxin glutamate via a novel vesicular mechanism to activate receptors in the essential myelin sheath that forms a close insulating layer around large axons. Glutamate receptor over-activation damages the myelin layer leading to loss of axon function. We have shown that experimental drugs which block the glutamate receptors are profoundly protective against white matter injury.

Glutamate antagonists have a troubled record of clinical translation. Since glutamate is the principle

excitatory neurotransmitter at synapses, drugs which affect glutamate receptors tend to have significant side-effects. Also, we now know that synaptic glutamate receptor activation in disease has both negative and positive effects upon neuronal survival. We have developed a strategy to avoid these barriers to effective clinical glutamate receptor block to protect white matter neurological disease. We have identified an antagonist molecular profile which specifically targets myelin and is also selective for glutamate receptor subunits enriched in myelin that are not found at the synapse. We are currently testing this approach in several in vivo models of disease.

OP7.225

The serotonin 5-HT_{2C} receptors as new therapeutic avenue to control absence seizures

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Introduction: Absence seizures (ASs), with their characteristic EEG spike and wave discharges (SWDs) and concomitant lack of consciousness are the hallmark of childhood absence epilepsy and are present in many other generalized epilepsies. Monotherapy with first-line anti-absence drugs only controls ASs in 50% of patients, and there is therefore the need of novel therapeutic targets. In this study, we investigated the effect of selective 5-HT_{2C}R ligands on ASs and the modulation of tonic and phasic GABAA currents in ventral basal (VB) thalamocortical (TC) neurons. In Wistar rats, the 5-HT_{2C} agonist RO60-0175 decreases tonic GABAA current with a postsynaptic mechanism involving G protein and phospholipase C pathway. Moreover, the agonist decreases phasic GABAA current with a mechanism involving an endocannabinoid (EC) retrograde signalling pathway. In GAERS rat, an animal model of ASs, RO60-0175 dose-dependently suppressed ASs and normalized aberrant tonic current respect to control NEC rats. Importantly, the FDA-approved 5-HT_{2C} agonist Lorcaserin also suppressed ASs and normalized aberrant tonic current in GAERS rats. In conclusion, 5-HT_{2C}Rs negatively control the expression of ASs in GAERS and decrease VB tonic GABAA inhibition via a mechanism involving retrograde endocannabinoid signalling.

Conclusion: Thus, dysregulation of 5-HT_{2C}R/EC/GABA interaction may be involved in the pathogenesis of absence seizures. Crucially, compounds acting on these neurotransmitter systems might be useful for potential development of novel anti-absence therapies.

OP7.226

Novel treatment strategies to protect cerebral white matter in vascular and metabolic disorders

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Introduction: Ischemic injury to white matter (WM) in the central nervous system is a major cause of functional disability and especially since the majority of strokes both involve grey and white matter equally. WM receives disproportionately less blood supply than grey matter and for this reason, WM is highly vulnerable to ischemia. This is evident by the frequency of lacunar infarcts in adults, which can accumulate, sometimes silently, and produce vascular dementia and cerebral palsy to the underdeveloped brain in children.

Methods: The study of ischemic WM injury has enabled us to identify and block specific key injurious pathways aimed at halting or attenuating the disease progress. To this end we use a number of in vivo models ranging from brain slices to optic nerve and techniques as diverse as pharmacological manipulation to high end imaging, immunocytochemistry, histology and Compound Action Potential (CAP) to test for functional nerve recovery.

Results: We present data from our past and present work that highlight novel avenues sought through experimental findings that focus on new treatment strategies.

Conclusion: Nitric oxide produced during ischemia was found to block CAP and WM can be protected by blocking inducible forms of NO. Administration of L-lactate during ischemia was also found to be protective. In the hypoglycemic brain, stimulation of β_2 -adrenergic receptors sustain the brain's metabolic status through energy provision derived from the stimulation of glycogen by astrocytes into lactate. Our recently discovered drug, QNZ-46, was found to block myelin sheath NMDA receptors and preserve nerve fibre integrity following a stroke. These discoveries offer hope and significant clinical potential to disorders effecting the WM.

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OP7.227

Benchmarking stroke practice at Mater Dei Hospital

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Introduction: Adherence to guidelines and multidisciplinary team (MDT) involvement form the basis of good-quality stroke care. In 2016, the Royal College of Physicians (RCP) identified 10 domains of stroke care, which were used to assess the care of stroke patients admitted to Mater Dei Hospital (MDH) and compare it to our previous 2008 audit.

Methods: Stroke patients admitted to MDH between 1st November and 12th December 2016 were included.

Ten domains were analysed: Scanning; Stroke unit; Thrombolysis; Specialist assessments; Occupational therapy (OT); Physiotherapy (PT); Speech & language therapy (SLP); MDT workings; Standards by discharge; and Discharge processes.

Results: Forty-five patients had confirmed stroke. Twenty-one patients (46.7%) were male. Mean age was 72.3 ± 13.6 years. Most patients presented within 3-24 hours (33.3%) of symptom onset, with motor deficit (28.9%) as the commonest presentation. Average length of stay (LOS) was 11.6 days and 31.1% spent >50% of their stay in Neuromedical Ward. All patients underwent CT scanning within 24 hours of presentation, with 87% of scans occurring within 3 hours. Only three patients were eligible for thrombolysis. Late presentation (59.5%) was the commonest contraindication. Within the first 24 hours, all patients were given aspirin/anti-platelet treatment. 84.4% had documented goals set by the MDT. Within 72 hours of admission, 73.3% had a PT assessment. Within the first week, 71.1% were assessed by SLP and 68.9% by OT.

Conclusion: Since 2008, there has been an improvement in almost all stroke care domains with better adherence to guidelines and implementation of MDT approach.

OP7.228

Cannabinoids/serotonin interaction in temporal lobe epilepsy

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Introduction: Endocannabinoid (EC) and serotonin (5-HT) systems play an important role in neuronal excitability and epilepsy. Cannabinoid type 1 receptor (CB1R) regulates synaptic plasticity and has been shown to mediate the anticonvulsant effects of cannabinoids in different animal models of epilepsy. Compelling evidence indicate that 5-HT neurotransmission modulates a wide variety of experimentally induced seizures. Generally, impaired 5-HT neurotransmission has been found to facilitate convulsive responses in several models of seizure induction. The existence of a crosstalk between EC and 5-HT systems has been suggested. It has been shown that 5-HT₂ receptor activation induces endocannabinoid release and CB1 knockout mice exhibits altered expression and functionality of 5-HT₂ receptors in several brain regions.

Results: Here we tested whether the interaction between 5HT₂ and CB1 receptors plays a role in the prevention of status epilepticus (SE) using the rat pilocarpine (PILO) model. RO + WIN co-administration reduced the incidence and increased the latency of SE in both cortex and hippocampus and decreased the EEG cortical power during SE. All these effects were blocked by the selective 5-HT_{2B} antagonist but not by SB242084.

Conclusion: These data indicate a synergistic interaction between the CB1R and 5-HT_{2B} in the prevention of SE, suggesting that co-targeting EC and 5-HT systems might represent a new promising antiepileptic strategy.

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OP8.229

Audit on discharge handover documentation at Diabetic Foot Ward

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Introduction: A Diabetic Foot Ward (DFW) was inaugurated at Mater Dei Hospital in December 2017 with the aim of providing multidisciplinary integrated care to patients with diabetic foot complications. On discharge appropriate follow-up should be arranged for diabetes care, ophthalmology, nephrology, podiatry and vascular surgery in an attempt to reduce future risk.

Methods: Data was collected from patients' discharge handover documents. These should be completed for all patients discharged from DFW and provide details of reviews as well as follow-up plans with the relevant specialties. The aim of this study was to investigate the extent of compliance and completeness of DFW discharge documents.

Results: There were 314 admissions to DFW between 24-12-17 and 21-7-18. Only 237 were admitted appropriately. Of these, only 40% had a discharge handover sheet created (64 males, 31 females; Mean age: 70.6 years). 40% ($n=38$) had their weight documented, while BMI was measured in only 2.1% ($n=2$). Podiatry follow-up appointment was documented in 18.9% ($n=18$). Almost all (98.9%, $n=94$) were reviewed by a Vascular consultant and vascular outpatients appointment was booked for 92.6% ($n=88$). One-third ($n=29$) had tissue viability follow-up. Diabetologists were recorded as having seen 81% ($n=77$) of patients, while 53.7% ($n=51$) had ophthalmic follow-up arranged on discharge.

Conclusion: Only a minority of patients admitted to DFW had a discharge document created. The reasons for the low compliance need to be investigated. Patients with diabetic foot complications are a high risk category and require appropriate follow up in order to help reduce morbidity and mortality associated with their condition.

OP8.230

A decade of abdominal aortic aneurysm (AAA) repair in Malta

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Introduction: is a disease of the older adult. Despite the aging population in Malta, little is known about AAA repair and outcomes. This study aimed to analyse the AAA management practice in Malta and its relation to aneurysm-related mortality.

Methods: Data on intact (iAAA) and ruptured AAA (rAAA) for the years 2008-2017 were collected using Mater Dei Hospital's surgical operations register, national mortality register and vascular registry (Maltavasc). The outcomes measured included the rate of iAAA and rAAA repair per 100,000 inhabitants > 65 years old, AAA diameter at time of repair, and crude death rates.

Results: There were 225 AAA repairs (mean 33 AAA repair/year/100,000 >65years), of these 74% were iAAA repair. Out of 166 iAAA repair, 63% (n=104) were carried out by endovascular repair (EVAR). There has been a steady increase in the number of AAA repair in Malta from 8 AAA repairs (2008) to 35 AAA repairs (2015). Although not significant, there was an apparent decrease in death rate with increasing iAAA repair. The mean AAA diameter for all repairs was 6.6cm. Death within 30 days after iAAA repair was 7.8% (n=13) (EVAR 1.9% (n=2), open iAAA 17.7% (n=11)) and 52.5% (n=31) after rAAA repair.

Conclusion: Most (75%) iAAA repairs are now done by EVAR. All rAAA are done by open repair. Further studies are needed to determine why the mean AAA diameter is higher than the recommended guidelines and why 30-day mortality rate after open AAA and rAAA is high. Consideration should be given to treat rAAA with EVAR.

OP8.231

Morbidity and mortality after open revascularisation lower limb surgery

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Introduction: Open lower limb revascularisation surgery remains a mainstay in the treatment of lower limb arterial disease. However it is associated with considerable morbidity and mortality. The aim of this study was to assess short term outcomes following lower limb revascularisation surgery. This study also looked at the effect of age, gender and medical co-morbidities on outcomes.

Methods: Patient undergoing elective, open, infrainguinal lower limb revascularisation surgery were recruited. Patients were followed up for 30 days following surgery. Primary outcomes assessed were 30-day mortality, length of stay in high dependency care, length of stay in hospital and unexpected return to the operating theatre. Secondary outcomes assessed were development of cardiac, respiratory and wound complications, graft patency, transfusion and readmission to hospital. Statistical analysis was carried out using SPSS statistical platform (version 24, SPSS Inc. Chicago, Ill, USA.)

Results: A total of 32 patients were recruited. The 30-day mortality rate was 9.4% (n=3). Chronic kidney disease was associated with a higher risk of 30-day mortality (Z score 2.6, p=0.011). There was a positive correlation between increasing age and length of stay in hospital (correlation coefficient= 0.31, p=0.08). Female patients (mean rank= 24.56, Z score = -3.049, p=0.002) and patients with ischemic heart disease (mean rank 22.44, p=0.038) had longer hospital stays. Ischemic heart disease was also associated with graft thrombosis (p=0.049) and unexpected return to the operating theatre (p=0.049). Female patients were more likely to develop wound complications (p=0.004) and need transfusion (p=0.02).

Conclusion: Female gender, chronic kidney disease, and ischemic heart disease are associated with increased morbidity and mortality following infrainguinal open revascularisation surgery.

OP8.232

Radiofrequency Ablation for Truncal Lower Limb Venous Reflux

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Introduction: Endovenous Radiofrequency Ablation (RFA) is the first line treatment offered to patients with truncal venous reflux, presenting to the Vascular Surgery Unit at Mater Dei Hospital. RFA has been proven to be an effective and safe treatment modality, with a low rate of complications. The aim of this study was to evaluate the outcomes of RFA treatment.

Methods: All consecutive patients undergoing RFA at the vascular unit at Mater Dei Hospital between January 2015 and May 2018 were identified through the MaltaVasc vascular surgery database and iSoft Clinical Manager. All patients underwent pre and postoperative ultrasound assessment at the vascular laboratory.

Results: 532 patients (586 vein trunks; 391 (73%) female; 141 (27%) male) underwent RFA. These included 510 great saphenous, 56 short saphenous, 19 anterior accessory great saphenous and 1 Giacomini vein. Mean age was 57.6 years (range 20-92 years). Indications for RFA treatment included varicose veins, venous skin changes, oedema, ulceration and bleeding. A total of 513 vein trunks were re-sampled at 6-10 weeks following RFA treatment. 73 trunks were not assessed. 508 vein segments (99%) were successfully ablated on duplex assessment. 5 trunks (1%) had evidence of recanalisation (n=2) or incomplete ablation (n=3). 5 patients (0.9%) experienced an adverse thrombotic event following the procedure- 2 sustained pulmonary embolism and 3 deep venous thrombosis.

Conclusion: Truncal ablation rates were RFA at Mater Dei Hospital are extremely high and compare favourably with data reported in the literature. Complications after the procedure are rare, making RFA a safe and effective treatment.

OP8.233

Mortality in a five-year cohort of patients undergoing major lower extremity amputation in Malta

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Introduction: The vast majority of major lower limb amputations are performed either at a transfemoral level (Above Knee Amputations (AKA)) or at a trans tibial level (Below Knee Amputations (BKA)). Determining the level of lower limb amputation is very important and should be aimed at achieving the best rehabilitation potential for the patient whilst avoiding the need for surgical revision. The aim of this study was to compare mortality rates of AKA and BKA over a 5-year period in Malta, and to correct survival time for age, gender and renal function.

Methods: A retrospective review of files of patients who underwent AKA or BKA procedures performed by vascular surgeons, between September 2012 and September 2017 was performed. AKA and BKA groups were compared for age, eGFR and gender. Survival analysis (Kaplan-Meier

curves and Log-Rank test) was performed to compare survival following AKA and BKA. Cox regression was performed to correct for mismatches in age and eGFR prior to surgery between the AKA and BKA group.

Results: 242 patient files were included, 40.5% underwent AKA and 59.5% underwent BKA. Mean survival post procedure was 2.49 years, 2.09 years for AKA and 2.75 years for BKA. Comparative analysis of survival yielded a statistically significant difference ($p=0.016$). However, age was found to be an independent risk factor for mortality ($p=0.00029$).

Conclusion: It is not the level of amputation itself that predisposes to a higher mortality risk but other factors, most notably age. Therefore, a decision about the level amputation should not be based on the perceived risk of mortality associated with the level of amputation.

OP8.234

Management of abdominal aortic aneurysms in the endovascular era

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Introduction: Endovascular abdominal aortic aneurysm repair (EVAR) was introduced to Malta in 2009. The aim of this study was to determine the impact of the introduction of EVAR on aneurysm repair practice, mortality and hospital bed occupancy since 2008.

Methods: Data was collected retrospectively from the Maltese Vascular Registry, Maltavasc, between January 2009 and June 2018. EVAR is performed by one vascular surgeon and data for that surgeon's aneurysm practice was collected. Patient demographics, mortality rates and complications were recorded for ruptured (rAAA) and intact (iAAA) abdominal aortic repairs.

Results: 178 AAA repairs were performed, (153 iAAA; 25 rAAA). All rAAA were treated using open repair. 26.1% (40) of iAAA were treated with open surgery while 73.9% (113) were treated with EVAR. The mean age was 73.3 years for the rAAA group and 73.6 years for the iAAA group. Only 12% of rAAA and 5.23% of iAAA were female. 30-day mortality for rAAA was 52% and for iAAA, 3.92% (EVAR 1.77%, open surgery 10%). 12% (3) of rAAA, 6.2% (7) of EVAR and 5% (2) of open repair for iAAA required a return to theatre within 30 days. The mean post-operative length-of-stay was substantially less for EVAR than open repair. The length-of-stay for rAAA was the longest.

Conclusion: EVAR has become the commonest treatment option for iAAA in Malta over the last decade. Mortality rates for EVAR are very low and compare favourably with international data. Hospital stay is shortest for EVAR.

OP8.235

Incidence of early complications and one-year amputation-free survival rate post-endovascular treatment of infra-inguinal arterial disease in Malta.

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Introduction: Percutaneous transluminal angioplasty (PTA) is one of the established techniques in managing peripheral vascular disease. It has a major advantage of being minimally invasive with lower morbidity and mortality risk when compared to open revascularisation. This study reports the number of and indication for infrainguinal PTA performed at Mater Dei Hospital (MDH) during 2016 and evaluates the success and complications of this intervention.

Methods: The number of PTA performed electively for infra-inguinal arterial disease in the year 2016 at MDH were retrospectively reviewed. Data collected included patient demographics, indication, site of angioplasty, complications and subsequent events at 30 days and one year post-plasty including follow-up. Data was collected from electronic case summary, iSOFT clinical messenger, PACS and vascular unit databases.

Results: 244 angioplasties were performed. Mean age was 73 years (range 42-97years). 64.3% were male ($n=157$). Most common indication was for critical ischaemia (68.4%; $n=167$), 25.0% ($n=61$) for intermittent claudication and 6.6% ($n=16$) for rest pain. 96.9% ($n=221$) had ballooning at site of stenosis and 3.1% ($n=7$) had a stent deployed. Most common site successfully angioplastied was the superficial femoral artery (71.9%, $n=164$), followed by calf arteries (65.7%, $n=150$), and popliteal artery (40.8%; $n=93$). Further results are still pending at this stage.

Conclusion: Infrainguinal PTA is a safe technique but may lead to various complications some of which, although rare, may be serious. The vast majority of interventions are successful and completed safely. An awareness of the potential complications should ensure that potential patients are adequately informed before referred for such interventions.

OP8.236

Metabolic health and different body composition phenotypes in a Maltese cohort

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Introduction: The metabolic syndrome (MS) is defined as a constellation of metabolic disease risk factors which together increase the risk of development of atherosclerotic cardiovascular disease and death. The widely recognised components of the MS include atherogenic dyslipidaemia, high blood pressure and an elevated fasting glucose level. Various underlying pathophysiological risk factors have

been postulated but predominantly visceral adiposity and insulin resistance seem to be the major contributors towards this syndrome. Other postulated factors include physical inactivity, ageing, a pro-inflammatory state, oestrogen deficiency and an atherogenic diet. Although traditionally obesity (defined by a BMI of 30kg/m or more) has been closely linked to this syndrome, it is also recognised that in some individuals, in spite of having a normal BMI, are insulin resistant and exhibit some of the abnormal metabolic risk factors. These subjects are coined as being metabolically unhealthy normal weight individuals (MUHNW). On the other hand recent studies have shown that a cohort of obese people do not exhibit features of the metabolic syndrome and are thus thought to be protected from developing atherosclerotic cardiovascular disease. These individuals have been termed as having metabolically healthy obesity (MHO). The aim of this study is to identify the prevalence of metabolic health among a different array of body composition phenotypes in a randomly selected middle-aged Maltese cohort.

Methods: This was an observational cross sectional study. 301 Maltese individuals aged between 36 and 46 years were recruited between January and June 2018. A proforma was used to capture demographic and lifestyle data and anthropometric values so as to be able to classify them into one of the four body composition phenotypes: metabolically healthy normal weight (MHNW); metabolically unhealthy normal weight (MUHNW); metabolically healthy obese (MHO) and metabolically unhealthy obese (MUHO). Subjects were classified as being normal weight if they had a BMI between 20-24.9 kg/m² and obese if BMI was > 25kg/m². They were further classified as being metabolically healthy if they exhibited 2 or less features of the MS as per NCEP ATP III criteria.

Results: 301 individual were included in the study. The mean age was 40.6 years and 63% were females. 27.2% had a normal BMI (20-24.9 kg/m²) and 72.2% were overweight or obese (BMI >25 kg/m²). Of the normal BMI subjects 93.9% were deemed metabolically healthy and 6.09 as being unhealthy. On the other hand in the obese cohort 58.4% were deemed to be metabolically healthy and 41.4% as being unhealthy. Interestingly in the healthy obese cohort the majority of these (66.4%) were overweight whereas in the metabolically unhealthy obese cohort 73.6% were obese.

Conclusion: From preliminary results this study shows that in a relatively young population, although the majority were overweight or obese, most seemed to be in the 'healthy' cohort as defined by NCEP ATP III. Further data analysis including prevalence of insulin resistance as measured by the homeostatic model assessment (HOMA) and other cytokine measurements to further help classify each of the four different body phenotype categories is still ongoing.

OP8.237

All-cause mortality in patients on sulphonylurea monotherapy compared to metformin monotherapy in a national-wide cohort

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Introduction: Type 2 diabetes is associated with increased mortality. There is some data that sulphonylurea therapy may contribute to this. The aim of this study was to compare all-cause 3-year mortality of patients on sulphonylurea monotherapy with that of patients on metformin monotherapy after adjusting for potential confounders.

Methods: We searched the Maltese national electronic database for diabetes treatment in April 2014. This is an electronic database of all treatment that patients are prescribed through the local National Health Service. We identified patients on metformin or sulphonylurea monotherapy and linked this to the national mortality database and the laboratory information system

Results: There were 25792 persons who were on treatment for diabetes in April 2014. Of these, 9977 were on metformin monotherapy and 1717 on sulphonylurea monotherapy. This cohort was followed up until April 2017. There were 2518 deaths (9.76%) during this period, giving an average of 32.5 deaths per 1,000 persons with diabetes. Logistic regression showed that persons on sulphonylurea monotherapy were 2.03 (95% CI 1.68-2.44, $p < 0.001$) times more likely to die within 3 years than persons on metformin monotherapy, after adjusting for age, eGFR and HbA1c. The logistic regression model was statistically significant, $p < 0.001$. Additional adjustment for LDL-cholesterol, HDL-cholesterol and urinary albumin-creatinine ratio did not alter the results.

Conclusion: Our data shows that sulphonylurea monotherapy is associated with higher all-cause mortality when compared to metformin monotherapy after adjusting for potential confounders.

OP8.238

Prevalence of Maturity Onset Diabetes of the Young (MODY) in Malta

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Introduction: Recent studies highlight that up to 1-2% of patients diagnosed as having Type 1, Type 2 and Gestational Diabetes may actually suffer from atypical non autoimmune forms of diabetes mellitus (DM) including MODY. This retrospective, population based study attempts to estimate the prevalence of MODY in the Maltese population.

Methods: The medical records of 908 patients with diabetes born after 1965 ie 50 years of age and diagnosed

at age 35 or younger were retrieved from hospital based medical records. A validated MODY probability calculator was used on those subjects who had a complete data set. The MODY calculator used is found online on <https://www.diabetesgenes.org/mody-probability-calculator>. Positive predictive value (PPV) of 25% was selected as the basis to invite subjects for genetic studies.

Results: Results up to now show 43 patients had a probability score of more than 25%, 19 had a probability score of 20% to 25% and 23 had a probability score of between 15-20%. Those with a probability above 25% were invited for genetic screening. Recruitment of patients and results of the genetic screening is still ongoing.

Conclusion: Upon completion of the genetic studies of our patients we will be able to give a precise prevalence of MODY in the Maltese population. Up to now we can say that 4.7% of our diabetic population had a high probability score using the MODY calculator and they were all invited for genetic screening.

OP8.239

Diabetes mellitus type 2 - The Maltese epidemic

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Introduction: The type 2 diabetes mellitus (T2DM) epidemic continues with increasing obesity and a sedentary lifestyle in Malta as elsewhere. The aim was to update the prevalence of adult T2DM in Malta while comparing to the 1981 WHO study.

Methods: A health examination study was conducted among a representative sample of adults in Malta aged 18-70 years old. Medical history data was gathered while fasting glucose (FBG) was measured. Participants with a previous history of T2DM or on oral hypoglycaemic agents were considered as previously known T2DM irrespective of current FBG level. Those obtaining a FBG >7mmol/L were considered as newly T2DM. The prevalence of previously and newly T2DM was calculated and compared to the 1981 study.

Results: Malta adult diabetes prevalence was found at 10.31% (CI 95%: 9.40 – 11.30) with a male predominance (66.58% CI 95%: 61.86 – 71.00). The majority were aware of the disease (61.18% CI 95%: 56.36 – 65.79%) and on treatment (54.79% CI 95%: 49.93 – 59.56). Unfortunately the majority on treatment had uncontrolled FBG (71.75% CI 95%: 65.50 – 77.26). Of the total adult population, 4% (CI 95%: 3.43 – 4.66) were unaware of their diabetes mellitus. On comparing to 1981, there was a major diabetes increase especially for the newly diagnosed cases. A gender shift over the past 37 years in diabetes from a female to a male predominance was observed.

Conclusion: The T2DM epidemic in Malta is on the rise especially among males. Action to prevent and better control this disease is imperative.

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OP8.240

Vitamin D & Diabetes- Associated Complications

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Introduction: There is increasing evidence regarding the effect of vitamin D in modifying the risk of developing type 2 diabetes mellitus (T2DM). However, the effect of vitamin D on cardiovascular complications is still disputable. The aim was to assess whether vitamin D is associated with macro- and micro-vascular complications in T2DM.

Methods: A cross-sectional study was performed. Participants comprised T2DM subjects. All underwent blood investigations including vitamin D levels, urinalysis for albumin-creatinine ratio (ACR), assessment for distal peripheral neuropathy (DPN), and carotid-intima-media thickness (CIMT) measurement. Macrovascular disease was defined as one or more of the following: history of ischaemic heart disease, peripheral vascular disease or cerebrovascular accident, and/ or increased CIMT. Microvascular disease was defined as the presence of increased ACR and/or DPN.

Results: The study comprised 108 T2DM subjects. Most of the participants exhibited low vitamin D levels (median 19ng/ml, IQR 14-24ng/ml). Vitamin D was significantly associated with the presence of both macrovascular disease and abnormal CIMT, respectively, in univariate analysis. However, no association was demonstrated between vitamin D levels and microvascular disease. Consequently, multivariate regression analysis revealed low vitamin D and high red blood cell distribution width (RDW) levels to be independent predictors of macrovascular disease. Likewise, low vitamin D, increased RDW and increased BMI were independent predictors of abnormal CIMT.

Conclusion: Both low vitamin D levels and increased RDW levels play an independent role in the occurrence of macrovascular disease and subclinical atherosclerosis as assessed by CIMT in a T2DM population.

OP8.241

Genetic characterisation of a Maltese cohort with atypical non-autoimmune diabetes

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Introduction: Maturity onset diabetes of the young (MODY) is a heterogeneous group of early-onset non type 1 diabetes caused by single gene defects in a number of genes affecting pancreas development and beta-cell function.

Obtaining an etiological molecular diagnosis in suspected monogenic diabetes is important for both a correct clinical management and genetic counselling of patients at-risk. Genetic testing for MODY is a challenging process, in view of the clinical heterogeneity of cases and the possible overlap in phenotypes with both type 1 and type 2 diabetes. Furthermore, the large number of genes implicated in MODY makes screening for mutations by Sanger sequencing an expensive and time-consuming process.

Methods: 31 adult patients with suspected monogenic diabetes and a high probability of MODY were recruited. Whole exome capture using a SeqCap-EZ-MedExome kit, followed by paired end sequencing was performed on each sample, in collaboration with the European Genomic Institute for Diabetes. We carried out gene-focused analysis of all known MODY genes to filter and prioritize pathogenic variants.

Results: We present the clinical characteristics of the probands and the relevant genetic findings from the cohort are discussed. A number of rare mutations in several genes were detected, and we present evidence for possible genetic founder effects.

Conclusion: Our findings are relevant and novel to a regional population, where the genetic epidemiology of MODY has never been characterised. The use of high-throughput sequencing facilitates the detection of both known mutations in a defined gene panel and novel unreported rare variants as possible diabetes-causing mutations

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OP8.242

Incidence of type 1 diabetes in childhood and distance from sea

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Introduction: Climates, mean temperature, and sunshine duration have all been found to be associated with type 1 diabetes (T1DM) incidence. We studied T1DM incidence and distance from sea, which exerts a major effect on climate.

Methods: Shortest distance from sea was measured manually using the measuring tool in Google Maps for each WHO DiaMond Project centre/region with childhood T1DM incidence data available. Monovariate associations between childhood T1DM incidence, shortest distance from sea and latitude for each centre/region were studied using Spearman's correlation analysis followed by multivariate analysis using the generalised linear model.

Results: A statistically significant negative association was found between T1DM incidence, shortest distance from sea ($r=-0.251$, $p=0.01235$) and latitude ($r=0.434$, $p=0.0001$) when all the centres were analysed. The negative association between distance from sea and T1DM incidence was more significant when countries without a specified centre/region were excluded from the analysis ($r=-0.316$, $P=0.0065$) and remained significant after adjusting for mean temperature ($\beta= -0.0005953$, CI

-0.0009738 to -0.0002168 , $p=0.002$, p for model omnibus test = 0.001) and mean sunshine hours ($\beta= -0.0005163$, CI -0.0008770 to -0.0001556 , $p=0.005$, p for model omnibus test= 0.019). Multivariate analysis showed that both distance from sea (in Km $\times 10^3$) ($\beta= -0.002769$, 95% Confidence intervals of β (CI) -0.004159 to -0.001380 , $p=0.000$) and latitude ($\beta= 0.154$, 0.123 to 0.241, $p=0.000$) were independently associated with T1DM incidence ($p=0.000$ for model omnibus test).

Conclusion: We found a significant decrease in T1DM incidence with increasing distance from sea persisting after adjusting for mean temperature and sunshine hours implicating other contributing factors.

OP8.243

Thirty day surgical site infections and mortality after abdominal surgery at Mater Dei Hospital

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Introduction: Malta participated in a worldwide study called GlobalSurg2. Its aim was to determine surgical site infection (SSI) rates following gastrointestinal surgery. The primary outcome measure for the study was 30-day surgical site infection rate. Secondary outcomes included 30-day mortality and overall mortality. The results presented below are the local Maltese data.

Methods: Teams of 3 collaborators collected data for two-week periods on all consecutive patients undergoing elective or emergency gastrointestinal surgery between January and July 2016 with 30-day follow up. Data was accessed using iSoft, electronic case summary (ECS) and patients' files accessed from medical records with permission.

Results: 292 patients were recruited. Average age was 52.3 years (range 4-100 years). 44 patients were diabetic, 7 patients were taking steroids, 8 patients were on immunosuppressants and 15 patients were having chemotherapy. 126 patients had elective surgery, 28 semi-elective and 137 underwent emergency surgery. 248 patients took at least one dose antibiotic prophylaxis, 210 of which received extended prophylaxis after surgery. 233 cases were clean-contaminated, 44 contaminated and 14 were dirty. 29 patients (9.9%) developed an SSI within 30 days. Of these, 17 patients developed SSI before being discharged from hospital and 12 patients after being discharged. 16 patients had organisms cultured from wound. Organisms which were isolated included *Enterococcus faecium*, *Staphylococcus epidermidis*, *Staphylococcus constellatus*, *Streptococcus intermedius*, *Streptococcus galliticus*, *Streptococcus mitis* and *Candida albicans*. 17 patients developed other hospital-acquired infections including 8 respiratory tract infections and 7 urinary tract infections. 8 patients developed intra-abdominal abscesses, 3 of which were drained using interventional radiology and 2 were managed with surgical drainage. 7 patients passed away within 30 days, making 30-day mortality rate of 2.5%. Overall mortality rate was 3%.

Conclusion: Malta's rate of surgical site infections and 30-day mortality compares well with international data.

OP8.244

A study on fatigue and levels of physical activity in patients with inflammatory bowel disease

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Introduction: IBD can greatly affect patients' work, personal and family lives, thus impacting on their quality of life. Regular physical activity may have a positive influence on one's fitness level, general wellbeing and psychological health. The aim of our study was to assess the levels of engagement in physical activity and fatigue in IBD patients pre- and post- diagnosis.

Methods: We conducted a prospective multi-centre cross-sectional study where IBD patients diagnosed within the previous 18 months were recruited. Inclusion criteria included clinical remission and/or no treatment changes within the previous 6 months. Data was obtained through questionnaires which assessed clinical data, levels of exercise pre- and post- IBD diagnosis, Functional assessment of chronic illness therapy (FACIT) and Godin physical activity scores.

Results: 158 patients (CD – 100 patients; UC – 58 patients) from 7 different European centres were recruited. Mean age was 35.1 years (95% CI ±2.0). Gender distribution was approximately equal (51.3% males). FACIT scores were lower in patients who had experienced relapses (38.1 [95% CI ±2.7] p 0.012), severe disease (37.1 [95% CI ±3.1] p 0.011) and in CD patients (38.9 [95% CI ±2.4] p 0.095), though the latter failed to reach statistical significance. FACIT scores were not related to Godin scores or BMIs, either pre- or post- IBD diagnosis. 43.3% of IBD patients rarely (R) performed any exercise either before and after diagnosis. 42.3% of patients performed sports at an amateur (A) level and approximately 1/3 of them had a reduction in their activity level after their IBD diagnosis. A small amount of patients (3%) who rarely performed sports increased their physical activity post-diagnosis. 11.4% of patients performed sports either professionally (P) or semiprofessionally (SP) pre-diagnosis and approximately 2/3 of these decreased their activity from P to SP and from SP to A. 46.1% of patients felt that medical professionals did not give enough importance to their level of fitness and a majority of patients (75.5%) considered it important that alternative methods to control their condition be discussed with them.

Conclusion: While 37.8% of patients who performed sports at an amateur level or higher decreased their physical activity level post-IBD diagnosis, it is important to note that there was no correlation between FACIT scores and Godin scores. Thus the reduction in physical activity could be multifactorial and the impact of medical appointments and psychological factors needs to be assessed prospectively. Furthermore it would be important to discuss the possible roles of complementary and alternative therapies in clinic so as to avoid any possible misconceptions.

OP8.245

Inflammatory bowel disease in the Maltese islands

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Introduction: There is a known latitudinal variation in the prevalence of inflammatory bowel disease (IBD) within Europe. Highest prevalence rates are typically found in the northern countries such as Scandinavian countries and the UK, and lower prevalence rates in southern Europe. The aim of this study is to analysis the prevalence of IBD in the Maltese Islands.

Methods: A retrospective population based IBD registry was generated using the public health schedule V registry, and confirmed with online histological data, electronic case summaries and clinical notes.

Results: The prevalence of IBD in the Maltese Islands is 259 cases per 100,000 persons, Crohn's disease (CD) prevalence is 97 per 100,000 persons and ulcerative colitis (UC) prevalence is 153 per 100,000 persons. The median age at diagnosis of IBD is 33 years. The average age at diagnosis is 37 years in males and 36 years in females. There was near equal gender distribution in CD (female: male – 1.02:1), and slight male predominance in UC (male: female - 1.2: 1). The proportion of IBD cases that are CD has increased over the years, with 38% of cases being CD between 1965 and 1995, and 50% of cases CD between 2015 and 2018.

Conclusion: This is the first inflammatory bowel disease population registry for the Maltese Islands. This study has shown prevalence rates in the Maltese Islands similar to northern Europe despite our Mediterranean location. Furthermore, the incidence of CD is on the increase.

OP8.246

Genome wide association study (GWAS) and phenotypic characterisation of a Maltese Inflammatory bowel disease cohort

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Introduction: IBD is an idiopathic inflammatory disorder of the gastrointestinal tract that consists of two major types, Ulcerative Colitis (UC) and Crohn's disease (CD). CD and UC are phenotypically heterogenous however genotypically the two conditions are not as diverse and share most of their susceptibility loci with a few notable exceptions. International genome wide association studies (GWASs) have identified 200 different regions and 231 single nucleotide polymorphisms (SNPs) that confer IBD risk.

Methods: A total of 109 UC, 194 CD and 216 controls were recruited. Genotyping was performed using the Illumina ImmunoArray 24.1. Disease severity was defined as need for treatment with biologic medications and/or need for surgery.

Results: LGALS9DP, NOS2, TNFSF8, and CD28 are known IBD variants that have been replicated in our cohort. Furthermore we have also identified the following possible new risk loci all of which were significantly associated with an IBD phenotype in our population: RAD51B (DNA Repair), CDH1 (Cadherin/Cell Adhesion), HLA-DPB2 (MHC), MS4A5 (Signal transduction).

Conclusion: Our study replicates findings from international studies and has highlighted a number of genetic risk loci associated with both development of IBD as well as progression to a severe disease phenotype. Whilst some of these risk alleles have been previously associated with IBD we have identified new risk loci, some of which have been previously linked to other inflammatory disorders. SNPs contributing to development of IBD did not necessarily contribute towards disease severity and vice-versa.

OP8.247

Comparison of Length of Stay and Readmission rates between Laparoscopic and Open Appendectomy - A single-centre retrospective study.

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Introduction: Appendectomy is one of the most common surgical procedures. Laparoscopic appendectomy has become increasingly popular. Multiple studies suggest that it is superior to open appendectomy.

Methods: A retrospective study was performed. Data was collected from January 2017 until January 2018. All patients who underwent appendectomy at Mater Dei hospital in Malta were included. Data collected included patient's demographics, length of stay (LOS), readmission rates within 3 months and histology. A p-value of <0.05 was considered statistically significant. A prolonged LOS was defined as post-operative stay >3 days. The reasons for readmissions and prolonged LOS were classified using Clavien-Dindo classification.

Results: 28 out of 196 patients who underwent laparoscopic appendectomy had prolonged LOS. 21 out of 54 patients who underwent open appendectomy had prolonged LOS. 14 patients who underwent laparoscopic appendectomy were readmitted. 3 out of 54 open appendectomy patients were readmitted. The reasons for prolonged LOS were various; most patients had Grade I complications. 14 out of 17 patients readmitted within 3 months, underwent laparoscopic appendectomy. Open appendectomy patients are at increased risk of prolonged LOS (14.29% in laparoscopic vs 38.89% in open group). 2 out of 28 patients with a prolonged LOS in the laparoscopic cohort required an abdominal drain. Readmission within 3 months was more common in the laparoscopic group (7.14% in laparoscopic vs 5.56% in open group).

Conclusion: Similar findings were quoted in various studies, with intra-abdominal abscesses being the most common complications post-laparoscopic appendectomy. Surgical site infections and post-operative pain, are more common after open procedures, contributing to an increased LOS.

OP8.248

The sensitivity and specificity of Ultrasound and CT in diagnosing acute appendicitis – A single centre retrospective study

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Introduction: Acute appendicitis is the most common abdominal emergency, occurring most commonly in patients between 10 and 20 years. Despite the fact that acute appendicitis can often be diagnosed clinically, imaging is sometimes necessary when a clinical diagnosis of appendicitis cannot be made.

Methods: A retrospective study was performed. Data was collected from January 2017 until January 2018. All patients who underwent appendectomy at Mater Dei hospital in Malta and had preoperative imaging were included in this study. A total of 207 patients aged between 14 and 88 years undergoing laparoscopic or open appendectomy were included. Data collected included patient's demographics including sex and age, CT and US results and histology report. A p-value of <0.05 was considered as being statistically significant.

Results: 207 patients were included in this study. CT imaging was noted to have a positive predictive value of 95.88% and a negative predictive value of 41.67%. 93% sensitivity and 55.56% specificity were calculated for CT imaging. The chi-square test was 11.19 (p-value of 0.0008). US imaging was noted to have a positive predictive value of 92.86% and a negative predictive value of 22.39%. 42.86% sensitivity and 83% specificity were calculated for US imaging. The chi-square test was 4.3521 (p-value of 0.037).

Conclusion: Imaging remains a hallmark in the diagnosis of acute appendicitis. Based on the above findings, CT imaging has a significantly higher sensitivity than US imaging. The latter proved to be more specific in diagnosing appendicitis. Ultimately imaging is based on patient selection and observer interpretation.

OP8.249

Endoscopic submucosal dissection (ESD) for minimally invasive management of gastric and rectal neuroendocrine tumours (NETs): An international collaboration

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Introduction: Small bowel varices (SBV) are a rare consequence of portal hypertension and could lead to life-threatening mid-gut bleeding. Radiological intervention

(RI) is usually considered first line management (e.g. Trans-jugular intrahepatic portosystemic shunting (TIPS), stenting of occluded mesenteric veins +/- embolisation of culprit varices). In cases where RI is impossible, management options become very limited.

Methods: This multicentre case series evaluated the usefulness of DBE assisted cyanoacrylate injection of SBV. Retrospective review of DBE facilitated cyanoacrylate injection of SBV (December 2015 to October 2016). Demographic, clinical, endoscopic and radiological findings, interventions and follow-up data were analysed.

Results: Ten DBEs were performed in 6 patients (4 women, median age: 68.5-years). Five patients had previous surgery (hemi-hepatectomy ($n=2$); SB resection ($n=2$); appendicitis with peritonitis ($n=1$)); one patient had a history of intra-abdominal sepsis in childhood causing portal vein thrombosis and one had cryptogenic thrombosis of the portal and the mesenteric vein. No radiological or surgical options were deemed feasible in any case. SBV were diagnosed at capsule endoscopy and triple phase CT mesenteric angiography. At DBE, a total of 13 nests of SBV were identified and injected with cyanoacrylate glue. There were no haemorrhagic or embolic complications but 1 patient developed an infection of a congenital urachal cyst, which was treated successfully with antibiotics. All patients underwent DBEs via the anterograde route, 2 patients required bi-directional DBE for treatment of both proximal and distal SBV and in total 2 patients required a repeat DBE for further treatment of SBV. At 30-day follow-up post-therapy, only 1 patient had experienced a mild recurrence of mid-gut bleeding treated conservatively. One patient presented with acute gastrointestinal bleeding 7 months later and a repeat DBE with cyanoacrylate injection therapy was successfully performed. One patient was lost to follow-up. The remaining patients had 12 months of follow-up without any recurrent gastrointestinal bleeding.

Conclusion: Cyanoacrylate injection therapy of SBV at DBE appears to be a safe and effective management strategy for this condition when other first-line options are not feasible.

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OP8.250

Assessing the validity of mobile thermographic cameras in the assessment of patients with vascular disease.

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Introduction: Thermography is a non-invasive technique which measures the temperatures at the surface of objects. The temperature at the surface of the body is a function of physiological measures and subject to change in pathology.

Methods: Physiological testing was performed prior to and within 24-48hrs of angioplasty by measuring the ankle-brachial pressure indices (ABPI), toe pressures and spectral waveforms. Thermographic assessment of both

feet and hands using a FLIR ONE Thermal Imager was performed pre and post angioplasty.

Results: Eleven patients were included in the study of which 8 were male. The average age was 69.16 (range 55-90). There was an improvement in the toe pressure with a mean improvement of 4.4 mmHg in the angioplastied versus non-angioplastied limb. Thermographically, there was a deterioration in the temperature of both limbs post angioplasty with values at the toes and of the rest of the foot registering a negative trend. There was no significant change in the ABPI. The waveforms showed that there was one angioplastied DP and PT which improved and 2 non angioplastied DP and Pt which improved post angioplasty.

Conclusion: This technology has the potential to be used as a surrogate for skin perfusion. The degree of accuracy and calibration of such equipment remain a concern. The best means demonstrated in measuring the degree of improvement remain the traditional gold standard techniques of which toe pressures seem to be the best.

OP8.251

A retrospective audit on lid malposition surgery

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Introduction: Oculoplastics is a surgical subspecialisation in ophthalmology dealing with lid, orbital and tear duct pathologies. The commonest oculoplastics surgical procedures deal with ectropion, entropion and ptosis repair. In our department, such procedures are usually given to the junior trainees. The aim of this audit is to analyse this surgical practice in Malta and to see whether any improvements are needed depending on the results achieved.

Methods: Ethical approval to obtain operation list data from Mater Dei's theatres was approved. All ectropion and entropion correction procedures performed since 2013 were noted and data was collected on the types of ectropion or entropion operated upon. Other data collected included; the pre operative assessments, including lid laxity and canthal tightness, the choice of procedure, the level of surgeon's experience and the surgical outcomes, re-operation rate and surgeon's experience at re-operation.

Results: Most surgeries were initially performed by the least experienced of the ophthalmic team with consultants only performing c. 10% of such surgeries. A good proportion (>25%) of such surgeries were achieving undercorrection and were requiring re-operation, most of which were reoperated by more experienced members of the team.

Conclusion: There needs to be some improvements in how we deal with oculoplastics cases in Malta. Better and supervised training on assessing such pathologies and performing such procedures will help improve the operation success achieved by the trainees. Hence, dedicating a rotation with an oculoplastics specialist will help improve such outcomes.

OP8.252

Comparison of three skin graft meshing techniques

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Introduction: The use of novel meshing patterns designed to be produced using simple slits with no skin loss and that would increase in two dimensions upon stretching (auxetic) was investigated. A comparison of three skin graft meshing techniques was performed to assess the clinical usefulness of auxetic meshing patterns.

Methods: Split skin grafts were harvested from eight commercially-available pigskins. Three 0.1" partial-thickness skin grafts were harvested in a contiguous manner in order to decrease biological variability in skin thickness and quality. The control was meshed on a 1.5:1 ribbed carrier. The other two groups were fenestrated by means of a die-cutting process and had custom rotating-squares and node-and-fibril auxetic designs. Measurements before and after expansion were performed by performed digital image capture using MATLAB software against a scaled background.

Results: Poisson ratio was highly negative in the node-and-fibril group, less negative in the rotating-square and positive in the control arm, with and a positive Poisson ratio indicating waist formation and a negative ratio implying an increase in both dimensions when stretched. The mean increase in area was over 200% with the node-and-fibril, 125% in the rotating-square and 110% in the control, $p < 0.001$.

Conclusion: Largest size increases were found in the node-and-fibril suggesting its use in covering large areas where skin coverage was at a premium. The rotating-squares pattern had the smallest possible pore size and shortest scar length with the shortest cellular regrowth path that may result in quicker healing, better cosmesis and improved drapeability and conformability over domed areas.

OP8.253

Can olfactory function improve after nasal surgery?

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Introduction: Nasal obstruction secondary to nasal septal deviation and inferior turbinate hypertrophy is one of the commonest complaints presenting to the rhinologist. Some of these patients also complain of hyposmia. This study aims to investigate whether septoplasty and inferior turbinate reduction improve olfaction, nasal airflow and quality of life.

Methods: Prospective patients presenting to the rhinology clinic with nasal obstruction were questioned about olfactory problems. Eight hyposmic patients (6 males, mean age 41.5 years, range 21-65) with deviated nasal septa and bilateral inferior turbinate hypertrophy were evaluated pre-operatively. Septal deviation and inferior turbinate size were classified as described by Mladina and Camacho et al respectively. Patients filled in a Nasal Obstruction and Septoplasty Effectiveness (NOSE) Scale, peak nasal inspiratory flow rate (PNIF) was measured and a British version of the University of Pennsylvania Smell Identification Test (UPSIT) administered. All patients underwent endoscopic septoplasty and inferior reduction surgery. No packing was used. Patients were re-evaluated post-operatively at 2-12 weeks (mean 5 weeks).

Results: Mean pre-op NOSE score was 15.7/20, which improved significantly post-op to 6.1/20 ($p=0.008$). An improvement in PNIF was noted from a mean of 83.8L/min to 93.8L/min; this was not statistically significant ($p=0.344$). UPSIT improved from a mean of 24.5/40 to 27.6/40 ($p=0.047$).

Conclusion: Septoplasty and inferior turbinate reduction surgery can significantly improve quality of life and olfaction, and also nasal airflow. No significant correlation was noted between pre and post-op NOSE, PNIF and UPSIT. However, this pilot study suggests that olfaction may serve as an independent outcome measure for nasal obstruction surgery.

OP8.2534

A survey of the referrals from the dermatology department to the plastic surgery department (2015-2016)

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Introduction: A significant minority of malignant skin tumours seen at the Dermatology Department are referred to a dedicated plastic surgery out-patient clinic to expedite their management. The aim of our study was to obtain data concerning the patients and lesions referred, surgery performed, diagnostic correlation and delays between referral and surgery.

Methods: Patients who had appointments at dedicated plastic surgery out-patient clinic in 2015 and 2016 were included. Data was collected from patients' notes, iSoft and discharge summaries.

Results: A total of 391 patients and 482 lesions were analysed. 60.5% of the lesions were referred as basal cell carcinomas (BCCs), 19.5% as squamous cell carcinomas (SCCs) or keratoacanthomas (KAs) and 7.5% required surgery related to malignant melanoma. Only 5% of procedures required general anaesthesia. 58% of surgical defects were closed primarily, 22% required grafting and 17% required a flap. 75.1% of lesions referred were located

in the head and neck with 22.8% of these being on the nose and 17.8% on the cheek. The mean overall delay between referral and surgery was 52.5 days for BCC, 43.9 days for SCC, 60.0 days for keratoacanthoma and 23.6 days for primary melanoma. The longer delay occurred between referral and out-patient review rather than between out-patient review and surgery.

Conclusion: The characteristics of the tumours referred mirrors the fact that BCCs are the commonest skin tumours and affect cosmetically-sensitive areas. The study also highlights delays in the management of SCCs. Such situations shall be averted by dedicating more slots for referral of more sinister tumours.

OP8.255

The referral incidence of otitis media in Maltese children with the developmental difficulties

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Introduction: Otitis media (OM) is a common condition of childhood characterised by inflammation of the mucous membrane of the middle ear cleft. Since the condition is not life-threatening it may not be given its due attention. Late and missed diagnosis of OM increases the risk of medical complications, hearing, speech and/or language acquisition difficulties, learning and behavioural challenges as well as social interaction issues. It is estimated that at least 2 out of 3 children will have at least one episode of OM by 3-years of age. There is evidence that children with developmental impairment such as craniofacial dysmorphias, are more at risk of having OM. This paper reports on the referral incidence of OM in children with a developmental condition.

Methods: Data was collected retroactively from a database of routine referrals of around 300 children to the Audiology Department at the State general Hospital, by the Child Development Assessment Unit in Malta. The age of the children ranged between 5 to 151 months (mean age 50.01).

Results: The referral incidence of OM in the children with developmental challenges was more than 50%. The condition was more present in younger than older children and the associated hearing acuity worse in the subgroup of children with OM.

Conclusion: The findings confirm the expected high incidence of OM in children with developmental difficulties as well as associated hearing difficulties. This calls for an awareness programme and a protocol for early detection of children suffering from OM, particularly those with co-morbidities, and to provide timely intervention.

OP8.256

Single-surgeon series of the Ahmed FP7 valve in a mixed glaucoma population: outcomes with one year follow-up

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Introduction: The aim of this audit is to analyse our performance with the Ahmed valve and compare our results with major published data. The Ahmed valve is a glaucoma drainage device in which a tube provides an alternative pathway for the controlled egress of aqueous to the sub-Tenon's space. It is a penetrating procedure which is usually used when first-line intra-ocular pressure (IOP)-lowering therapies fail.

Methods: This was a retrospective review of patients' notes. All patients underwent a standard Ahmed valve implantation with intra-operative mitomycin C. The collected data included patient and disease characteristics, IOP at established time points, medication burden, and complications. The primary outcome was a target post-operative IOP of <21mmHg at six months and one year, and the secondary outcome was a >30% reduction in IOP. The reduction in medication burden was also assessed.

Results: We collected data of 29 eyes from 27 patients with a mean age of 63.6 years. The overall mean IOP was 32.7mmHg (SD ±9.4) pre-operatively, 17.4mmHg (SD ±5.5) at six months, and 17.9mmHg (SD ±6.1) at one year. The overall IOP change at six months and one year was -15.1mmHg (SD ±10.4) and -14.6mmHg (SD ±11.1). An IOP <21mmHg was achieved in 82.1% and 85.7% at six months and one year respectively, and an IOP reduction of >30% was obtained in 67.9% and 71.4% at the same time points. The mean pre-operative number of different IOP-lowering drug classes per patient was 3.86±1.13, with 82.8% being on oral acetazolamide. Post-operatively, the number of drug classes per patient being used was 1.38±1.27, and 13.8% were on oral acetazolamide ($p<0.0001$). The medication burden was decreased in 89.7% of the patients.

Conclusion: The Ahmed valve offers a good IOP-lowering capability in different glaucoma types. The outcomes in this cohort were comparable to the major published results, despite having a heterogeneous group of patients with a wider variety of primary and secondary glaucoma types. However the results are limited by the small number of patients and lack of control.

OP8.257

Brainstem dysfunction in neuropsychiatric disorders – AD/PD/Depression

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Despite the fundamental role of the brainstem in regulating vital functional abilities such as arousal, breathing, autonomic nervous system activity as well as regulating all higher cerebral functions via neurotransmitter projections systems originating in the brainstem, the role

of the brainstem has received relatively little attention in most neuropsychiatric disorders. Besides the dorsal and median raphe nuclei complex comprising mainly serotonin-producing neurons, the brainstem also contains noradrenalin, dopamine and histamine-producing nuclei, i.e. resp. the locus coeruleus, the substantia nigra and the mamillary bodies. The brainstem is furthermore the relay station of afferent and efferent projections between the autonomic nervous system in the peripheral body and higher cerebral brain regions. The current presentation aims to review the neuroanatomy of the brainstem as well as the current status on findings, derived from a wide range of studies using molecular, cellular and imaging technologies, of brainstem involvement in neurodevelopmental (i.e. autism, schizophrenia) and neurodegenerative disorders (Alzheimer's and Parkinson's disease).

Over the past decades, the incidence of age-related, neurological and psychiatric disorders such as Alzheimer's disease (AD), Parkinson's disease (PD), but also depression has considerably increased. Mood disorders are strongly related to the exposure to stress. The hippocampus and other forebrain structures are the apex of the stress hormone control mechanism and damage to them may be one way in which stress hormone secretion escapes from inhibitory control in depression. In turn, stress, probably through toxic effects of glucocorticoids, decreases neurogenesis and cell survival while antidepressants enhance these processes in experimental animals. Therefore, since treatment strategies are not yet available, primary prevention in these age-related and stress related neurological disorders is of importance. As mentioned before most of the focus on neurobiological questions on above mentioned disease are related to forebrain structures since they are often associated with cognitive dysfunction. The brainstem is a highly neglected brain area in neurodegenerative diseases, including Alzheimer's (AD) and Parkinson's (PD) disease and frontotemporal lobar degeneration. Likewise, despite a long-standing recognition of brainstem involvement, relatively few studies have addressed the exact mechanisms that underlie brainstem autonomic dysfunction. Improved insight in the cellular and molecular characteristics of brainstem function is pivotal to study the developmental origins. As brainstem dysfunction also poses health issues in several other, neurodegenerative, disorders (like AD and PD), progress in these neurological fields will benefit from scientific advancement in the current proposal as well. In the area of depression, several observations have been made in relation to changes in one particular brain structure: the Dorsal Raphe Nucleus (DRN). In addition dysfunction of the cerebellum is also observed in AD and associated with pulmonary deregulation. The DRN is also related in the circuit of stress regulated processes and cognitive events. In order to gain more information about the underlying mechanisms that may govern the neurodegeneration, e.g. amyloid plaques, neurofibrillary tangles, and impaired synaptic transmission in AD, a rat dissociation culture model was established that allows mimicking certain aspects of our autopsy findings. We observed a similar phenomenon in brains from patients suffering from neurodegenerative disease since this

also related to changes in BDNF levels. The ascending projections and multitransmitter nature of the DRN in particular and the brainstem in general stress its role as a key target for AD/PD research and autonomic dysfunction. It also points towards the increased importance and focus of the brainstem as key area in various neurodevelopmental and age-related diseases.

OP8.258

A gain-of-function mutation in the potassium channel Kir4.1 induces behavioural abnormalities in rodents relevant to autism pathogenesis

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Introduction: Autism spectrum disorder (ASD) is a group of heterogeneous neurodevelopmental disorders caused by a combination of genetic and environmental factors. In a cohort of children affected by Autism-Epilepsy Phenotype we have identified variants in the KCNJ10 gene encoding for the inwardly-rectifying K⁺ channel Kir4.1 (R18Q, V84M, R348H). These mutations result in gain-of-function (GoF) of the channel. In preliminary work, we engineered the p.R18Q substitution in the mouse KCNJ10 gene product, using CRISPR-Cas9 technology. This study aims to demonstrate whether the genetically-induced up-regulation of Kir4.1 channel in the brain of animal models recapitulates the main behavioural features of ASD.

Methods: Female and male R18Q and WT (8 mice/group) underwent a series of behavioural tests highly relevant to each category of ASD diagnostic symptoms. In particular, the tests included: a) marble burying (to study anxiety, obsession and compulsion); b) self grooming (to study stereotypic and repetitive behaviour); c) three-chambered test (to study social approach); and d) tail suspension test (to study mood disorders).

Results: R18Q mice displayed significant behavioural abnormalities as demonstrated by the higher number of marbles buried and deficits in self-grooming and social approach compared to WT.

Conclusion: Our evidence indicates that higher expression of Kir4.1 channels in the brain of rodents results in autistic-like phenotype, inferring that GoF defects in the KCNJ10 gene are highly relevant for autism pathogenesis. Moreover, our newly generated R18Q mice represent a powerful tool for uncovering new mechanisms underlying autism and for the development of effective pharmacological therapies.

OP8.259

Elevated levels of nitric oxide during hypoglycaemia cause structural and functional injury to callosal white matter axons in the rodent brain

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Introduction: Nitric oxide (NO) is a free radical that can act both as a signalling molecule and a neurotoxin. Previous literature suggest that it is involved in multiple brain pathologies. The main aim of this study was to investigate the role of NO in conduction block and structural axonal injury during and following glucose deprivation (GD).

Methods: Using combined two-photon imaging and electrophysiology, we investigated the increased levels of NO during and following the injury in YFP-H transgenic mice. This was correlated with the degree of axonal structural integrity, and with axonal functional integrity through maintenance of the compound action potential (CAP). Pharmacological agents were used to elucidate the pathophysiology of this NO-induced injury.

Results: 45 mins of GD resulted in loss of axonal structural integrity concomitant with the loss of CAP. Addition of 10 micro;M 7-nitroindazole (7-NI), a neuronal nitric oxide synthase (nNOS) inhibitor did not offer any protection. On the other hand, addition of 10 µM 1400W, a selective inducible NOS (iNOS) inhibitor, offered partial protection to white matter axons.

Conclusion: In conformity with published data on the rat optic nerve, increased levels of NO during injury resulted in structural and functional axonal injury. Addition of 1400W resulted in partial protection to both YFP labelled axons and to the CAP. This suggests that the rise in NO during injury is dependent on the inducible isoform of NOS, and is most likely derived from astrocytes and microglia.

OP8.260

Role of the lateral habenula in modulating the rewarding effects of nicotine

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Introduction: Existing smoking cessation therapies have not yet been proven very successful and a better understanding of the neurobiology of tobacco dependence is still needed. Nicotine, acting on the midbrain dopaminergic system, is responsible for rewarding and reinforcing properties of tobacco. The lateral habenula (LHb) is a structure known to inhibit DA neurons and encoding aversive stimuli and might represent a possible target for the action of nicotine.

Methods: Single Unit extracellular Recordings in vivo from either the LHb or VTA or rat brain.

Results: We have showed that nicotine induce anxiety-like behavior in rats and that LHb lesion reverse this effect.

Moreover, nicotine increased, medially but not laterally, VTA dopaminergic neuronal activity. Following nicotine chronic treatment, this pattern of activation was inverted, as well as when the LHb was lesioned. This increase was almost abolished following nicotine chronic treatment in LHb lesioned rats

Conclusion: Our evidences indicate that the LHb might play an important role in mediating the aversive and positive effects of nicotine in the brain and that midbrain DA system participate to its mechanism of action. Our data suggest that counteracting the LHb decreased neuronal response to nicotine, following its chronic administration, might represent a successful strategy in treating nicotine addiction.

OP8.261

Management of Spontaneous Intracranial Haemorrhage – the local experience

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Introduction: Spontaneous intracerebral haemorrhage (ICH) accounts for 9-27% of strokes worldwide. Guidelines for the management of spontaneous ICH have been updated by the European Stroke Organisation in 2014 and by the American Heart Association/American Stroke Association in 2015. The aim of this study was to compare local practice to international guidelines prior to introduction of local guidelines, identifying areas of our care pathway needing most attention.

Methods: Data was collected retrospectively on 44 patients who presented to Mater Dei Hospital with spontaneous ICH throughout 2015, using admission notes, iSoft Clinical Manager, and Electronic Case Summary reports.

Results: The mean age at presentation was 65.9 years and 43.2% were female. All patients underwent CT imaging, with mean time to first CT being 145 minutes (+/- 1 S.D. 120 minutes). The average blood pressure (BP) was 156/81 mmHg at triage, and 147/81 mmHg at 6 hours. Despite a statistically significant difference between these systolic BP readings ($p=0.045$), only 66.7% of patients had a systolic BP below the recommended 140 mmHg at 6 hours, with anti-hypertensives used in only 46.2% of patients. 20.5% of patients were on warfarin, with warfarin reversal attempted in only 55.5% of patients. 25% of patients received neurosurgical review and 63.6% of these proceeded to surgical intervention in view of neurological deterioration or development of hydrocephalus. Pneumatic compression stocking use was documented in only 2 patients, both of whom were in ITU, despite international recommendations for their use.

Conclusion: Our audit indicates poor adherence with international guidelines particularly in the context of blood pressure control, warfarin reversal and DVT prophylaxis. Local guidelines were introduced in 2017, highlighting these points. We plan to repeat this audit in 2018, to identify whether local guidelines have been effective in improving patient care.



**DISCUSSED POSTER
PRESENTATIONS**



P1.01

The impact of excessive weight on oral health in school age children

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Introduction: In Malta, 40% of children are either overweight or obese. This study is to identify whether there are any differences in the gingival tissues and teeth of obese/overweight children when compared to normal weight children.

Methods: One hundred and ninety-three children were examined clinically within their schools under standard illumination from a Daray Light using mouth mirrors and a CPITN-C Probe. The height and weight of each child was measured to calculate the Body Mass Index and was categorised according to weight measure indices using the International Obesity Task Force tables. The Bleeding on Probing, Basic Periodontal Examination, calculus, Basic Erosive Wear Examination and Decayed Missing and Filled Teeth (DMFT) scores of each child were also collected and recorded in data collection forms.

Results: More than half of the sample population of this study were either overweight or obese, 27% and 28% respectively, while 44% were of normal weight. 3% of the normal weight and overweight subjects exhibited bleeding in 75 – 100% (21-28 units of teeth), while 11% of the obese category had bleeding in 21-28 units. Additionally, obese children presented higher DMFT scores when compared to normal weight children.

Conclusion: This study has provided evidence that there seems to be a relationship between oral diseases and obesity amongst children. It outlines the need for further studies in this field and further highlights the link between oral and general health. In a society where there is a high prevalence of obesity, one should be aware of the implications this morbidity has on the oral cavity.

P1.02

Audit on reporting of metastasis in sentinel lymph node biopsies in cases of breast carcinoma in our institution

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Introduction: It is important for the histopathologist to document the type or measurement of metastasis in sentinel lymph nodes. The aim of this audit is to assess whether the type (isolated tumour cells, micrometastasis or macrometastasis) and/or measurements of metastatic foci in sentinel lymph node biopsies (SLNB) in cases of breast carcinomata are documented in the histopathology report in our institution.

Methods: This is a retrospective study. The Laboratory Information System, Department of Pathology, Mater Dei Hospital, was searched for all breast carcinoma cases between 1st January 2017 and 30th June 2017 which were analysed, irrespective of sex, age and referring clinician.

Results: From 224 specimens, 95 cases had a SLNB, 30 cases had breast resection with axillary clearance and 32 cases had neither SLNB nor axillary clearance. Of the 18

cases with metastasis, 13 cases documented, and gave the measurement of, the largest metastatic deposit. In 5 cases, only the presence of metastasis was mentioned with no additional information.

Conclusion: Classification of the metastatic deposits in the SLNB in the case of breast carcinoma may affect the prognosis and further management of the patient. It is, therefore, important to measure the largest metastatic focus in these sentinel lymph nodes.

P1.03

Investigations, diagnosis and management of male patients presenting at the Agatha Breast Unit at Mater Dei Hospital, Malta

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Introduction: Male breast cancer is uncommon. Between 1998 and 2000, 8 cases of male breast cancers were diagnosed in Malta, compared with 634 breast cancer cases in women. According to literature, breast cancer is only diagnosed in around 1% of cases of male breast enlargement. To date, there has not been any study to assess the clinical manifestations, diagnosis, investigations and management of male patients who presented at the breast unit at Mater Dei Hospital, Malta. The aim is to identify the presenting complaints, investigations carried out and management of male patients who presented to the Agatha Breast Care Unit at Mater Dei Hospital between 2014 and 2016 and compare results to guidelines published both locally and abroad.

Methods: This is a retrospective study of male patients who were provided service at the breast care unit between January 2014 and December 2016. Patients' demographics, investigations, diagnosis and management were accessed via iSOFT and a curated dataset was created.

Results: There was a total of 128 patients recruited in this study: 31 patients in 2014, 45 patients in 2015 and 52 patients in 2016. The majority of patients were post-pubertal with an average age of 50 years. The age range of our cohort of patients varied between 4 weeks and 94 years. In 80.4% of cases, the presenting complaint was that of a breast lump. The most common investigation was that of an ultrasound (US) (83.6%). A mammogram was used in only 15.6% of patients. This should be increased, as a mammogram is the first line investigation to properly assess a breast lump to exclude microcalcifications, which might be missed on an ultrasound. 44.5% of patients were found to have normal breasts. The most common pathology was gynaecomastia (41.4%). There are various causes of gynaecomastia, two of which are abnormal liver and thyroid function. 84 patients (65.6%) had biochemical tests carried out to exclude any abnormalities. Only 19 patients (14.8%) had hormonal tests carried out. 3 patients (2.3%) were diagnosed with malignancy and these are still being followed up at outpatients. This is slightly higher than the 1% quoted in the literature.

Conclusion: This study emphasises the need to increase awareness of the correct local guidelines on management of male patients, especially that of gynaecomastia in view of it being the most common presentation.

P1.04

A novel combinatory approach targeting breast cancer cells

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Introduction: Rapamycin inhibits mTORC1, resulting in reduced free eIF4E. Thus, less HMG-CoA reductase is translated from the HMGCRC mRNA, an eIF4E sensitive transcript. Hence, lower concentrations of simvastatin, an HMG-CoA reductase inhibitor, are required for enzyme inhibition. Aim: To investigate the combinatory exposure of an mTOR inhibitor and an HMG-CoA reductase inhibitor to breast cancer cells.

Methods: An array of breast cancer cells were transfected with constructs designed to study the contribution of a 60 bp structured 5' untranslated region (UTR) to a reporter eGFP protein. Two cell lines were then selected and treated with rapamycin. MTT assays were carried out at 24, 48 and 72 hours to determine the sensitisation dose (Cs). These cells were then exposed to the rapamycin and simvastatin combinatory treatment.

Results: In the presence of overexpressed eIF4E, selected MDA-MB-468 and MCF7 cells showed an enhanced eGFP expression of the 5' structured UTR construct. These cells have limiting endogenous eIF4E activity, which was overcome under overexpression conditions. Both cells were recorded to have a Cs of 35 ng/mL. IC50 was attained by MDA-MB-468 (6 µM) and MCF7 (134 µM) 10 cells, which was otherwise not attained with rapamycin alone (at any time point), as well as simvastatin alone at the 24h time point.

Conclusion: Much higher concentrations are required to attain an IC50 after 24h by rapamycin or simvastatin alone. Hence, a rapamycin-induced decrease of active eIF4E, results in lower required simvastatin concentrations. Thus, this proposed combinatory treatment may potentially result in lower side-effects due to the need of lower initial doses of each drug.

Disclosures: The research work disclosed here was funded by the Malta Government Scholarship Postgraduate Scheme (MGSS).

P1.05

AURKA: A potential marker for sensitisation of breast cancer cells with mTOR inhibitors

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Introduction: Aurora Kinase A (AURKA) overexpression is associated with breast cancer metastasis and chemoresistance. Breast cancer cell autophagy can be inhibited by AURKA, leading to AURKA-induced carcinogenesis. Aim: To select markers which can identify breast cancer cells that are sensitised by mTOR inhibitors, namely rapamycin.

Methods: An array of 8 human breast cancer cell lines [ER-, PR-, HER2-; ER+, PR+, HER2-; ER-, PR-, HER2+] were treated with rapamycin. Rapamycin sensitivity was determined by MTT assays performed at 24, 48 and 72 hours. Additionally, 24h after rapamycin addition, investigation of RNA expression of breast cancer signature genes, mTOR regulators and targets was carried out using a 33-geneplex array (Luminex®).

Results: Sensitivity to rapamycin was exhibited in 6 cell lines. Out of the 33-geneplex array, only AURKA showed a statistically significant difference in RNA expression between vehicle control cells and rapamycin-sensitive cells treated with 35 ng/mL rapamycin ($p = 0.002$). The greatest loss in cell viability and AURKA RNA expression was observed by a triple negative cell line. A statistically significant positive correlation between AURKA RNA expression and % cell viability was also recorded for rapamycin-sensitive cells ($\rho = 0.755$; $p = 0.000$).

Conclusion: Results indicate that a reduction in AURKA levels by rapamycin, may potentially result in decreased breast cancer proliferation. Hence, AURKA overexpression may predict sensitisation of breast cancer cell lines, and thus may serve as a potential marker so as to identify candidates who would benefit from rapamycin treatment. Therefore, AURKA decrease by mTOR inhibitors would potentially increase tumour vulnerability to additional successful combinatory treatment.

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P1.06

Molecular Epidemiology of HIV-1 Subtypes in Malta

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Introduction: The global HIV-1 pandemic is characterised by extensive genetic diversity. During the evolution of HIV, transmissions between humans resulted in multiple HIV lineages. These genotypic differences have implications to disease progression, drug resistance and disease transmission.

Methods: To determine the subtype distribution of HIV-1 strains from anti-retroviral therapy (ART) naive and on treatment patients, a total of 132 HIV-1 positive patients were included in this study. Following next generation sequencing, HIV-1 subtypes and circulating recombinant forms (CRFs) were identified by the use of HIVdb Stanford University and BWA v0.7.15 alignment tool. Phylogenetic analysis of reverse transcriptase (codon 1-329) and protease (codon 1-99) of the pol gene region in HIV-1 strains was done.

Results: Subtype B (50%) was identified as the most common HIV-1 subtype in Malta, followed by Subtype C (14.3%), CRF 02_AG (11.3%), Subtype G (9.1%), CRF 01_AE (7.6%). Sub-subtype F1 (6%) and A1 (1.5%) were also detected. Overall anti-retroviral resistance rate was of 34%.

Conclusion: Molecular epidemiological studies are needed to determine transmission patterns and spread. Recognised HIV-1 subtype analysis helps in assessing new HIV infections, the monitoring of geographical changes and anti-retroviral resistance patterns, all of which play an important role in HIV management.

P1.07

Introduction of Cyanoacrylate glue closure as a treatment modality for incompetent truncal superficial lower limb veins to a National health service

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Introduction: Cyanoacrylate glue vein closure is a new non-invasive technique for the treatment of incompetent truncal superficial veins which achieves venous closure by polymerization of cyanoacrylate glue. This has been granted FDA approval in 2013 and this was introduced to the Maltese national health service in January 2018.

Methods: This is a retrospective observational study of patients who underwent cyanoacrylate glue closure of incompetent truncal veins at Mater Dei Hospital between July 2017 - June 2018. All patients undergo preoperative venous duplex scanning as well as post procedure venous duplex scanning at the vascular laboratory. Basic demographics of patients were analysed and pre- and post-operative duplex scans of the deep and superficial lower limb veins were used to assess success of treatment. Complications relating to the procedure were recorded.

Results: A total of 44 superficial truncal veins in 35 patient were treated during this period. Average age of patients was 64.1(range 34-85). Sixty-five percent (23) were females. 95% of patients were seen at the 6weeks post-operative ultrasound scan. Ninety-seven percent (43) of veins treated were successfully ablated. There was only 1 vein which was still patent after cyanoacrylate glue injection. Two patients who had 2 veins treated were lost to follow up. One patient developed superficial thrombophlebitis which became infected and required hospitalization. No cases of deep vein thrombosis or pulmonary embolism were recorded.

Conclusion: The initial results compare well with published literature with a 97% closure rate of the veins treated. Only one complication was reported confirming the safety of this minimally invasive treatment modality

P1.08

The application of molecular dynamics simulations to superoxide dismutase proteins

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Introduction: Molecular dynamics simulations (MDS) have been particularly useful in studying the problem of protein folding and investigating the effect of protein motions on catalysis and ligand binding. Methods such as molecular dynamics rely on an initial structure in order to answer a biological problem. Here, we performed MDS to compare active site movements and observe different bonding networks in native and mutant manganese superoxide dismutase (MnSOD) proteins. The latter act as the first line of defense in removing reactive oxygen species (ROS), by dismutating superoxide into molecular oxygen and hydrogen peroxide.

Methods: Following protein purification and crystallisation, the structures of MnSOD, the Q142H and the H30N mutants were solved via X-ray crystallography, which was done at the Diamond Synchrotron Light Source, UK. MDS were performed for 80 - 100 ns at 300K, using either Amber 16 or Gromacs 4.2 software. Processing of results and analysis was carried out using VMD and Xmgrace.

Results: Trajectory analysis of the Q142H and H30N mutants revealed changes in the hydrogen bonding network and binding modes of certain inner-sphere residues. These changes may affect the way in which these enzymes function. Moreover, metal analysis of the both the Q142H and H30N mutant proteins revealed the uptake of Fe instead of Mn, which is the natural cofactor of the native MnSOD.

Conclusion: MDS have become indispensable tools in investigating the details of protein structure and motion. The techniques presented here may be used effectively in the study of protein function including kinetics and binding of small molecule pharmaceuticals.

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P1.09

Novel beta globin gene cluster rearrangements and deletions in the Maltese islands

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Introduction: Hb F Malta 1 and Hb Valletta are common haemoglobin variants found in the Maltese population, in strong linkage disequilibrium with each other. Genotype and phenotype analysis of Hb F Malta 1 newborn was performed to find rearrangements and deletions at the beta globin cluster. A case study of a deletion beta thalassaemia is also discussed.

Methods: Two hundred and eighty-two Hb F Malta 1 newborn were enrolled in the study. A reverse phase HPLC was used for globin chain quantification. Multiple ligation probe analysis and qPCR were used detect deletions or duplications at the beta globin cluster. A case study of a female of Asian descent presenting with the phenotype of beta thalassaemia trait is described. Since routine clinical testing failed to find a cause for the microcytic anaemia, the aforementioned techniques were used to look for atypical deletion beta thalassaemia.

Results: Novel cases of newborn with broken linkage between Hb Valletta and Hb F Malta 1 were discovered, suggesting a higher rate of recombination events in this region. Gene conversion mutations, deletions and duplications at the gamma globin genes were discovered. In the case study, a large heterozygous deletion involving the beta globin gene and several downstream olfactory genes was found.

Conclusion: The case study highlights the importance of alternative techniques for diagnostic testing in a population with increasing genetic heterogeneity. A larger study population has enabled the detection of rare rearrangements at the beta globin cluster and copy number variations can be detected with qPCR.

Disclosures: The research was funded by the Endeavour Scholarship Scheme

P1.10

An audit on warfarin dosing at Mater Dei Hospital's anticoagulation clinic

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Introduction: For patients taking warfarin for atrial fibrillation (AF), NICE guidelines state that the time in therapeutic range (TTR) – recognised to be an INR value between 2 and 3 – should be assessed at each outpatient visit or at least annually. Using these guidelines, the quality of anticoagulation is measured using INR values over a period of 6 months. According to NICE guidelines, markers of poor anticoagulation are: (i) TTR < 65% (ii) Two INRs < 1.5 (iii) Two INRs > 5 (iv) One INR > 8.

Methods: The INR values of 195 randomly selected patients who receive warfarin for AF and whose warfarin is dosed at ACC clinic of Mater Dei Hospital were included. Patients who were recently started on warfarin and had not received warfarin for a total of 6 consecutive months were excluded. The above mentioned criteria were used to assess the quality of anticoagulation.

Results: Average age of participants was 76; 51.8% were female. From the sample population: 68.2% found to be poorly anticoagulated; 67.2% had a TTR < 65%; 3.1% had two INR values > 5; 20.5% had two INR values < 1.5.

Conclusion: Two thirds of this sample population do not fulfil the criteria for adequate anticoagulation in AF whilst another third is well controlled. This calls for further improvements in the anticoagulation service at our MDH ACC. Notably, prescribers of warfarin at ACC clinic seem to be wary of giving too high a dose due to the fear of bleeding, without considering that under-anticoagulation is also dangerous.

P1.11

An audit of the cost of rehabilitation multidisciplinary team meetings

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Introduction: NICE guidance advises Multi-Disciplinary Team (MDT) working to best manage individuals undergoing complex rehabilitation. The MDT is designed to improve inter-disciplinary collaboration to improve decision-making and communication of an individual's care. This should result in improved care management. MDTs are firmly embedded as the most effective tool in rehabilitation care. The core members of rehabilitation MDTs should include consultants, allied health professionals, nurses, psychologists and specialty registrars. There is little published information on the costs of MDTs. Our aim was to estimate the cost of a Rehabilitation MDT within a community hospital.

Methods: Attendance of MDTs over a ten week period was reviewed. The health professionals attending were divided into medical staff (including doctors-in-training and consultants) and 'others' (nursing, psychology, speech and language therapy, dieticians, physiotherapy and occupational therapy) for the purpose of analysis.

Results: The total number of patients discussed at the 10 MDTs was 140. The average time taken per weekly MDT totalled 2.45 hours. The average salary of an NHS consultant is £115,4005, the average salary of a registrar is £40,000 and the average allied health professional earns £35,0005. The approximate cost of MDTs, in salaries alone, can be estimated to be £2491.95. The average annual cost of MDTs in salaries alone is approximately £129,581.25, thus the cost to discuss each patient is £178.00.

Conclusion: Although many benefits of MDTs have been suggested there is limited scientific evidence to affirm this. This is likely to be a significant underestimate of costs as this only considers the salary costs. The costs calculated do not include the considerable preparation time or the non-salary costs. This audit demonstrates that MDTs carry significant salary costs. Further study into the necessary number of health professionals attending, particularly with regard to the more routine cases, is needed.

P1.12

The effectiveness of teeth whitening products on the maltese market in adults - a subjective overview.

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Introduction: The aims of the study were to investigate patient-reported outcomes of satisfaction and dental sensitivity following teeth whitening measures.

Methods: Patients were recruited from a list of patients at Mater Dei Hospital (MDH) Teaching clinic, friends and from social media. Patients were clinically examined and if they met the inclusion criteria, they were given a full-mouth debridement and polish. Whitening products were allocated to patients randomly including in-office (IO), home-kit (HK) and over-the-counter (OTC) products. Questionnaires were given prior to and after treatment for comparison.

Results: Seventy-seven patients participated in the study. The participants who received HK treatment had more sensitivity when compared to IO treatment. Teeth whitening procedures were evident as being a motivational oral health tool since we observed a shift to positive oral hygiene and diet in patients during the study. Participants showed more satisfaction when using HK as opposed to IO treatment. Multivariate analyses showed that patients' post-treatment satisfaction was dependent on the bleaching procedure, educational level and the initial result of bleaching obtained. Significant differences were also present between the type of bleaching kits.

Conclusion: Results concluded that patients preferred HK treatment as opposed to IO or OTC treatment. Treatment satisfaction was dependent on the bleaching procedure and type of bleaching material used. Patients' behaviour improved as measured objectively.

Disclosures: Faculty of Dental Surgery, University of Malta; Bart Enterprises Limited; Marletta Enterprises Limited; Page Technology Limited

P1.13

The effectiveness of teeth whitening products on the Maltese market in adults - an objective overview

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Introduction: Teeth whitening is the process of using peroxide or other materials to make teeth look whiter. The aim of this paper firstly to assess the effectiveness of different teeth whitening products, secondly to highlights any undesirable effects of whitening on the soft oral tissues, lastly to evaluate if achieving teeth whitening can serve as motivational tool for patients to improve their oral hygiene.

Methods: Sample of 127 people participated, out of which 80 qualified by meeting inclusion criteria. Participants were randomly divided into 8 groups, each group using different products. Participants attended for a collection of data and taking of measurements during 4 different time-points.

Results: Only professional teeth whitening provided by dental professional showed significant tooth shade improvement. Teeth whitening had no significant impact on soft oral tissue. It was emphasized that patients seeking teeth whitening can have some oral health issues they are not aware of, thus they should undergo a routine check-up prior to treatment. It was also proven that teeth whitening can well serve as a motivating factor for patients to improve their oral hygiene status.

Conclusion: Only non-OTC (over the counter) products showed significant colorimetric shade improvement. Whitening treatment had no significant impacts on soft oral tissue. Achieved teeth whitening improved oral health with an indirect relation.

Disclosures: Bart Enterprises Ltd, Marletta Enterprises Ltd, PearlSmile (Malta) Ltd, Page Technology Ltd

P1.14

Students' evaluation of a gerodontology programme

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Introduction: Many ageing societies are experiencing elders who retain their natural dentitions and in need of complex dentistry. Students in the dental team require specialised modules in gerodontology to train them for the future needs of the elderly patients. It is the aim of this study to report the undergraduate students' activities and perspectives on their work experience in a geriatric residence.

Methods: Consecutive anonymous online questionnaires on the theoretical and practical aspects of training were sent to students in dentistry and dental hygiene undergraduate courses following completion of the study units. Students were also invited to discuss their experiences. Data of clinical treatment performed by the students were collected. The number of clinical hours of student exposure to patients was measured.

Results: Completion of the questionnaire was high (90%). Both dental hygiene and dentistry students have

in excess of 100hours/year of clinical practice. Overall students rate their experience as a positive one that enriches patients' well-being. However they identify barriers to oral health and experience challenges related to their clinical work and level of competence (Kruskal-Wallis Test $p<0.05$).

Conclusion: Study participants were strongly motivated towards the management of frail older adults and cognisant of the barriers and constraints of achieving a reasonable level of oral health. Gerodontology programmes should be adaptable in order to create the appropriate environment and address socio-emotional challenges experienced by students.

P1.15

Establishing a national platform to address social determinants of health

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Introduction: The European Region of the World Health Organisation in its report "Review of Social Determinants and the Health Divide in the WHO European Region" considers that the health status of a population is determined by a mix of factors including income, housing, employment and lifestyles. These conditions in which people are born, grow, live, work and age are termed social determinants. Variances in these factors lead to significant inequalities in health between individuals and different groups in society leading to vulnerable groups having a lower status of health. In Malta there is a clear inverse relationship between life-expectancy and chronic health conditions and lifestyle behaviours and socioeconomic status. Further research is required in this area and to map out the policy gaps. Health inequalities can be reduced by tackling social determinants through a Health in all Policies by a whole-of-government and a whole-of-society approach. Such an approach is highly dependent on awareness among all sectors including policy makers, government, civil society and the general public through a life course approach.

Methods: The project aims at providing the necessary tools and capacity building through; Quantitative research (5000 sample); Qualitative research (250 sample); Training on social determinants of health for various professions; Creating a tool to empower educators; Innovative nationwide awareness campaigns.

Results: The identification of existing gaps, knowledge and interventions on social determinants of health, including the early identification of learners with low educational attainment.

Conclusion: The creation of a sustainable National Platform to address Social Determinants of Health through Health in all Policies.

Disclosures: Funding for this project is provided by the Ministry for Health, through the Offices for the Superintendent of Public Health which applied and was awarded a 2.6 million euro fund from the European Social Funds under the EU Funds for Malta 2014-2020.

P1.16

Illicit substance use: an ageing patient population.

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Introduction: Harm reduction strategies and improved access to health care have allowed more drug addicts to survive to old age. This is presenting a new and unique patient population to our services with high rates of physical and mental health problems combined with disadvantaged social situations.

Methods: A literature review of the epidemiology of this phenomenon and what the biopsychosocial implications of aging with addictions are. Qualitative research carried out with local drug users aged 50 and over.

Results: Literature review confirm this growing phenomenon as the baby boom population is aging and survival of drug users into old age is improving. The qualitative research reveals a number of barriers and disadvantages this patient group is facing; partly because it is a new patient population but mostly because of the double stigma of old age combined with drug addiction. Social support networks are usually greatly limited and consequently there is excessive reliance on service providers who are expected to take up roles of carers as well.

Conclusion: There needs to be increased awareness of this phenomenon and development of services that are appropriate and accessible to this specific population.

P1.17

Medical student education: action research on anatomy teaching

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Introduction: Anatomy of the thorax is the first anatomy module faced by medical students. Students struggle to find a learning method and request course notes in their feedback. The aim was to perform an action research to understand how to improve course material, and learning ability and retention upon introduction of e-Learning Multiple Choice Questions Quizzes (eLMCQs) with comprehensive answers (similar in format to postgraduate MCQs like Pastest or Onexam) and detailed course notes with more clinical content.

Methods: The action research was articulated by use of exit cards before and after introduction of course notes and eLMCQs, data collection from VLE (Virtual Learning Environment) on e-Learning responses and through spontaneous student feedback and reflection.

Results: Students requested detailed lecture notes to replace textbooks ($p<0.001$), with sufficient pictures and diagrams ($p<0.001$), more clinically based ($p=0.079$) and

delivered at the start of the year permitting preparation prior to lectures and later revision ($p < 0.001$). Students thought that eLearning would be useful ($p = 0.003$), especially in the form of MCQs similar to the actual exam ($p = 0.001$) and that online explanations could be printed out for later revision ($p < 0.001$). Students agreed that eLMCQs should be available at the start of the module and would help them achieve higher marks. Response rate reached 86% of 139 students.

Conclusion: Students claimed that the lecture notes and eLearning MCQ Quizzes improved anatomy learning. The VLE eLMCQ tests received over 17,000 hits in the first year. The action research was a fruitful exercise that cemented the student-lecturer relationship.

P1.18

Health system resilience - an exploratory analysis of the contributing factors in a small state health system

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Introduction: Health systems currently face several common challenges. Strengthening resilience in health systems has been proposed as a means to adapt effectively to changing environments and tackle significant challenges with limited resources. However the concept of resilience as applied to health systems has remained vaguely defined. This study aims to address some of the difficulties regarding the characterisation and utility of resilience as a 'factor' that promotes stable and sustainable performance of health systems. Using the theory of strengthening resilience to counteract inherent vulnerability from the small states literature as a starting point, the study seeks to identify the characteristics that resilience is perceived to confer to health systems as well as barriers that prevent the building of resilience. It also seeks to specifically explore the relevance and utility of using the concept of resilience within the context of a small state health system.

Methods: The study utilised a qualitative grounded theory approach and was implemented into two phases. In the first part, fifteen semi-structured interviews were carried out with international and local health system experts (academia, policy and decision-makers). The second part of the study involved analysis of the views of the Maltese health system stakeholders who participated in a workshop: Building resilience to improve Health and Well-Being in Malta.

Results: The absence of resilience is easier to identify than its presence and there is presently a lack of consensus amongst experts on the meaning of the term and its utility for health systems. This could be either a result of the relative lack of in-depth knowledge about resilience and its potential application or a feature of the complexity of health systems. There is broad support for the concept of resilience in a health system to be viewed as a prerequisite to attain health system objectives and not as a goal in itself. The study proposes that a resilient health system should be understood in terms of the specific country

context and circumstances and proposes a framework for resilience building comprising four distinct stages: policy formulation in accordance with the vision of the health system, investments in adequate and appropriate resources, capacity sharing working across boundaries and improve the capacities of health systems to understand and change.

Conclusion: At the core, the adoption of cultural attitudes that are found in learning organisations in combination with governance is essential, to interrelate all the stages together.

P1.19

A phenomenological exploration of the role of pets on a person's well-being

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Introduction: Animal companionship has become an integral part in Europe, with more than 75 million households owning a pet. Literature shows that companion animals could have multiple effects on overall human physical and mental health. There was a need to understand this dynamic relationship and its influences. Thus, the aim of this study was to explore the lived experiences of people who have a pet.

Methods: A qualitative approach was adopted and data was collected through semi-structured audio recorded interviews with four female participants who owned a dog, as suggested by Smith *et al.* (2009). Data was analysed through Interpretive Phenomenological Analysis.

Results: Analysis generated four superordinate themes; 'Personifying the human-animal attachment', 'Becoming complete: the influence of companionship on development', 'Emotional highs and lows of owning a dog' and 'Keeping a routine: physical and mental health benefits'. Findings show that for participants in this study, pets acted as a natural object of attachment (sometimes as an alternative to human relationships) who were readily available, active and affectionate. Companionship was a key criterion that helped participants feel calm and relaxed, socially and emotionally supported despite stressful situations during their lived experiences. Participants commented that their dogs have also played a crucial role in family development. Whereby dog owners personify and display emotions unto their dogs at different stages of their life; a best-friend through childhood and/or a child in adulthood.

Conclusion: By better understanding this phenomenon, companion animals may be used to ameliorate quality of life in diverse health care settings. Such as intensive care units, long-term care facilities and within adult and paediatric psychological interventions.

P1.20

Introducing the new Coblation™ Turbinator™ turbinate reduction wand: our initial experience of twenty-two patients requiring surgery for nasal obstruction

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Introduction: Nasal obstruction is a common presenting complaint at ENT clinics. Often this is due to hypertrophy of the inferior turbinates. Medical management is the first line of treatment. When this fails, surgical reduction of the turbinates can be undertaken. Multiple techniques are described for surgical turbinate reduction including submucosal monopolar diathermy and the use of microdebrider. Coblation is a novel technique of non-thermal (40-60°C) tissue reduction using radiofrequency energy. The aim of this study was to evaluate the clinical outcomes of the Coblation™ Turbinator™ turbinate reduction wand in a cohort of patients requiring septoturbinal surgery for nasal obstruction.

Methods: Adult patients undergoing turbinoplasty (=/- septoplasty) were eligible for this study. Patients underwent clinical examination, nasendoscopy, completed the Nasal Obstruction Symptoms Evaluation (NOSE) scale and undertook peak nasal inspiratory flow rate (PNIF) measurements at presentation, at postoperative week two and twelve. Twenty-two patients had their turbinates reduced via microdebrider, 22 via the Coblation™ Turbinator™.

Results: The mean preoperative NOSE score for both cohorts was similar at 77.5. The mean postoperative score improved significantly to 25.0 and 26.6 for the Microdebrider and Turbinator™ cohorts, respectively. Both cohorts had statistically significant improvement in postoperative PNIF measurements, with no statistical significance between groups. All surgeries were uneventful day procedures. None were readmitted though two microdebrider patients required nasal packing.

Conclusion: This is the first report of clinical outcomes following Coblation™ Turbinator™ turbinoplasty for nasal obstruction. Clinical data from this study suggest significant improvement in both subjective (NOSE) and objective (PNIF) outcome measures, which were comparable to the microdebrider turbinoplasty technique.

P1.21

To biopsy or not to biopsy- the stavros criteria

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Introduction: Aim:-To describe the Stavros criteria used to characterise benign breast lesions-To define the 6 pillars of the Stavros criteria correlating them with local sonographic pictorial cases-To depict the “near-misses” - lesions which appeared to be sonographically benign but did not fully suffice the Stavros criteria and were thus biopsied. Background: Sonography is a fundamental tool in the

assessment of breast lesions, in adjunct to mammography. The sonographic appearances of breast lesions may indicate whether a lesion is probably benign or else malignant. The Stavros criteria have been validated as a diagnostic sonographic tool to aid in determining benignity, thus potentially avoiding tissue sampling and its complications.

Methods: Method: The modified Stavros criteria are based on 6 descriptive pillars: shape, margin, orientation, lesion boundary, echo pattern and posterior acoustic features. A compendium of local cases which include lesions that fulfilled the Stavros Criteria as well as “near-miss” lesions are described and compared.

Conclusion: Conclusion: Stavros criteria is a validated useful tool that can be used to characterise benign breast lesions, as well as discriminating them from lesions with probably suspicious sonographic features.

P1.22

Breast examination as a screening tool for breast pathology

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Introduction: This initiative was performed with an aim to educate the public regarding the importance of regular breast examinations whilst providing the opportunity of being reviewed and examined by a consultant breast surgeon to address any concerns.

Methods: This project was performed at Valletta in October 2017. Three private cubicles were set up, one for consenting purposes and two for examinations. A total of 91 participants were examined. Those in whom no pathology was identified were reassured and educated regarding the importance of self-examination whereas those in whom possible pathology was identified, were referred for further assessment by Mammography or Ultrasonography, according to age and presentation.

Results: Out of a total of 91 participants, 80 were female and 11 were male. 5 females were referred for mammography in view of a palpable lump or inverted nipple whereas 2 females pertaining to a younger age group not eligible for mammography as first-line investigation, were referred for Ultrasonographic assessment of both breasts. One of the females referred for mammography was further investigated using ultrasonography and magnetic resonance imaging, which led to the discovery of a BIRADS 6 breast carcinoma. This lady subsequently required excision and oncological treatment. The other females had only false positive findings and were reassured.

Conclusion: This initiative highlights the importance of regular breast examination as a means of detecting breast pathology earlier, particularly in groups not eligible for the National Breast Screening Programme.

P1.23

Referral of patients to specialists: are we reaching the aim?

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Introduction: Referral of patients involves the transfer of clinical responsibility between healthcare professionals with the referral ticket serving as a means of communication between the caring practitioner and the specialist. Patient's referral is a complex area of decision-making involving the balancing of patient's expectations against the physician's gatekeeper role. High-quality referral incorporates 3 main aspects: necessity (referral of patient when necessary and without delay), destination (patients referred to appropriate place at first time), and process (referral tickets containing necessary information with necessary investigations prior to referral). The aim of the study was to evaluate whether referral tickets are meeting their aim in achieving these 3 main aspects.

Methods: The referral tickets of all patients referred to a single surgical clinic within the general surgery department at Mater Dei Hospital between April and July 2018 were analysed. Patients who failed to bring the ticket of referral to the outpatient's visit were excluded. The referral tickets were assessed for completeness in respect to the 3 main aspects (necessity, destination and process). Waiting times from date of referral to the outpatient's appointment was calculated. The data was analysed using Microsoft Excel.

Results: During a 12-week period, 149 patients attended to a single surgical clinic at Mater Dei Hospital as new cases. Eight patients were excluded as they failed to bring the ticket of referral with them. All ($n=141$) referral tickets had the patients' name and identity number documented. The majority of referrals were from primary care (65%; $n=91$). Only 18% of all the referrals ($n=25$) received in electronic format. Patients were seen at the speciality clinic with a mean average of 59 days. Four percent ($n=6$) were deemed as urgent referrals by the referrer and had an average waiting for an outpatients appointment of 61 days. Ninety seven percent ($n=137$) of the referrals corresponded to the patients complaints. Complete documentation of the past history, drug history and examination findings were present in 66% ($n=93$), 67% ($n=94$) and 59% ($n=83$) respectively. Five percent ($n=7$) of patients were referred to the incorrect clinic and 9% ($n=13$) of patients were already being followed up by another surgeon.

Conclusion: Referral tickets establish a link between primary and specialty care. Optimal referring processes are crucial for the effectiveness, safety and efficiency of medical care. This study shows that most of the referrals were appropriate reaching the appropriate specialist. Improvement in documentation prior to referral and decreasing the delay in outpatients' waiting time for urgent cases are needed for optimal patient care.

P1.24

The acquisition of methicillin resistant staphylococcus aureus in the general Maltese hospital

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Introduction: The aims of the study were to find the % rate of MRSA acquisition at Mater Dei Hospital during the patient's hospital stay and to evaluate specific risk factors for Methicillin Resistant Staphylococcus aureus (MRSA) acquisition. MRSA status of the patient both on admission, by routine screening methods, and on discharge were determined. A negative status on admission and a positive status on discharge was considered positive in MRSA acquisition.

Methods: 624 nasal swabs were collected from male and female patients from surgical and medical wards, aged between 16 and 97 years, upon discharge. Four results were excluded from the study due to the death of the patient. The information collected from medical files included demographic data, the ward, number of beds in the room of the patient being swabbed, admission and discharge date, antibiotic administration, if any surgery was performed, the presence of catheters and any comorbidities suffered. A sterile cotton wool on a stick was dipped in saline and the anterior nares were swabbed. The swab was directly inoculated on MRSA Chromogenic Medium (MCM), BIORAD MRSASelect II™, onto which MRSA colonies grow as mauve-coloured. The same swab was then put in MRSA enrichment broth and both media were incubated at 37°C for 18-28 hours. After the incubation, MRSA Chromogenic Medium (MCM) was observed and any mauve (pink) colonies, were followed with biochemical tests. Vitek 2 (bioMérieux Vitek® 2) automated system was used for identification and sensitivity profiles of the organism. The broth was also subcultured onto MCM and the whole procedure was carried out.

Results: Acquisition rate of MRSA in Mater Dei hospital was 6.12%, with an admission rate of 7.75%. The broth detected an additional 2% of MRSA-acquired cases. With univariate analysis and stepwise logistic regression, statistically significant risk factors for MRSA acquisition were ≥ 80 years of age ($p=0.0371$), Surgical ward occupancy ($p=0.0037$). For positive screen on discharge, risk factors included positive admission screening ($p=0.0001$), Surgical wards ($p=0.011$) and age ($p=0.0397$).

Conclusion: Malta had a high admission rate 7.75% and acquisition rate of MRSA, 6.12%. Decolonization procedure was not successful in 3% of the patients admitted as positive. Novel strategies need to be considered to reinforce infection control practices and strategies such as patient decolonization and hand hygiene, which is known to be the major factor in reducing transmission of bacteria. The major risk factors for MRSA acquisition, in this study included age and surgical wards.

Disclosures: BIORAD MRSASelect II™ Agar & Vitek 2 (bioMérieux Vitek® 2) automated system were provided by the Microbiology Laboratory at Mater Dei Hospital.

P1.25

A study regarding patients' attitudes towards the role of the dentist in providing tobacco education/cessation

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Introduction: At present, 28% of males and 19% of females smoke daily in Malta. A major cause of concern is the recent increase in smoking among young people, especially with teenage girls. The aim of this study is to find out how the general population reacts towards dentists giving smoking cessation advice and education

Methods: A pre-piloted questionnaire was distributed online on various Facebook forums like 'The Salott' and 'Healthy lifestyle Malta'. Both smokers and non-smokers were included.

Results: Out of 693 respondents, 84.1% were females. 50.7% had a tertiary level education. 69.8% of subjects were smokers and 30.2% were non-smokers. 73.7% of subjects have tried to quit smoking. Only 10.7% sought external help when quitting. 66.5% think that the dentist cannot help increase the motivation to quit smoking. 96.7% would not think of going to the dentist to stop smoking. Only 15.3% of subjects were given smoking cessation advice by dentists. 99% of subjects did not get any recommendations for the use of NRTs. 59.3% would continue going to the dentist if the dentist was helping in smoking cessation. 47% of subjects strongly agreed with the dentist giving smoking cessation advice. 0.6% strongly disagreed with the dentist giving smoking cessation advice.

Conclusion: Females were the dominant subjects of this study. Maltese people in general did not have a good attitude towards dentists giving smoking cessation advice. Maltese dentists did not give smoking cessation advice to smokers and when they did, it was not sufficient for subjects to stop smoking.

P1.26

Mortality after minor and major lower limb amputations in Malta

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Introduction: Major amputation of the lower limb is indicated for unsalvageable tissue loss or gangrene in the context of peripheral arterial disease and/or diabetes mellitus. Major amputations in particular are associated with significant mortality. The aim of this study was to assess early and late mortality rates after lower limb amputation surgery in Malta.

Methods: All lower limb amputations performed at Mater Dei Hospital between 2008 and 2017 were included. Data was extracted from the Surgical Operations Register. ICD-9CM codes 84.10, 84.11, 84.12, 84.15, 84.17, 84.18 and 84.19 were included. The list was matched with the mortality register for deaths between 2008 and April 2018. The main outcome measures included 30 day mortality, 1 year, 3 year and 5 year mortality. Data relating to risk

factors (smoking, hypertension, hyperlipidaemia, diabetes mellitus, renal disease, ischaemic heart disease and carotid disease) for patients treated by the vascular unit were collated from the vascular unit database

Results: A total of 2039 amputations were included. 580 (28.4%) were major amputations and 1459 (71.6%) were minor. Mortality at 30 days, 1 year, 3 years and 5 years was 8.5%, 29.9%, 48.7% and 62.5% respectively for the whole group. Mortality rates after minor amputations (6.5%, 24%, 41.8%, 53.8%) was significantly lower than after major amputations (13.6%, 43.5%, 61.2%, 74.5%).

Conclusion: Lower limb amputation is associated with high mortality rates both in the early and late postoperative period with significant reduction in life expectancy. Even minor amputations are associated with survival data which is worse than for most malignant tumours.

P1.27

Awareness, knowledge and behaviour of the Maltese general population in relation to the global solar ultraviolet index (UVI). A telephone based study

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Introduction: The Global solar ultraviolet index (UVI) is a unitless value which ranges between 1 and 11+ and aims to give a magnitude to harmful ultraviolet radiation (UVR). Published literature evidenced a wide variation in the familiarity and knowledge of UVI, clearly indicating that persons from European countries are less familiar with this concept when compared to Australian counterparts. This is the first study that has investigated the knowledge and awareness of UVI and its impact on sun protection behaviour among the Maltese general population.

Methods: A telephone based survey among 400 persons was performed using the modified multistage random sampling method. The random sample was stratified by gender and age on the basis of the 2011 census of the Maltese general population. The replies to the questions were analysed by gender, age group and highest education level attained.

Results: This study has revealed a very high awareness levels in relation to UVI, high familiarity with the significance of a UVI of 9 and also a relatively high follow-up of the published media forecasts during the summer months. However, despite this high familiarity, only 26% of the study population replied that the UVI forecasts actually impacted on their work and leisure activities.

Conclusion: This study has demonstrated that a high awareness of the UVI concept is not being translated into increased sun protection practices notwithstanding that the study population was highly knowledgeable on the negative impacts of excessive sun exposure. In fact, the large majority of the respondents claimed regular sun exposure during peak hours in summer.

Disclosures: This study was performed as part of my dissertation of the Masters degree in Environmental Planning and Management at the Institute of Earth Systems at the University of Malta.

P1.28

An overview of patient cases which have problems with discharge from Gozo General Hospital

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Introduction: Patients which have problems with discharge can be commonly found within the confines of Gozo General Hospital. These patients pose a considerable burden both economically as well as in terms of opportunity cost. The management of these patients is complex and multifaceted. A study of these patients was carried out over the months of February and March 2018, and this sought to elucidate more information about the common factors which exist within this population, as well as to see whether these patients used existing community services prior to their needing long term care.

Methods: The criteria used to define the population were that the patient had been an inpatient for more than 30 days and that the patient had been flagged for long term care. Twenty four patients ($n=24$) met the criteria when all patients residing in the acute wards were analysed. Thus the files were obtained and the data charted.

Results: Patients were distributed from all-over Gozo, with Victoria being the most common locality they hailed from. The majority of patients lie within the 81-90 age group with the 91-100 group being the second largest group. The vast majority (83%) were female. 37.5% of patients were taken care of by their families whilst 62.5% of patients lived alone at the time of admission. 20% of patients made use of support services prior to their admission to Gozo General Hospital. 66% were partially dependent as identified by the Barthel Index. No patients had discernible risk factors such as smoking and drinking alcohol. The average length of stay of these patients was 50 to 70 days at the time of writing, with one patient being present in hospital for more than 150 days. All patients were admitted as emergency cases. Interestingly, most patients were admitted following a fall which resulted in a fracture or a worsening of their dementia.

Conclusion: Greater investment within long term care is required since this is impinging on the health care system. Moreover, increased marketing of the available domiciliary services would support patients within the community for a longer time and thus decrease the burden on secondary care. Moreover, better marketing could change the prevailing mentality that exists within the community. Furthermore, optimising the said services to patients' needs and requests would increase their uptake. Community physiotherapy and occupational therapy would again decrease the chance of patients becoming wards of the hospital.

Disclosures: Permission from Data Protection Services at Gozo General Hospital was obtained.

P1.29

An obesogenic university environment? The need for a wake-up call

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Introduction: Universities provide an influential life structure for students during their transition to adulthood. The food environment influences and impacts on the eating habits of students and may limit the students' opportunities to make healthier food choices. The purpose of this study was to evaluate the food environment at the only public university in Malta while acquiring the students' perspective on the issue. This was a vending machine-based analysis of the food and beverage availability on campus.

Methods: An audit of the food and beverage items available for purchase within the vending machines across the university's grounds was conducted in 2016. Students' perceptions of vending machines items and usage were gathered through an online questionnaire. Data gathered was analysed using IBM SPSS version 21.

Results: A total of 13 beverage and 9 food-based vending machines were identified across the campus. All vending machines were stocked with the same high sugar and carbohydrate based-items. The majority of the participating students (71.03%) purchased from vending machines due to the easy accessibility of the items. Conversely, 61% of the participating students reported the available items as "too unhealthy" with 74.60% showing enthusiasm for healthier choices. While 44.84% reported a willingness to pay more in exchange for healthier options.

Conclusion: Limited food and beverage options for purchase were available in vending machines, leaving students stranded without healthier options on campus. The provision of a healthier food environment is a requisite in addressing social determinants of health inequality and should be tackled urgently especially since Malta is faced with an obesity epidemic.

P2.01

Management of burns patients prior to issue of the national burns' guidelines

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Introduction: Worldwide, it is estimated that burns cause about 180,000 deaths yearly. This audit focuses on assessing the initial management of burns patients before being referred to the Plastic Surgery and Burns' Unit. The aim is to assess if such cases were investigated and managed appropriately prior to the launch of the National Burns Guidelines.

Methods: Data of all patients admitted to the Burns' unit with a diagnosis of burns in 2016 and 2017 was collected retrospectively from medical notes. Data included patient demographics, percentage burns according to Lund & Browder charting, area affected by burn, burn classification, investigations performed including biochemical studies and ECG findings, analgesia, intravenous fluids and antibiotics administered, and dressings applied.

Results: The Burns' Unit in Mater Dei Hospital admits an average of 45 burns patients yearly. 86 patients with a diagnosis of burns were admitted in the 2016 and 2017. These included 23 females and 63 males. Female age at admission ranged from 1 to 88 years with a mean age of 50.3 years. Male age at admission ranged between 2 and 84 years with a mean age of 39.5 years. Overall the audit showed that in a number of cases there was missing documentation and investigations.

Conclusion: There was an inconsistency in the management of burns and incomplete documentation on admission was noted. We aim to close the audit loop once the National Burns Guidelines have been adopted locally and assess whether these guidelines have had any impact on the management of the patient with a burn.

P2.02

Prospective study assessing the usefulness of carrying out NTpro-BNP on patients seen at the ED at Mater Dei Hospital

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Introduction: NTPro-BNP test results are used to detect, diagnose and evaluate severity of congestive heart failure. The test is based on a substance being released when the heart is stretched more than usual. Thus it is a good measure of categorizing and detecting heart failure, but not unique to it. The purpose of this audit was to evaluate the usefulness of performing this test especially when the diagnosis is very clear and treatment is given before the result becomes available. Especially when the cost of performing the test is c. 35 euros.

Methods: Patients admitted to a particular medical firm were assessed to find out in whom the test was checked, if there was a good indication for it and if it effected the patient management.

Results: The total number of patients that were admitted with signs possibly indicating heart failure during 2 months of medical admissions to one medical firm were assessed as regards indications, result and outcome. There were 13 patients in total and management was changed in 4 patients, 3 of these had confirmation of CCF diagnosis and diagnosis was excluded in one patient. These results indicate that the test changed management in 6% of patients and cost of NT-proBNP is not insignificant, hence it is important to use judiciously.

Conclusion: NTproBNP result resulted in changing management in under a third of the patients assessed. Considering that an investigation is useful if it changes diagnosis or management, this study demonstrates that it is being used appropriately.

P2.03

Rotating-quadrilateral skin graft meshing patterns

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Introduction: Conventional skin graft meshing results in a relative contraction in the direction orthogonal to the stretching direction producing an hourglass shape. This effect may be rectified using patterns that promote auxeticity, i.e. the ability to expand laterally when uniaxially stretched.

Methods: Different meshing patterns emulating a rotating-quadrilateral mechanism (known for its potential to generate auxetic behaviour) were studied using computational analysis, in an attempt to optimize recipient site coverage area whilst maintaining small pore size. The pore size and fractional pore coverage, which quantifies the fraction of the area out of the whole structure that the pores cover, were measured at various degrees of apertures of the systems. A pig skin graft was meshed in a rotating-square geometry as proof of concept.

Results: Slit-based space-filling rotating units that can be reproduced in skin grafts included squares, type I and II rectangles, type a rhombi and type Ia and IIa parallelograms. The longest length determines pore size and maximum area coverage. An analysis of the fractional pore coverage showed that it was lowest in the rotating-squares pattern. The rotating-square skin graft expanded to a square shape as predicted.

Conclusion: Skin meshing may be performed with slit-based meshing patterns that produce rotating-quadrilaterals with auxetic geometry, resulting in a larger area of coverage with reduced donor site area requirements. A small pore size decreases the distance required for cellular ingress and angiogenesis and may improve wound-healing times. These patterns are particularly suited for grafting convex areas because of their theoretical conformability.

P2.04

Duration of resuscitation attempts in out of hospital cardiac arrest: words vs actions

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Introduction: The optimal duration of cardiopulmonary resuscitation (CPR) in out of hospital cardiac arrest (OOHCA) has not been agreed upon by any international bodies and as such is the decision of the CPR team. Moreover no local guidelines exist to help decision making. The aim of this study was to ask local emergency physicians how long CPR should last and then compare this to actual practice.

Methods: An online questionnaire was sent to all practicing local emergency physicians including trainees and specialists. A total of 26 responses were collected. The cardiac arrest register was used to obtain timing data for OOHCA over a 2 year period (May 2016 to May 2018). Arrests without clear time data were excluded from analysis to leave a total of 95 arrests.

Results: The respondents generally agreed that CPR efforts should last around 30 minutes. No respondent to the questionnaire said that they regularly provide CPR for more than 50 minutes after OOHCA. From the register 84.2% of cases had CPR for longer than 30 minutes. 56.8% of cases had CPR for longer than 1 hour, with no survivors. 61% of OOHCA with CPR over 1 hour had a presumed cardiac cause of arrest.

Conclusion: Using responses gathered from emergency physicians as a standard, the vast majority of patients (84.2%) are receiving prolonged unnecessary CPR. The discordance between what emergency physicians believe they should be doing and what is being practiced requires further investigation and may hint at non-technical issues in resuscitation which need to be addressed.

Disclosures: The Authors are practicing emergency physicians but have not taken part in the questionnaire

P2.05

The use of O-negative blood at the emergency department and the identification of patient groups that continue to require further blood and blood product support after discharge from emergency

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Introduction: Two units of O-negative blood are stored at the emergency department. These are used when the emergency physician suspects that waiting for a type and screen may be detrimental to the patient's morbidity and mortality. The aim of this audit is to identify which patients given O-negative blood from the emergency department and which of these in turn require further blood and blood product transfusions. The identification of patients with a high probability of needing multiple transfusions may be used to alert the local blood bank when such patients present to the emergency department.

Methods: Patients that were transfused O-negative blood at the emergency department between January 2017 and December 2017 were identified. The number of O-negative units given at the emergency department as well as all other blood and blood product transfusions given after discharge from the emergency were recorded.

Results: Fourty-seven patients were included in the study. There were twenty females (42.6%) and twenty-seven males (57.4%). The most common cause of emergency blood transfusion was trauma (twenty patients; 42.6%), followed by gastrointestinal haemorrhages (thirteen patients, 27.7%). 50% of trauma patients received 2 units

of O-negative blood. 80% of this group required further blood transfusions; 90% of these required plasma and/or platelet transfusions.

Conclusion: Identifying patients at high risk of needing multiple blood transfusions whilst still in the emergency department is possible and can help alert the local blood bank. This is especially important when specific blood products may be scarce and hence distribution management of these products becomes crucial.

P2.06

Admission assessment and planning unit: the key to improving patient flow?

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Introduction: Emergency departments (EDs) are faced with ever increasing pressures as they attempt to offer safe and efficient acute clinical care to a growing number of patients while adhering to time-performance targets. Overcrowding of the ED is fast becoming a common problem which further impacts the standard of care which is offered. Thus the development of an Admission Assessment and Planning Unit (AAPU) is being looked into.

Methods: Data from patients admitted on 7 non-consecutive days was collected between 21/5/18 and 4/6/18. The list of admitted patients was obtained from the ED Admission Booklets. Files were then reviewed and assessed looking for specific exclusion criteria, and when present, whether they were successfully reversed. Patients who were admitted to ITU, monitor beds, telemetry beds, isolation rooms or under constant watch were deemed as being non-candidates for the AAPU and thus their files were not reviewed.

Results: A total of 571 files were reviewed and of these, in a total of 326 instances (57.1%), patients would have been candidates for transfer to the AAPU and would have thus benefited from such a unit, while in 245 cases (42.9%), patients required further management and stabilisation at the ED and were not safe to be transferred to the AAPU.

Conclusion: The introduction of an Admission Assessment and Planning Unit would positively influence working conditions in the ED by improving flow of non-critically ill patients out of the department, thus allowing resources to be redirected to the unstable patients.

P2.07

The prevalence of carotid stenosis in Maltese patients with peripheral vascular disease

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Introduction: Peripheral arterial disease (PAD) is a manifestation of systemic atherosclerosis leading to significant narrowing of arteries distal to the arch of the aorta. The development of atherosclerotic plaque in the internal carotid artery (ICA) is associated with a significant increase in risk of CVA. In Malta the prevalence of ICA stenosis in patients suffering from critical ischaemia (CI) of the lower limbs is not known. The aim of the study is

to determine the prevalence of significant ICA stenosis in Maltese patients with lower limb CI.

Methods: Patients diagnosed with PAD and presenting to the Vascular Unit at MDH were recruited. The diagnosis of peripheral arterial disease was confirmed through measurement of ABPI, assessment of waveforms at the ankle and lower limb arterial duplex scan. Risk factors including smoking, hyperlipidaemia, coronary heart disease (CHD), hypercholesterolemia, diabetes mellitus, BMI, hypertension, family history of PAD and gender in this cohort were collated. These patients underwent carotid duplex scanning at the vascular lab to assess for significant stenoses of the ICA using the Joint Recommendations for Reporting Carotid Ultrasound Investigations in the United Kingdom in order to quantify the stenosis. Statistical tests used were Chi-square test and logistic regression analysis.

Results: Fifty subjects were recruited between September 2014 and December 2014. Patients who participated in the study were being treated in hospital for CI. 22% of recruited subjects had a significant ICA stenosis (>70%). Smoking was found to be the only significant predictor of ICA stenosis ($p = 0.003$) in this cohort of patients from among a number of risk factors such as family history of PAD, CHD, hypercholesterolemia, DM, obesity, age hypertension and gender.

Conclusion: The prevalence of significant ICA stenosis amongst patients admitted to MDH with CI is significant. Screening for ICA disease in patients with CI being considered for intervention is justified and should help inform the consent process with regard to periprocedural risks of CVA

P2.08

Re-interventions after endovascular repair for infrarenal abdominal aortic aneurysms

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Introduction: Morbidity and mortality after endovascular abdominal aortic aneurysm repair (EVAR) is significantly lower than open repair. Reintervention rates and late complications after EVAR however have been reported to be higher compared to open repair in the international literature. The aim of this study was to identify and document all re-interventions after EVAR performed at Mater Dei Hospital, Malta since its introduction in 2009.

Methods: This is a retrospective single-centre cohort study of re-interventions after standard EVAR. Consecutive patients ($n=113$) treated for non ruptured infrarenal aneurysms between 2009 and 2018 were analysed.

Results: Nineteen patients (16.8%) underwent 22 re-interventions during follow-up. None of the interventions were access related. In all cases, the femoral arteries were exposed via open cutdown. The commonest indications for reintervention were thrombosis or stenosis of a graft limb ($n=18$), type I endoleak ($n=3$) and type II endoleak ($n=1$). The most frequent procedures were femoro-femoral crossover graft ($n=10$), thrombectomy +/- angioplasty of the EVAR graft body or limb ($n=5$), stenting ($n=2$) or

extension of graft limb ($n=2$), proximal extension ($n=1$), embolisation of type II endoleak ($n=1$). Endovascular technique was used in 27.3% of the re-interventions

Conclusion: There were no access related complications. Non-access-related intervention rates are still considerable after EVAR. In our centre, the commonest indication for intervention was graft limb thrombosis or stenosis. The commonest procedure was femoro-femoral crossover graft, followed by thrombectomy +/- angioplasty of the EVAR graft limb. Re-intervention rates are identical to reintervention rates reported in the literature. No aneurysm ruptures were recorded.

P2.09

Autologous fat transfer as a tool for reconstructive and remodeling purposes in Mater Dei Hospital

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Introduction: Autologous fat transfer was introduced at Mater Dei Hospital in 2011. It is a useful and relatively safe procedure with effective results. This audit aims to evaluate the service provided in terms of documentation method, indication & number of procedures needed.

Methods: The data was collected retrospectively from patient files. Patient demographics, co-morbidities and treatment history were recorded. The volumes of tumescent injected, fat harvested, fat processed and fat injected were obtained from the operation notes. The number of procedures each patient needed was recorded and any complications were noted.

Results: A total of 108 patients underwent autologous fat transfer between the beginning of 2013 and the end of 2016. The indications for fat transfer were breast reconstruction (85%), contour defects (13%) and chronic ulcers and wounds (2%). 42 of breast reconstruction cases had previous radiotherapy, 17 had chemotherapy and 13 cases had both. 55 of these cases had more than one fat transfer procedure carried out (76%). Fat was harvested from the abdominal wall (64%), inner thighs (23%) or both (8%). Klein's solution was used as tumescent in 75% of cases. The rest of the cases did not specify. 62% of operation notes had incomplete or misleading data.

Conclusion: Autologous fat transfer has become a useful tool in reconstructive surgery at Mater Dei hospital. The majority were breast reconstruction patients and those who had radiotherapy required more procedures to achieve desired results. Based on the results, an operation note template specific to fat transfer can help reduce incomplete or misleading data collection.

P2.10

A study assessing computed tomography imaging trends in the emergency department

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Introduction: Computed Tomography (CT) imaging plays a significant role in the Emergency Department (ED), as a diagnostic tool, to aid in differentiating in disease severity and as an interventional tool. CT use in the ED has been on the rise worldwide over past few decades. Locally, the use of CT imaging at the ED has also been on the increase, reflective of the always increasing ED public attendance and patients needs. This study was aimed to assess CT utilisation trends in Mater Dei Hospital ED over the months of January and July between the years 2012 and 2017.

Methods: A retrospective analysis of all CT scans performed from the ED was done over the period of two months (January and July) between the years 2012 and 2017 using GE Universal Viewer. Scans were separated according to modality and further separated according to their CT reports.

Results: Data collected was then cross-referenced with the total ED population over the abovementioned months and a timeline graph with linear gradient was extrapolated and percentage growth calculated over the 5 year period – with an overall 12.4% and 10.9% increase in CT utilisation over the months of January and July respectively.

Conclusion: Overall trends of CT utilisation at our local ED are on the increase and amendments can be done to reduce such trends - adherence to guidelines, introduction of admission units and consensus between Radiology department and ED for opting safer, less invasive imaging modalities.

P2.11

The reliability of infrared thermography as a diagnostic tool for lower limb pathology

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Introduction: Infrared thermography (IRT) is a non-contact, non-invasive imaging technique used to detect heat emission and which produces an image of temperature distribution. IRT is successfully used in various specialties to detect disease. Its reliability in identifying lower limb pathology has not been established. The aim of this study was to perform a systematic review, using the PRISMA guidelines, to establish the reliability, if any, of IRT, in predicting development of foot ulceration, guiding lower limb amputation levels and diagnosing osteomyelitis and peripheral neuropathy.

Methods: A literature search was conducted using PubMed database from inception of database until September 2016. Keywords used included IRT, peripheral arterial disease, osteomyelitis, diabetic neuropathy, amputation level.

Results: Seventeen articles were included in the systematic review. Three studies which investigated reliability of IRT in guiding amputation level showed that

clinical judgement is superior to IRT in guiding lower limb amputation levels. Three case reports and seven studies investigated the reliability of IRT in predicting foot ulceration and diagnosing osteomyelitis and four studies investigated its reliability in the diagnosis of diabetic neuropathy. These showed that IRT is not a reliable tool to make such predictions and diagnosis.

Conclusion: This systematic analysis concluded that despite the obvious advantages of IRT such as its non-invasive and non-contact nature, it cannot be recommended as a reliable clinical tool for the diagnosis or prediction of lower limb pathology.

Disclosures: Endeavour Scholarship B MQF level

P2.12

Audit on the management of acute shoulder dislocations in the emergency department

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Introduction: Shoulder dislocation is a common Emergency Department presentation that requires immediate diagnosis clinically and radiologically, administration of analgesia and closed reduction under safe conscious sedation followed by reassessment. The aim of this audit was to compare current practices with regards management of shoulder dislocation in the Emergency department with Clinical standards set by the Royal College of Emergency Medicine.

Methods: All shoulder X-rays taken at the Emergency department between June and December 2017 were viewed. Patients with a shoulder dislocation on X-ray were included. Data was collected from the emergency department case notes, local imaging software and iSOFT clinical manager, extrapolated and compared to standards set up by the College of Emergency Medicine. The main measurements were time from registration to first X-ray and attempt at reduction, documentaton of time, dose and type of analgesia and sedation given and documentation of follow-up arrangements.

Results: Fifty-four patients were included in this audit. 83.3% had their first shoulder X-ray performed within 1 hour of registration. 64.8% had their first attempt at reduction performed within 2 hours and 87.4% within 3 hours of registration. The time of administration of sedation and analgesia was documented in 39% of cases. Follow up arrangements were documented in all cases except for 7.4% of cases.

Conclusion: The recommendation is to have a fast track system with a proforma which identifies patients with shoulder dislocations and enables prompt allocations of the necessary staff and resource and ensure adequate documentation and safe monitoring of procedural sedation.

P2.13

Dimensioning the local emergency department using NEDOCS overcrowding scale

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Introduction: Crowding is one of the leading problems facing emergency departments (ED). There is a large body of evidence that patients are harmed in crowded emergency departments. The local ED has been facing an increasing surge in attendance rates. A major contributing factor for increased waiting time is the lack of treatment cubicles. The aim of this study was to establish the degree of overcrowding at the local ED and to predict the ideal dimensions.

Methods: A retrospective analysis of ED attendance data from October 2016 to September 2017 was performed. NEDOCS Overcrowding Scale was calculated to establish ED performance and used to predict the number of treatment bays needed to meet the demand.

Results: The local ED has an operational bed capacity of 30 treatment bays and 3 resuscitation rooms. During the study period, there were 90,127 attendees, an average daily attendance of 247 patients and an average registration rate of 10 patients per hour. Average length of stay was 251 Minutes. Mean NEDOCS Score was 130 which classified as Overcrowded Department. The ideal number of treatment bays for an Extremely Busy but not Overcrowded Department (NEDOCS Score 61-100) was estimated to be 40, a 0.25 fold increase.

Conclusion: The local ED dimensions have become insufficient to meet the increasing demand. Increasing the number of treatment cubicles to cater for the patient turnover can contribute to alleviate the overcrowding problem; improve patient care, minimise the waiting time and reduce staff burnout.

P2.14

A study looking into patients presenting to the emergency department following attendance to health centres

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Introduction: Multiple National Health System (NHS) worldwide report an increase in number of presentations to Emergency Departments (ED). Reports attributed this increase to multiple inter-related factors including ageing population, long term illness, loneliness and lack of social support, convenience, and GP related issues. Locally, ED presentations in the first week of February increased from average of 314 patients per day in 2014 to 413 patients per day in 2018 (an overall increase of 31.5%). The aim of study is to identify the outcomes of patients who have attended primary health centres (PHC) and subsequently presented to the ED within a 12-hour period during 7 days in February 2018.

Methods: A retrospective study of all the patients that attended the ED over 7 preselected days in February 2018 was carried out using iSoft Clinical Manager. Patients that had previously attended PHC in the previous 12 hours

prior to presentation to ED were selected and data collected accordingly – date of presentation, age, PHC attended, ESI triage designation, admitted vs discharged, speciality admitted, time spent in ED and investigations performed.

Results: 17.2% ($n=292$) during weekdays and 13.1% ($n=158$) during weekend or public holiday of total ED presentations had previously attended a PHC. Eighty-five out of the 292 patients during the weekdays and 42 out of 158 patients during weekend/public holiday were admitted to Mater Dei Hospital. One hundred thirty seven patients out of the 323 discharged patients had no blood investigations or radiology tests taken.

Conclusion: A Care Quality analysis should be carried out throughout the health care system to identify factors causing increase in ED demands. Other considerations include PHC direct to in-hospital admission service and point of care and early radiology investigations available at PHC. A more readily available specialist and/or early outpatient service from PHC as well as having follow-up clinics at PHC would aid in diminishing the growing demands and pressures on the ED where this may be avoided.

P2.15

Pharmaceutical services within the emergency department

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Introduction: The essential role of the pharmacist within the setting of emergency department has been documented to support the delivery of safe and effective medication use processes within this fast pace setting governed by high decision density taken for the critical patients. The aim was to establish a holistic pharmaceutical service tailored to the needs of the Adult ED at Mater Dei Hospital.

Methods: Observation of ED dynamics and completion of gap analysis exercise on the medication use process were conducted. Two surveys were carried out to capture the perception of ED physicians and nurses on a proposed pharmaceutical service. International guidelines were incorporated with these two findings to delineate a blueprint for the service categorised into operational, clinical and other services.

Results: The pharmaceutical service started on March 2017 by one pharmacist operating weekdays from 07.30 to 15.00. Operational services were primarily set up through management of ED centralised medication floor-stock, aiming to increase safety by optimising the speed versus accuracy trade off, including changes on the Government Formulary List (6 changes). Clinical services provided ranged from medicine information to participation in resuscitation cases, with cases attended to according to their priority (309 interventions documented over a 3 month period). Other services involved compilation of departmental policies and pathways, antidote hazard analysis review, delivery of pharmacology updates to nurses and participation in major national events.

Conclusion: A holistic pharmaceutical care service was established over a year period. The service warrants

the inclusion of more pharmacy staff to cover all areas of the ED department

P2.16

Faculty development of resuscitation courses in Malta

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Introduction: This paper illustrates the faculty development programme in Malta which aims to assist faculty members in their roles as teachers and address their needs of professional development. Any country or hospital needs to consider how it will maintain continuity of courses, standards and faculty.

Methods: This observational study illustrates the education programme of the Malta Resuscitation Council (MRC) which has maintained, supported and expanded their faculty. Literature suggests strong support for faculty programmes if considered useful and relevant. Malta offers Advanced Life Support (ALS), Immediate Life Support (ILS), Neonatal Life Support (NLS), European Paediatric Advanced Life Support (EPALS), Basic Life Support (BLS), European Trauma Course (ETC) and Generic Instructor (GIC) courses; certified by the European Resuscitation Council (ERC) since 2006.

Results: There are one or two EPALS per year; pass rates are very high and around 2 candidates per EPALS are offered Instructor Potential (IP). There are currently about 20 active EPALS instructors and 6 ICs. The mean number of ALS IPs fell after the introduction of compulsory ALS training in foundation doctors in 2017 due to candidate inexperience and performance. Most IPs are identified when candidates are in Speciality training. There are currently 37 active ALS instructor and 19 ALS ICs currently in training.

Conclusion: Malta offers close support to both IPs and ICs. There has been extremely positive feedback following the introduction of regular instructor days supporting teacher development and MRC hope their model may be useful to other countries enabling robust succession of strong faculty and research in resuscitation.

P2.17

Audit on thromboprophylaxis use in acute adult medical admissions at Mater Dei Hospital

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Introduction: NICE Guidelines recommend assessment of all medical admissions for venous thrombosis risk with a validated VTE risk assessment tool, and early pharmacological prophylaxis if appropriate. This audit aims to compare practice at Mater Dei

Hospital to NICE standards, following implementation of a thromboprophylaxis section on the new inpatient treatment charts.

Methods: All patients admitted under General Medicine and seen on the post-admitting ward round over 5 days were recruited. Data collection was done after the post-admitting ward round, excluding patients discharged day 1 post-admission. Data collected included demographics, co-morbidities, drug history, reason for admission, and baseline eGFR. The VTE risk assessment score was performed for each patient. Patients on anticoagulation or with low-risk VTE assessment score were excluded.

Results: Two hundred and fifty-three patients were included, 126 females (49.8%) and 127 males (50.2%), with an average age of 71.2 years. The commonest co-morbidities were hypertension ($n=144$), heart failure ($n=88$), and diabetes mellitus ($n=86$). 62 patients were excluded. 38 had contraindications to thromboprophylaxis. Of the remaining 153 patients, LMWH was prescribed in 101 patients (66%).

Conclusion: The current LMWH prescription rate of 66% in patients who are moderate risk or above for VTE is an improvement from 2009 (6%) and 2012 (45%), but highlights the need for improvement of thromboprophylaxis use in medical admissions.

P2.18

Injuries presenting to accident & emergency in Malta and Gozo

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Introduction: The Injury Database (IDB) captures data about injuries presenting to Accident & Emergency (A&E) departments at Mater Dei Hospital (MDH) and Gozo General Hospital (GGH). This database is managed by the Directorate for Health Information and Research.

Methods: Data about injuries presenting to A&E in 2014 was obtained from the IDB and analysed.

Results: In 2014 20,652 injured persons presented to A&E; 80.1% presented to MDH while 19.9% presented to GGH. 60.2% of the injuries were sustained by males, 39.8% by females. The majority of injuries (12,514; 60.6%) occurred among those aged between 18 to 64 years. The commonest type of specified injury was open wound (11.9%). The majority of the injury cases presenting to both hospitals were sent home after treatment (73.3%). 93.1% (19,227) of the injuries presenting to A&E in 2014 were unintentional. The majority of the injuries where the place of injury was specified occurred at home (11.9%; 2,458). The commonest method of injury was a blunt force, mostly falls (66.9%). For injuries occurring with specified objects, injuries were most frequently incurred by a ground surface or surface conformation (19.8%; 4,089). Amongst the specified activities during injury, the majority of the injuries occurred when travelling. 1,526 persons (7.4%) sustained transport injuries, mostly being males (61.7%). 800 persons (3.9%) experienced injuries related to sports activities, 81.5% being males.

Conclusion: Injury data is collected over a number of European countries and data is collated in the European Injury Database. This database can help guide the development of more effective injury prevention strategies.

P2.19

Intermittent claudication referral patterns in Malta

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Introduction: Intermittent claudication (IC) is usually the first symptom of peripheral arterial disease (PAD) and carries increased cardiovascular risk. Correct diagnosis of the condition allows for early initiation of secondary risk factor control to mitigate risk. The aim of this study was to determine patterns of referrals for IC and to identify characteristics, haemodynamics and medical history of patients with IC in Malta.

Methods: All referrals for IC to the vascular surgery clinic at MDH between June 2016 and June 2017 were assessed using haemodynamic analysis to confirm PAD. Demographic, haemodynamic (Ankle-brachial pressure index [ABPI], toe-brachial pressure index [TBPI] and absolute toe pressures), medical and medication history data were recorded.

Results: Two hundred forty-three patients were referred for IC. Only 150 (61.7%) (79.3% male) were confirmed to have PAD and were recruited. Ninety-three (38.3%) had normal peripheral perfusion. The mean ABPI of the symptomatic limb was 0.7 (0.6 after excluding calcified arteries). Mean TBPI was 0.38 (absolute toe pressure: 57.4mmHg). Hypertension, hyperlipidaemia and smoking history were the most common risk factors (86%, 78% and 77.3% respectively), 69.3% had diabetes while 40.7% had known cardiac disease. Brachial systolic blood pressure exceeded 140mmHg in 69.3% and was above 160mmHg in 29.3% while almost 1/3 were not prescribed antiplatelets or statins.

Conclusion: A significant proportion of patients referred to the vascular clinic for IC do not have PAD. A significant proportion of those with PAD were not receiving basic secondary risk factor control. Efforts to improve secondary risk factor management in PAD is required to reduce risk.

P2.20

Penicillin allergy: a local perspective

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Introduction: Penicillin allergy is the commonest drug allergy in record. 90% of these patients have an unnecessary label of "penicillin allergy". With the ever increasing resistance to antibiotics, the accurate identification of patients with true allergy can be another key component towards our antibiotic stewardship at mater dei hospital

(MDH). This audit sought to identify the significance of symptoms perceived by patients in terms of allergy to penicillin and highlight inadequate history taking and documentation of this allergy.

Methods: One hundred patients ($n=100$) were identified according to the penicillin allergy label on their medical records. Participants were randomly sampled. Participants were asked a series of questions related to symptoms experienced when penicillin was consumed, if they had been prescribed second line antibiotics and if yes which and finally adequate documentation with regards to nature of symptoms. Adequate allergy bracelet labelling was also audited.

Results: Sixty percent of respondents experienced reactions during adulthood. Only 13% had symptoms compatible with true anaphylaxis. The rest had symptoms related to adverse drug reactions (ADRs). Nearly 50% of participants were admitted with an active infection and given second line antibiotics, fluoroquinolones being the commonest class of antibiotics prescribed (38%). 83% were in accordance with local antibiotic guidelines. Only 20% had accurate documentation of nature of symptoms to penicillin.

Conclusion: The majority of patient only experienced potential ADRs related to penicillin. History taking in terms of penicillin allergy is lacking. The introduction of penicillin skin testing (PST) at MDH can help, with accuracy, identify mislabelled patients with the aim of reducing prescription of alternative broader spectrum antibiotics.

P2.21

National guidelines in burns management

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Introduction: To date there were no official burns guidelines locally. The need for official guidelines on burns arose due to an inconsistency in burns charting, diagnosis as well as management. The Plastic Surgery and Burns team used guidelines from Australia, the United Kingdom and the United States of America. Local practices also influenced the formulation of the first official national guidelines in burns management with the aim to improve the management of such patients.

Methods: Formulating these guidelines included input from various healthcare workers, mainly doctors and nurses in the Plastic Surgery and Burns Unit, the Accident & Emergency, primary healthcare as well as pharmacists.

Results: The guidelines classify, sub-type and describe the management of different burns. This included calculations of percentage burns as well as the Parkland formula and the investigations needed for specific types of burns. The management of burns was divided into both the acute stage as well as the long-term management once discharged from hospital. A flow chart summarizing the guidelines was drafted to facilitate treatment in the acute setting of burns.

Conclusion: These guidelines have been approved by the Mater Dei Guidelines committee and launched in February 2018. They are now available on KURA to be used by any doctor both in the public and private sector. An

audit was conducted prior to the launch of these guidelines. Burns care will be re-audited following the launch of these guidelines and will hopefully show an improvement in the consistency of management of burns patients.

P2.22

Case Series of a new microsurgical service

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Introduction: Microsurgery is a service now offered by the Plastic Surgery team at Mater Dei Hospital. An audit has therefore been carried out to assess patient and operation outcomes.

Methods: In September 2016 The Plastic Surgeons at Mater Dei Hospital requested to start a microsurgical service. The clinical director, heads of the surgical and anaesthetic departments, theatre nursing management and hospital nursing management were involved from the beginning. A comprehensive business plan was submitted in October 2016 as was requested of the Plastic Surgery team. This outlined anticipated operation times, staff requirements, necessary equipment, expected operation outcomes and full procedural costing on a per case and per hour basis. Once approved the service kicked off on 16th January 2017.

Results: A total of 6 patients have been operated. Four females had delayed breast reconstruction post mastectomy and their average length of stay (LOS) was 7.5 days. One male patient required reconstruction after lower limb trauma and the other had neck resurfacing. Due to the nature of the operations, the average LOS in these 2 patients was 50.5 days. All free flaps survived and only 1 suffered 5% loss due to localised necrosis.

Conclusion: Microsurgery is the gold standard reconstructive procedure in breast reconstruction, in osteomyelitic limb wounds, for complex burn scars and contractures, after head and neck tumour excision, in functional upper limb reconstruction, for digit replantation and as a limb salvage procedure in compound fractures with extensive tissue loss. Locally it was the missing rung in the reconstructive ladder but has now been established.

P2.23

Scapular dyskinesia in asymptomatic water polo players: does prehabilitation prevent negative outcomes?

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Introduction: Scapular dyskinesia, or abnormal scapular dynamic control, is a condition which is associated with athletes presenting with shoulder pathology, although it is also found in asymptomatic individuals. Studies differ on whether it is a cause or a symptom of shoulder pain. There is currently no research on whether treating scapular dyskinesia prior to the onset of pain by prehabilitation will stop the progression of pain in asymptomatic water polo players.

Methods: This study was a prospective randomised controlled trial. Twenty-five male water polo players

were screened for scapular dyskinesia and 22 players were included in the study after having a positive finding. The Closed Kinetic Chain Upper Extremity Stability Test (CCKUE), the Functional Throwing Performance Index (FTPI) and the Seated Shot Put Functional Test (SSPT) were used for functional testing, whilst power in abduction, external rotation and internal rotation was assessed. The Sports section of the DASH score and the Constant score were used. These were obtained at the beginning of the study period. The participants were divided into two groups, the study group and the control group. The study group underwent daily home stretches (Sleeper's stretch and Pectorals minor stretch) and strengthening exercises (external rotation and forward flexion in side lying position, horizontal abduction in prone position). Follow up with functional testing, strength testing and scores was done at 4 monthly intervals for a period of one year.

Results: Pain was reported in 3 athletes in the control group compared to 1 in the study group ($p=0.59$). There was a larger improvement in athletes treated with prehabilitation when assessing external rotation ($p=0.01$) and internal rotation ($p=0.03$) when compared to the control group. There was no difference between groups in functional testing, scores and abduction strength.

Conclusion: Prehabilitation in asymptomatic water polo players does not reduce the incidence of shoulder pain. The power of external rotation and internal rotation of the dominant improved more in athletes who performed prehabilitation.

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P2.24

Enhancing fibroblast proliferation for wound healing through electromagnetic stimulation

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Introduction: Irrespective of aetiology, chronic wounds deviate from the standard repair mechanism and become jammed in a cycle of pathogenic inflammation which fail to respond to standard treatment. The goal of this study was to delve into the effects of novel electromagnetic frequencies on human dermal fibroblast proliferation, which is quintessential for normal wound healing as well as the resolution of chronic wounds.

Methods: To test the effect of this novel approach a scratch assay screening, as well as MTT proliferation assay were utilized to identify the effectiveness of the electromagnetic frequencies under study.

Results: The outcome of these experiments was the identification of promising electromagnetic frequencies namely that at 750 MHz (H-Field: 1.623 μ W/cm³/ E-Field: 16.1 nW/cm³) and 875 MHz (H-Field: 2.513 μ W/cm³/ E-Field: 6.7 nW/cm³) which caused a notable increase in the proliferation of human dermal fibroblasts (HDF).

Conclusion: A good amount statistical data has been amassed following HDF exposure to electromagnetic frequencies. From this, it has been ascertained that the electromagnetic waves utilized have potential for consideration as an adjuvant treatment option for chronic wound care due to their effect on HDF proliferation.

P2.25

Injuries from fireworks: a review of the world literature and insights from the impact of firework burns on quality of life over 25 years in Malta

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Introduction: Multiple international studies show injuries from fireworks to be a costly incident for the patient, society and the government. Locally there are no studies that have assessed the immeasurable cost of loss of quality of life after firework injuries. The objectives of this study include determining whether the quality of life after a burn injury is affected and if so to what extent.

Methods: Every patient that was admitted to the burns center in Malta in view of fireworks injuries over the last 25 years (from 1989 to 2014) was contacted via telephone and was asked to complete the brief version of the Burn Specific Health Scale (BSHS-B) questionnaire. The association between the grouped sections of the BSHS-B questionnaire was analyzed against gender, age group and time from injury.

Results: Out of the 66 patients that were still alive and living in Malta, 32 successfully completed the questionnaire achieving a response rate of 52%. It was found that the categories in the questionnaire that obtained the lower scores were those related to appearance, sun sensitivity and burn care. A statistically significant result was found when comparing gender to outcome in their replies to the questionnaire.

Conclusion: Even though long-term most patients recovered well still there is a significant psychological impact due to their injuries. So the outcome of this study is to raise awareness of the need for more support for these patients in the community and to raise awareness regarding the impact on one's quality of life after such injuries

P3.01

Are we prescribing simvastatin correctly? - a local audit

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Introduction: The Food and Drug Administration (FDA) and the British National Formulary (BNF) suggest dose limitations when prescribing simvastatin with certain concurrent medications. The primary aim of this study was to analyse the total number of patients prescribed simvastatin with concurrent drugs that are potential inhibitors of CYP3A4 enzyme, who were discharged from Mater Dei Hospital (MDH) to Karin Grech Hospital (KGH).

Methods: A retrospective study in which all inpatients at KGH in the months of April, May and June, 2018 were analysed. All patients discharged from MDH on

simvastatin and/or concurrent amlodipine, amiodarone, diltiazem and verapamil were included. Data was collected using records from Electronic Case Summary. The dose of simvastatin and any concurrent medications were recorded and the number of prescription errors were noted.

Results: A total of 50 patients were included in this study. The average age was found to be 74.5 years old. 41 patients were on concurrent amlodipine, 7 patients on concurrent amiodarone, whilst 2 on concurrent verapamil. 55% of prescriptions were found to have the correct dose adjustments for simvastatin, whereas 45% of prescriptions were found to have a significant dosing error. In the 45% of incorrect prescriptions, it was found that the recommended daily dose of 20mg of simvastatin was exceeded.

Conclusion: Simvastatin is a very common drug used in everyday practice, it is metabolised by the cytochrome P-450 isoenzyme CYP3A4. Thus, it is very sensitive to the effects of CYP3A4 inhibitors. Amlodipine, verapamil and diltiazem are all inhibitors of CYP3A4. The above results show that a significant cohort of patients were prescribed incorrect doses of simvastatin, in association with concurrent CYP3A4 inhibitor treatment.

P3.02

Extended pharmacist services In community pharmacy practice

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Introduction: The study aims to identify areas for development of extended services beyond dispensing and patient counselling.

Methods: Two self-administered questionnaires were developed and distributed to pharmacists and consumers. Fifty community pharmacists were chosen by stratified random sampling including 25 pharmacists who work after-hours (after 7.00pm) and 25 pharmacists who do not work after-hours. Three hundred self-administered questionnaires were distributed to consumers by stratified random sampling. One hundred and fifty questionnaires were distributed to consumers in pharmacies which open after-hours and 150 questionnaires in those which do not open after hours. A total of 3600 minutes of direct observation was conducted in 5 community pharmacies during after-hours using a time and motion technique, each pharmacy located in a different district.

Results: Most pharmacists (61%) agreed with access of 24-hour community pharmacy service to patients. The majority of pharmacists (68.8%) agreed with pharmacist on the phone since patients may phone any time for counselling (87.2%), ensures patient adherence to medications (57.4%), increases patients knowledge on medications (61.7%) and decreases phone calls in community pharmacies (59.6%). The majority of consumers (74%) were in favour of pharmacists providing 24-hour service to the public. Some of the consumers (18%) were indifferent. The time-motion study showed that most time spent by pharmacists during after-hours was dispensing of prescription medicines (29%) followed by dispensing of non-prescription medicines (16%), non-pharmaceutical items (10%), communication

with patients (10%), POYC (10%), patient related tasks (16%) and administrative tasks (9%).

Conclusion: Maltese consumers and pharmacists perceive community pharmacist extended professional services in the form of longer pharmacy opening hours and pharmacist on the phone.

P3.03

Proposing an educational framework for the specialization as a responsible person in pharmaceutical processes

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Introduction: In the EU, Good Distribution Practices (GDP) in the wholesale distribution of medicinal products is legally binding and includes the requirements for services by a pharmacist as a Responsible Person (RP). A formal educational framework with defined competences is not established for the practice as a Responsible Person. Aims: This study aims to identify skills required by RPs and to propose a feasible education framework which may be implemented locally and within an international context.

Methods: The methodology involves three phases: 1. A baseline analysis to assess the current educational frameworks in place in Europe 2. Assessment of the competences in pharmacy education and those related to the regulatory field by means of a focus group. This is done by performing GAP analysis and using the Delphi technique to identify skills and competences to be considered in the framework proposed. 3. An educational framework will be proposed and evaluated amongst stakeholders.

Results: From preliminary baseline analysis, European countries including Malta, Austria, Germany, Romania, Lithuania and Spain require an RP to have a pharmaceutical degree. In addition to the academic requirements, work experience in the regulatory and GDP field is required in some of these countries.

Conclusion: The deliverables from this study provide a basis for a European framework for professional development of a pharmacist as a Responsible Person which may be considered to spearhead harmonization in the process of specialization in this activity.

P3.04

Economic impact of POYC out-of-stock medications

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Introduction: Out-Of-Stock (OOS) medicines lead to medicines being unavailable to be dispensed to patients. The unavailability of a medicine will bring along economic expenses, affecting all the stakeholders involved in the pharmaceutical field. The aim of the study was to explore the dynamics of OOS medications and the economic impact on the pharmaceutical health system.

Methods: A qualitative and quantitative approach was adopted. The qualitative aspect consisted of interviews that targeted community pharmacists registered in the

Pharmacy-Of-Your-Choice (POYC) scheme and focus groups involving Central Procurement and Supplies Unit (CPSU) and the POYC staff. The quantitative part consisted of developing a questionnaire addressed to patients entitled to the POYC scheme.

Results: Two hundred questionnaires were collected: 26 patients (13%) encountered an OOS medication episode from January to June 2017. Ten interviews were completed with community pharmacists and all the pharmacists experienced an OOS medication from January to June 2018. The focus groups reflected that there is an economic impact of OOS medications on the patients who may feel forced to buy the medication, on the pharmacists who are devoting time dealing with OOS and on the Government health system due to patient non-compliance with treatment.

Conclusion: The impact of OOS medicines causes a disruption of the pharmaceutical service since tackling problems associated with OOS medicines drains on manpower time and on financial resources. In worst case scenarios the impact could pose a possible threat to the quality, safety and efficacy of treatment.

P3.05

Setting up of a medication-use evaluation unit at the Directorate for Pharmaceutical Affairs

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Introduction: Medication-use Evaluation (MUE) is a performance improvement procedure targeting treatment evaluation and medication-use process improvement to optimise outcomes. MUEs can be adapted to identify definite and potential problems, allowing for their prevention and resolution. The Directorate for Pharmaceutical Affairs (DPA) initiated MUEs to conduct the formal evidence-based analysis of drug utilisation and patient outcomes.

Methods: Following internal discussions and extensive literature review a Standard Operating Procedure (SOP) was created. Stakeholder meetings were setup to identify medicines/conditions to be prioritized. MUE tools were created for each drug and data collected for a minimum 12 months. Institutional and Ethical approval was granted and the process to collate and evaluate data initiated. A final report was compiled and submitted to stakeholders for review after 12 months.

Results: The unit was set up in June 2017 to analyse newly introduced Oncology drugs, prioritised due to their high-cost and clinical impact. Clinicians and Pharmacists were consulted with respect to the MUE objective and outcomes.

Clinical and Entitlement data from Mater Dei Hospital (MDH) and Pharmacy of Your Choice (POYC) was used to complete MUE tools. Dispensing reports were obtained monthly from hospital pharmacies. Data was collated using a spreadsheet based MUE tool.

In the 12 months since MUE implementation, process has been completed for two oncology drugs and 5 are still ongoing.

Conclusion: The MUE process served to highlight the importance of real-world data to influence policy decisions, interdepartmental and multidisciplinary collaboration to improve process and outcomes.

P3.06

Student perception of professional development programmes for pharmacists

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Introduction: The project aims to review professional development programmes for pharmacists. The project assesses the understanding and perception of fourth year B.Sc (Hons) Pharm Sci students with respect to Continuing Professional Development (CPD).

Methods: The nature of professional development programmes, namely Continuing Education, CPD and Competency Frameworks, implemented internationally and across organisations was assessed. The ethical aspects of professional development programmes were analysed. The 'Student Learning Portfolio' used by fourth year B.Sc (Hons) Pharm Sci students in conduction of an Experiential Module was identified as a prototype CPD programme to be used in a pilot project. Questionnaires (16 questions) for students following the use of the portfolio were drafted, validated and disseminated.

Results: Twenty-five questionnaires were distributed (100% response). The Experiential Module increased interest within specialisation areas of twenty participants, affecting the career path of fifteen. Thirteen participants were aware of CPD prior to the use of the portfolio, nineteen participants feeling confident to carry out similar experiences to fulfil the needs of their profession in the future, ten of which agreeing that such programmes are necessary. Nine participants disagreed that CPD should be mandatory for professionals to maintain licensure.

Conclusion: The results of the questionnaire show that even though participants are now familiar with the CPD process, some do not yet understand its importance. Extrapolating the results obtained leads to statistical significance when analysing data. Currently, the main reasons affiliated with non-adherence to the proposed programme are cost, time management and belief in lack of requirement.

P3.07

Risk assessment of prescribing errors on medical prescriptions in Malta and Germany

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Introduction: Errors on medical practitioner's prescriptions may lead to erroneous dispensing by the pharmacist. A risk assessment of errors on medical prescriptions in Malta and Germany was undertaken. The study developed a comparative research method with the aim of 1) identifying and analysing the current status of processes that may lead to prescribing errors and

2) assessing the risk of prescribing errors from a medical practitioner perspective.

Methods: Interviews with medical practitioners were conducted in Malta and in Germany to identify root causes of prescribing errors. Interview results were used to develop a questionnaire (validated by 16 experts) for medical practitioners, entitled 'Prescribing Error Questionnaire' (PEQmed). The PEQmed consisted of two sections; I) analysed the status of root causes and

II) analysed perception on potential prescribing errors (1: low score, 4: high score) for probability of occurrence and severity of consequences to get an overall 'Risk Priority Number' (RPN). The RPN (1-16) is the product of probability and severity.

Results: Two hundred and thirty medical practitioners (130 Malta, 100 Germany) answered the PEQmed. Interruption rates while consulting a patient as a root cause of prescribing errors showed a statistically significant difference ($p < 0.001$) with 63 medical practitioners in Malta compared to 32 in Germany. Prescribing errors due to illegible handwriting (average RPN of 6.81) and use of abbreviations (average RPN of 5.29) were rated as the two most common risks leading to potential dispensing errors in Malta.

Conclusion: There is a need to implement specific risk minimisation strategies to mitigate risks related to prescribing errors.

P3.08

Patient knowledge on medication changes

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Introduction: The aims were to review medication updating during hospitalisation, identify changes in the treatment and assess patient knowledge at discharge on these changes.

Methods: After obtaining UREC approval, the medication forms of 30 patients at Karin Grech Rehabilitation Hospital (KGRH) were analysed. The patients were interviewed at discharge regarding their medication and the process of matching changes in their medication carried out during hospitalisation.

Results: For the 30 KGRH patients interviewed, addition of a new medication occurred 60 times, changing the dose 31 times, changing the regimen 26 times, whilst stopping a medication occurred 13 times. Bumetanide was the drug that prescribers were most confident in altering either the dose or regimen (7 times). Paracetamol was the drug that was started most (7), followed by omeprazole (5). Spironolactone and bendroflumethiazide were the drugs that were stopped most (twice each). Seven patients needed warfarin adjustment and 2 required insulin adjustment. The most common drug classes were antihypertensives (13.4%), vitamins and supplements (11.9%) and stomach medication (10.6%). The most common dosage regimens were daily (41.6%), b.d. (21.9%) and t.d.s (14.1%). The most common route of administration was p.o. (88.1%). New medications on admission to Mater Dei Hospital (MDH) represented 21.3% of all medications, whereas 11.6% were started when transferring from MDH to KGRH.

Conclusion: The results can be used to identify drugs that are more likely to be associated with changes during hospitalisation requiring patient information at discharge. The use of pharmacists reduces adverse drugs events when care setting transitions occur.

P3.09

Availability of antiretroviral drugs and patient adherence: a comparison between Malta and Norway

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Introduction: Malta and Norway have the same prevalence of HIV (0.1%) but different incidence rates. Malta has a higher HIV incidence rate than Norway. The aims of the study were to compare the availability of ARVs and patient adherence to ARVs in Malta to Norway.

Methods: Data from the dispensing database at Mater Dei Hospital in Malta and the Norwegian Prescription Database was collected to determine the ARVs provided and the proportion of newer ARVs used. Using ARV refill dates from dispensing data, adherence to ART was determined using the proportion of days covered (PDC) method to investigate patient adherence. Interviews were conducted with pharmacists in Malta and Norway responsible for ART provision to determine factors associated with availability of ARVs.

Results: ART was provided free of charge by the national health services in Malta and Norway. Up to 23.4% ($N=38605$) of ARV prescriptions in Norway were for newer ARVs compared to 4.9% ($N=5657$) of all prescriptions in Malta. Seventy one percent ($N=3991$) of patients in Norway and 74% of patients ($N=265$) in Malta had the desired adherence level at a PDC 95.0%. Challenges hampering availability of newer ARV provision in Malta included challenges in drug forecasting and absence of HIV-allocated funding. Pre-exposure prophylaxis is free of charge in Norway, not in Malta. Norway spends more money on ART which could explain the higher availability of newer more expensive ARVs in Norway.

Conclusion: Increasing expenditure on ARVs and providing newer ARVs in Malta could reverse the increasing trend of HIV incidence in Malta.

P3.10

Development of a tool used for pharmacist-led transitional care service

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Introduction: Pharmacist-led interventions have shown to improve both clinical outcomes and the communication between different health care providers. The aim of this study was to develop a tool required to run a pharmacist-led transitional care service for diabetic patients attending the Diabetic Clinic at Mater Dei Hospital.

Methods: A Transition of Care Document aimed at compiling all the necessary information drawn at the Diabetic Clinic that are relevant to the community

pharmacist, to ascertain a smooth transition between different healthcare settings was developed

Results: The Transition of Care Document encompasses three sections. The first section includes the patient's medical history and drug history where all the medications are listed, including non-prescription drugs. The tool is intended to be used by the pharmacist during medicine reconciliation at the Diabetic Clinic and any drug changes identified or activated at the Clinic will be listed in the second section. The last section of the document lists the new revised medication list

Conclusion: The Transition of Care Document, is innovative to our healthcare system, and should be helpful at bridging the gap which currently exists at the transition of care. This document will be piloted at the Diabetic Out-Patients Clinic and its impact assessed through questionnaires aimed at the service users namely the patient and the healthcare professionals at both the hospital and primary care setting.

P3.11

Aspirin and novel oral anticoagulants: reporting of adverse drug reactions

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Introduction: The use of novel oral anticoagulants (NOACs) clinically provided alternative options for thromboprophylaxis.

Methods: Pharmacovigilance (PV) reports from Eudravigilance, between 2013-2017, compared fifteen adverse drug reactions (ADRs) for aspirin and NOACs (apixaban, dabigatran and rivaroxaban). A questionnaire was developed to collect information on ADRs encountered by patients while taking aspirin or NOACs. Fifty patients were recruited (aspirin=25, rivaroxaban=25). Documented ADRs from PV reports were compared to reported ADRs from patients. A literature search identified studies on the off-label use of NOACs in peripheral artery disease (PAD).

Results: Bleeding-related ADRs (38,826/51,391) were the highest reported in PV reports. Gastrointestinal bleeding ($n=25,892$) was the commonest reported ADR for aspirin ($n=5,855$), apixaban ($n=1,742$), dabigatran ($n=5,321$), and rivaroxaban ($n=12,974$). Reported ADRs were highest for rivaroxaban ($n=24,832$). Statistically significant differences were observed for reported ADRs in reports. Thirty-six recruited patients had at least one ADR (aspirin=18, rivaroxaban=18). Bleeding-related ADRs were least reported (aspirin=11, rivaroxaban=4) in questionnaires. Eight studies analysing NOACs use in PAD were identified.

Conclusion: Bleeding-related ADRs were highest in PV and lowest in questionnaires, suggestive of under-reporting of ADRs considered to be minor. High numbers of reported ADRs for rivaroxaban compared to dabigatran and apixaban, possibly reflect consumption trends. Differences in safety profiles and reporting bias might account for differences in reported ADRs. ADRs are more likely to be reported for novel medications compared to conventional drugs. Two studies on PAD showed that when

added to aspirin, NOACs demonstrated favourable efficacy compared to aspirin alone. Further studies analysing safety and efficacy of NOACs will provide additional data on the risk-benefit profile.

P3.12

The electronic prescription system in development – step 2: assessing the pharmacists' perspective

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Introduction: E-prescribing is defined as the process of electronically generating and sending a prescription using a technological framework. The use of a computer-generated prescription has been suggested to have a positive impact on the prescribing and dispensing process. The system was introduced in Malta in 2016 as part of the Pharmacy of Your Choice (POYC) scheme and it was rolled out to health centre doctors. The aim of this project is to describe the use of and experiences with an E-prescribing system from the pharmacists' perspective and explore in more detail the issues that pharmacists encounter with the system in their day to day work. This project ties in with another study aimed at assessing the general practitioner's perspective.

Methods: A questionnaire has been prepared using Google Forms. This is divided into several sections aimed at assessing the satisfaction of users with the IT system used for dispensing drugs, their experience with learning how to operate the software, the usability of the system and safety issues that arise with E-Prescribing. The questionnaire is based on binary and Likert Scale questions with a limited number of open-ended questions included in areas where further exploration was required. The questionnaire will be distributed to pharmacists through the POYC Unit via e-mail.

Results: Descriptive analysis will be carried out by November 2018 and results issued thereafter.

Conclusion: The experiences and issues encountered by pharmacists will be documented and forwarded to the POYC unit for consideration. More in-depth information will be sought through individual interviews and eventually focus group discussions.

Disclosures: This work was supported by TD COST Action TD 1405 - European Network for the Joint Evaluation of Connected Health Technologies (ENJECT).

P3.13

Students' and doctors' handwriting on a pre-set prescription: how great is the potential for medical error?

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Introduction: Poorly legible handwriting and prescription errors within the healthcare system result in significant patient morbidity and mortality, and may lead to serious medico-legal complications. This study analysed

the handwriting and prescription standards of students and doctors in Malta.

Methods: A questionnaire was distributed to 3-5th clinical year medical students at the University of Malta, and doctors of various grades working in Mater Dei Hospital. Participants were asked to complete a pre-set prescription sheet, along with a questionnaire that focused on their attitude towards handwriting in the clinical setting. The handwriting of the participants was analysed by 2 researchers (YZ and NZ) and graded independently by two teachers and a lawyer who were not associated with the study, from 1-5, ranging from 'illegible' to 'print quality'. Each prescription was also scrutinised by YZ and NZ for any errors in transcription, typography, omission, dosage, etc.

Results: 166 from a total of 250 questionnaires were completed, including 137 students and 29 doctors. 15 had prior training in handwriting. 43 participants (26%) had print-quality handwriting, 82 (49%) were clearly legible, 36 (22%) moderately legible, 5 (3%) barely legible and none were illegible. There was no difference between students and doctors. 111 mistakes were documented in transcribing patient information (e.g. weight, DOB, ID, allergies, etc). 422 errors in prescriptions included: omissions committed by 53% of participants; dosage in 49% and incorrect instructions in 47%. The majority of participants (78%) reported being bothered by the legibility of handwriting in hospital, but 22% would choose to ignore this problem.

Conclusion: This study demonstrated a significant number of prescription errors, which may reflect issues seen in actual clinical documents. Education and simple interventions can reduce the chance for error and may drastically improve patient safety.

P3.14

A re-audit of Mater Dei treatment chart writing standards

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Introduction: Studies have shown that up to 70% of medication errors are the result of prescription errors (Velo et Minuz, 2009). This relatively common occurrence in practice of medicine needs to be minimized through continuous clinician education and re-auditing. To establish the current types of inpatient medication errors and their prevalence following the introduction of new treatment charts at Mater Dei Hospital, Malta. This was coupled with assessing adherence of local prescribing standards to those of international practices, whilst also comparing to a previous local audit performed prior to implementation of the new treatment charts.

Methods: A total of 100 treatment charts were randomly selected from 42 different adult wards in MDH. Prescriptions were reviewed and compared to NHS Wales Prescription Writing Standards.

Results: Following implementation of the new treatment charts in Mater Dei Hospital, improvement in the use of generic names and use of block letters in

prescriptions was noted, together with a significant decrease in the incidence of prescribing regular treatment in PRN section and vice versa. Conversely, there has been a concerning increase in lack of documentation of drug allergy despite designated section. Finally, the most salient point of note is that discontinuation of treatment is not adherent to standard international guideline and may present a major safety concern in local clinical practice.

Conclusion: Local standard of practice had indeed been noted to improve when assessed following implementation of revised treatment charts. This may suggest positive effects of use of a more user-friendly chart.

P3.15

Availability and safety of opioids in Malta

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Introduction: The aim of the study was to provide information about the availability of opioids in Malta and to examine the process of opioid handling, starting from prescribing and dispensing, up to the disposal of opioids.

Methods: Information was gathered through data available online in the national in-patient and out-patient formulary, as well as on the Medicines Authority list. Interviews were carried out with key workers in the respective fields.

Results: The Introduction in the local context of alternative opioid options widely used in other countries for both malignant and non-malignant conditions was reviewed. Strengths and weaknesses in the current system of opioid handling were identified.

Conclusion: Recommendations that might benefit the current system were proposed. These included the introduction of a form upon hospital admission detailing medication stocks at home and the prescription of smaller amounts of opioids in patients with frequent admissions or with frequent change in treatment. Longer-term recommendations included an easier method of returning unused or expired medications for disposal, preferably to the Pharmacy of your Choice (POYC). Notification on POYC records immediately upon patient's admission to hospital, discharge from hospital and patient's demise optimises the safe usage of opioids.

P3.16

Medication-use: evaluation of azacitidine

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Introduction: Azacitidine was introduced on the Government Formulary List in July 2017, and is reserved for patients with Acute Myeloid Leukaemia (AML) and Myelodysplastic Syndrome (MDS) who are unable to tolerate intensive chemotherapy and AML patients ineligible for haematopoietic stem cell transplant, or patients aged over 70.

The Medication-Use Evaluation (MUE) aimed at evaluating treatment outcomes for Azacitidine and monitor vial utilisation in the first 12 months since introduction.

Methods: A medicines utilisation and outcome tool was created. Institutional and Ethical Approval was granted. Monthly vial utilisation and clinical data was obtained from Mater Dei Hospital (MDH). Data was inputted into a spreadsheet based MUE tool and analysed over a period of 12 months.

Results: In the first 12 months, 24 patients required Azacitidine compared to the 15 patients estimated. The youngest patient was 43, and the oldest 95 years old. A total of 734 vials (average 73 per month) have been used. The average patient took 2.4 cycles (range 0.14 – 15 cycles). From the 6 MDS patients approved, two have Chronic Myelomonocytic Leukaemia; one of which is in transformation to AML. Another patient's MDS has now transformed to AML. No MDS patient passed away. Two AML patients are pending transplant, while another patient was successfully transplanted following two cycles Azacitidine. Twelve AML patients have passed away; with an average OS of 160 days (range: 1 - 566 days).

Conclusion: MUE showed that more patients required treatment than originally estimated, including patients requiring bridging treatment until transplantation. MUE was useful in monitoring Azacitidine uptake and outcomes.

P3.17

Medicine acceptability and drug delivery routes

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Introduction: The dosage form and route of drug administration effect patient acceptability of pharmacotherapy. The aims of the study were to establish a link between dosage forms and medicine acceptability and to assess patient preferences of dosage forms in Malta.

Methods: Patient preferences were assessed using the adapted Medication Delivery Route Preferences questionnaire for an international project led by School of Pharmacy of the University College London. The questionnaire asked consumers to give a number between 1 (none) to 10 (a lot) to rate the discomfort, efficacy, speed of action and acceptability for medicine taken by different administration routes. The questionnaire was self-administered to consumers identified from; a Day Care Centre, the University of Malta, a community pharmacy, Junior College and to the personnel of a school.

Results: Three hundred and eight hard copy questionnaires were distributed to participants and 237 answered questionnaires were collected (response rate 77%). Thirty nine online questionnaires were answered (response rate 0.33%). Mean rating scores provided for acceptability when medicine is swallowed are significantly higher for females (8.76) when compared to males (8.38). The age of consumers seemed to be an important contributing factor for the rating scores given for the acceptability of medicine swallowed by mouth.

Conclusion: The results provide information on patient acceptability of route of drug administration and shed light on patient variables that may have an effect. The data will be compiled together with data from other countries to extrapolate an international comparison.

P3.18

A simplified approach for the registration of medicines in small European countries

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Introduction: A medicine requires a marketing authorisation (MA) before being made available on the European market as specified in Directive 2001/83/EC to ensure its safety, quality and efficacy. The requirements to obtain a MA are complex and may adversely influence accessibility to medicines. The aim was to compile a guide intended to simplify the process for registration of medicines in Malta and other small EU countries.

Methods: Functions of regulatory bodies, committees and organisations and legislation related to the registration of medicines were reviewed. Semi-structured interviews with two qualified persons and eight responsible persons from ten pharmaceutical companies with the largest number of medicines licensed on the Maltese market were conducted to identify challenges encountered regarding the registration of medicines. A guide on the registration procedure of medicines was designed in booklet format and as an online version, validated and disseminated.

Results: The main challenges encountered to register a product in Malta identified in the interviews were the availability of medicine packs in the English language (10 interviewees), obtaining regulatory support from the MA holder (7 interviewees) and delays in the evaluation process due to missing or incorrect information (6 interviewees). The compiled guide describes National and European MA procedures and post-authorisation requirements, and provides information on the MA application procedures.

Conclusion: The compiled guide is intended to simplify the process for the registration of medicines. By preparing a simplified approach and clearly indicating national procedures required to apply for a MA, the opportunity to support access to medicines within small markets is presented.

P3.19

Medication storage practices in Maltese households

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Introduction: The conditions in which medications are stored are important as they may alter drug stability. From the point of purchase onwards, it is up to the patient to make sure that product quality is maintained. The aim was to evaluate medication storage practices in Maltese households.

Methods: A questionnaire consisting of 2 sections (Section 1: demographic data; Section 2: Multiple choice questions), was developed and validated by 3 academic pharmacists, 2 community pharmacists and 2 lay persons. Participants were asked in which room they store medication, how they store medication, and the duration of storage in the pill organiser if applicable. The medication characteristics which are affected by storage conditions and the storage conditions that have an effect on medication were assessed. The questionnaire was distributed via social media to the general public. Descriptive statistics were undertaken using SPSS® version 24.

Results: A total of 354 respondents participated in the study. Forty-three percent of the participants were aged between 18-29 years, 81% were female and 40% had a post-secondary level of education. Most of the participants store their medication in the kitchen (50%), 65% store medication in the original primary and secondary packaging, 37% store medicines in pill organisers for up to 1 week, 18% believe that phase separation and precipitation are affected mostly by storage. Forty percent believed that temperature is the storage condition affecting medication the most.

Conclusion: The public shows awareness about which storage conditions may have an impact on medication. More education about how to store medication is required.

P3.20

A qualitative analysis of healthcare professionals' perception on a pharmacist-led medication reconciliation service within Mater Dei Hospital

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Introduction: Medication reconciliation is a complex healthcare intervention contributing to patient safety. A pilot pharmacist-led discharge service with embedded medication reconciliation was developed during October 2017 to January 2018. The medication reconciliation aspect of this service was gauged by understanding the barriers and facilitators affecting local medication reconciliation implementation to ameliorate care provision to patients.

Methods: A qualitative research approach was adopted by performing twenty semi-structured interviews during December 2017 to January 2018 and voice recorded. Selection of interview participants relied on purposive sampling by selecting healthcare professionals directly involved in patients' discharge processes. Thematic analysis was applied to describe the participants' perspective to the responses. Computer-assisted qualitative data analysis enabled data interpretation.

Results: The interviewed professionals consisted of 5 nurses and 15 doctors. The average interview length was 32 minutes. There was wide consensus between the participants that barriers limiting implementation of medication reconciliation include: limited pharmacist coverage ($n=17$), an increased workload ($n=16$), specific patient factors ($n=14$) and lack of information technology ($n=13$). Facilitators which can concretely enable medication

reconciliation to be established locally include: increasing the availability of ward and clinical pharmacists ($n=17$), ensuring accurate medication lists ($n=16$), involving relatives during hospitalisation ($n=12$) and introducing computerised medication records ($n=11$).

Conclusion: The study identified the barriers which preclude the local implementation of medication reconciliation and determined the facilitators which can promote its wider application from the perspective of the professionals who participate in the delivery of patient care. The emergent themes may contribute to improve the organisation's model for healthcare delivery.

P3.21

Drug information service at the patient's bedside

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Introduction: Providing drug information (DI) is a pharmacist professional responsibility. Medication therapy management services have placed pharmacists in complex patient-care roles and in higher levels of competence to meet DI needs. The aim of the study is to evaluate nature, extent and request of DI from clinical in-patient hospital settings and frameworks that improve DI access for pharmacists at the patients' bedside.

Methods: A 3 week observation study was undertaken at the Chicago Hospital at the University of Illinois, USA. A focus group that consisted of providers and users of DI at Mater Dei Hospital (MDH) was undertaken to identify a framework that is relevant for the local setting.

Results: In Chicago, clinical pharmacists at patient bedside respond to DI queries using a portable bedside computer having all resources. The DI centre in Chicago provides extramural services in the state and outside Illinois. From the focus group discussion, the challenges faced at MDH when responding to drug information queries at the patient bedside identified included lack of time, questions not being urgent or important for patient's care, complexity of patients' comorbidities and context and resources changing constantly.

Conclusion: The study presents a gap analysis to identify challenges for offering a bedside DI service. A prospective study to establish nature of requests in the Intensive Care Unit is being carried out.

Disclosures: This study is partly funded through the Endeavour Scholarship Scheme Agreement Number MEDE/1117/2017/51.

P3.22

The in silico design of polyphenolic flavonoid quercetin analogs as inhibitors of histone deacetylase (HDAC) and histone acetyltransferase (HAT) for the suppression of tumour growth

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Introduction: Histone deacetylases (HDACs) and histone acetyltransferases (HATs) implicated in tumour initiation and progression. Literature indicates that quercetin has a potent inhibitory effect on these enzymes and that consequently its scaffold is a suitable lead for the design of other inhibitory analogs

Methods: Pdb crystallographic depositions 4QA1 and 4PZT describing HDAC and HAT bound to antagonists M344, and acetyl co-A small respectively, were identified. For each receptor, the cognate molecule was extracted, Quercetin docked, and conformational analysis performed. The optimal quercetin conformer for each was identified. For VS, each conformer was submitted as a query to the VICI database. Lipinski Rule compliant hits were identified, docked into a modelled protomol, or computed ligand binding pocket (LBP) and ranked by affinity. In the de novo design approach, the optimal scaffolds were modelled into seed fragments which were docked into modelled 3D LBP maps. de novo fragment growth was allowed within this pharmacophoric space.

Results: Two molecular cohorts were obtained. The first coming from VS, complied with Lipinski's recommendations for lead-like molecules and were structurally diverse. The second, from the de novo approach was structurally restricted necessarily incorporating the modelled seed structures as part of their pharmacophore. In each cases the highest affinity molecules were identified, their critical contact points with the target receptors analysed and proposed for optimisation and validation.

Conclusion: Quercetin is a suitable scaffold for the modelling high affinity ligands for both HDAC and HAT high affinity ligands. The molecular cohorts obtained for each targeted receptor will be docked into the alternative receptor, to assess their utility as dual target antagonists.

P3.23

Evolution and evaluation of the Maltese Medicines Handbook

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Introduction: The last version of the Maltese Medicines Handbook (MMH) was developed in 2015 by Scicluna. The aim of the study was to update the MMH to its 5th edition (2017 version) and to analyze and follow up the current system of publication.

Methods: A list of all the products, having a marketing authorization and available on the Maltese market by July 2017 was obtained from the Medicines Authority (MA). The trade name for each entry in this list was reviewed through the British National Formulary (BNF) (edition

73) and the MMH (4th edition). A list of non-BNF cited preparations was established. A questionnaire was conducted, to evaluate the efficacy and utilization of the previous edition of the formulary, both the book version and the online version. Questionnaires were distributed among 62 pharmacists.

Results: Out of the 6240 entries within the MA, 3359 were found in the BNF, 623 were found in the MMH and 2258 entries have their active ingredient and/or trade name not found in neither the BNF nor the MMH. Pharmacists (65%) replied that they do use the MMH, yet many commented that further improvements are required. The introduction of an online version, released in 2015 was an improvement but only 30% were aware of this availability.

Conclusion: When comparing the 4th edition of the MMH to the 5th edition that will be published, the number of non-cited entries has increased greatly from 1550 to 2258. (Scicluna T. Formulary for non-BNF cited items. [Dissertation] Msida (Malta) : Department of Pharmacy. University of Malta ; 2016)

P3.24

Supplementary pharmacist prescribing in community pharmacy

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Introduction: This study aims to propose a supplementary pharmacist prescribing model for conditions which may be identified and managed through the use of point-of-care tests within a community pharmacy setting.

Methods: Treatment frameworks for three common chronic diseases in Malta were developed, namely; hypertension in adults, Type 1 and Type 2 Diabetes Mellitus. The developed frameworks were based on the National Institute for Health and Care Excellence guidelines. The frameworks are to be used in the context of a supplementary prescribing model for the pharmacist to decide upon the optimal treatment for individual patients, following confirmation of the diagnosis by a physician. A questionnaire regarding pharmacist and physician opinions on the Introduction of pharmacist prescribing was developed. Point-of-care tests commonly available in community pharmacies and their perceived reliability for use in prescribing scenarios was determined. The frameworks were validated by means of this questionnaire. The questionnaire was disseminated to all community pharmacies (218) and 250 physicians.

Results: A response of 57 physicians (22.8 %) and 142 pharmacies (65.14 %), yielding responses from 205 pharmacists, was obtained. Analysis revealed that when asked if pharmacists are competent to prescribe medications 18.7 % strongly agreed and 49.6 % agreed. Conversely, 12.2 % strongly disagreed and 1.1 % disagreed. Suggested adjustments for the frameworks included colour coding of treatment routes and examples of starting doses for each step.

Conclusion: The perception of community pharmacists and physicians is in support of supplementary pharmacist prescribing for hypertension and Diabetes Mellitus.

P3.25

Pharmacogenetic testing for drugs used in malignancy

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Introduction: The aim was to assess the use of pharmacogenetic testing in local practice for drugs prescribed in malignancy.

Methods: Drugs used in malignancy available on the Maltese Government Formulary List (GFL) were identified. The Pharmacogenomics Knowledgebase (PharmGKB) was used to identify the drugs with pharmacogenetic implications and which are annotated as 'Testing required'. The European Medicines Agency (EMA) Summary of Product Characteristics (SmPC) and the US Food and Drug Administration (FDA) drug label were compared for each drug. Discussion with the Chair of Haematology and Oncology at Sir Anthony Mamo Oncology Centre was held to assess local pharmacogenetic testing practice for the identified drugs.

Results: Twenty-two drugs on the GFL (July 2018) used in malignancy have pharmacogenetic implications; thirteen of these drugs are annotated as 'Testing required' in PharmGKB. The EMA SmPC and FDA drug label are in agreement that pharmacogenetic testing is required before prescribing for six drugs (dabrafenib, erlotinib, everolimus, imatinib, trametinib, trastuzumab). Six drugs (anastrozole, exemestane, letrozole, rasburicase, tamoxifen, tretinoin) only have the FDA drug label available which indicates pharmacogenetic testing as required before prescribing. There is discrepancy between annotations for lenalidomide since the FDA drug label is annotated as 'Testing required' and the EMA SmPC is annotated as 'Informative pharmacogenetics' rather than 'Testing required'. The oncologist confirmed that locally pharmacogenetic testing is being requested before prescribing for all thirteen drugs annotated as 'Testing required' in PharmGKB.

Conclusion: Local practice for requesting a pharmacogenetic test prior to prescribing drugs with pharmacogenetic implications in the oncology setting conforms to international specifications.

P4.01

Investigation into the genetic and functional relevance of the association of rs12477314 with pulmonary function

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Introduction: Recent Genome-Wide Association Study (GWAS) metaanalyses have identified a number of significant association signals for pulmonary function, one of which maps to a locus (rs12477314) in an intergenic region on 2q37.3 flanked by two oppositely transcribed genes - HDAC4 and Twist2, and a lincRNA (FLJ43879).

The aim of this study is to investigate the genetic and functional relevance of the association of SNP rs12477314 with pulmonary function.

Methods: 3'Rapid amplification of cDNA ends (RACE) was performed on HDAC4 and Twist2 expressed from a number of cell types. The potential involvement of mentioned genes in reduced pulmonary function was assessed by investigating the effect of inflammatory mediators on gene expression in A549 cells, using quantitative polymerase chain reaction (qPCR). To gain further insights into the mechanisms underlying the GWAS signal, linkage disequilibrium, expression and methylation quantitative trait loci, and histone methylation signatures were investigated using publicly available sources.

Results: 3'RACE did not reveal any variants for which the 3'UTR extended to rs12477314 proximity. Treatment of A549 cells with lipopolysaccharide resulted in upregulation of HDAC4 expression. Bioinformatic searches revealed that the intergenic region is enriched for DNA/histone methylation markers suggesting active enhancer regions. In order to investigate genome regulation in mentioned intergenic region, selected regions showing enhancer potential were deleted using CRISPR/Cas9 system, utilizing H460 as a cell model. This work will be followed up with RNAseq and relevant functional studies.

Conclusion: This study provides preliminary evidence suggesting that epigenetic regulation at region tagged by rs12477314 may underlie the observed association seen with pulmonary function.

P4.02

Local cardiovascular implantable electronic device infection rates

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Introduction: Unfractionated Heparin (UH) is widely used despite the introduction of low-molecular-weight-heparin (LMWH). The use of UH comes with the need to monitor its effect on blood coagulation. It is common to discover that after days of heparinisation, a target aPTT-r (1.5-3.0) is not achieved.

The aim was to audit the adequacy of anticoagulation using UH (aPTT-r as a surrogate) within cardiology wards at Mater Dei Hospital (MDH).

Methods: We conducted a retrospective analysis of all CIED infection throughout the years 2012-2018 and analysed the rate of pacemaker infection of each calendar year. We used chi squared test as a test of significance.

Results: From our study we have concluded that the rate of pacemaker infection has significantly dropped through the years from a infection rate of 1.9% inbetween the years 2012-2013 to 0.3% inbetween the years 2017-2018. (p value 0.029 CI 95%) We put this mainly down to the introduction of the standard operating procedure, the core team and the use of TYRX envelope.

Conclusion: The rate of pacemaker infections has declined and keeps declining throughout the years and we must not get complacent and keep working hard to keep the infection rates as low as possible.

P4.03

High-sensitivity troponins in NSTEMI-ACS at Mater Dei Hospital - use or abuse?

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Introduction: Chest pain is a common symptom which initiates a cascade of diagnostic and therapeutic pathways in patients with suspected Acute Coronary Syndrome (ACS). Biomarkers such as high-sensitivity troponin-T (hs-cTnT) are used regularly as a marker of myocardial injury, with local practice guidelines recommending 2 serial hs-cTnT taken 3 hours apart. Our aim was to audit the practice of hs-cTnT use in NSTEMI-ACS patients (unstable angina and NSTEMI) in Mater Dei Hospital. hs-cTnT timing and imaging modalities done locally were compared to ESC-2015 Guidelines for the management of ACS in patients presenting without persistent ST-segment elevation.

Methods: Retrospective analysis of all patients admitted with a diagnosis of suspected NSTEMI-ACS was carried out. STEMI patients were excluded. Patients admitted between 1st January to 28th February 2017 were recruited. Data collected included patient demographics, blood results and relevant investigations ordered. These included angiography (invasive and CTCA), stress testing, functional testing and echocardiography.

Results: One hundred and sixty-one patients met inclusion criteria. The vast majority of patients (91.9%) were managed primarily by a cardiologist. In 48 patients (29.8%) with NSTEMI-ACS, more than 2 troponins were taken during the index admission. In the majority of patients (90.7%), the time lag between 1st and 2nd troponin was in excess of the recommended 3 hours, with 41% patients waiting at least 7 hours between 1st and 2nd troponin.

Conclusion: The above results suggest an over-requesting of hs-cTnT. Furthermore, there appears to be a lag between 1st and 2nd troponin tests. We propose hospital-wide revision of the indications for repeat troponin and efficient timing of repeating troponins.

P4.04

Without rhyme or reason

- are we abusing of troponin testing?

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Introduction: The high-sensitivity troponin T (hs-cTnT) assay aims to expedite diagnosis of myocardial injury. Negative serial hs-cTnT helps identify individuals at low risk of myocardial injury. International and local practice guidelines recommend 2 serial hs-cTnT levels taken 3 hours apart following an event suggestive of myocardial ischaemia. Further hs-cTnT levels are not indicated in the absence of new symptoms. Our study investigates the local practice of additional (≥ 3) hs-cTnT testing in the absence of clinical indications.

Methods: All patients admitted with 'chest pain' between 1/1/2017-28/02/2017 and who had at least 2 serial hs-cTnTs taken were included. Data was obtained from A&E admission booklets and iCM, Philips CVIS and

ECS hospitalsoftwares. Binomial logistic regression was performed to investigate the probability of (a) further hs-cTnT testing based on the result of the first 2 hs-cTnTs (b) requesting of further cardiac investigations based on the result of further hs-cTnT.

Results: 721 subjects (68.2% male) with a mean age of 63.97 ± 16.15 years were included. 165/721 (22.9%) had a 3rd hs-cTnT taken. A significant 1st–2nd hs-cTnT rise was significantly predictive of a 3rd hs-cTnT request (OR 1.81, 95% CI 1.19, 2.75; $p=0.006$). 79/165 patients who had a 3rd hs-cTnT underwent further cardiac investigations. Contrary to expectations, a significant 2nd–3rd hs-cTnT rise was associated with lower probability of further cardiac testing (OR 0.30; 95% CI 0.13, 0.68; $p=0.004$).

Conclusion: We showed that non-indicated hs-cTnT testing beyond the initial 2 guideline-recommended tests had no impact on clinical decision-making and we recommend re-visiting this inappropriate practice.

P4.05

Patient satisfaction associated with warfarin treatment in different settings: a cross-sectional study

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Introduction: Warfarin is monitored using the international normalised ratio (INR) which can be performed through venepuncture and laboratory coagulometers (laboratory INR) or through finger-prick and point-of-care coagulometers (POC INR). So far, the quality of life (QoL) associated with laboratory INR vs. POC INR has never been directly compared using specific psychometric questionnaires. The aim of this study was to evaluate patient QoL in two different settings (laboratory INR vs. POC INR monitoring), using the Duke Anticoagulation Satisfaction Scale (DASS) and the Perception of Anticoagulation Treatment Questionnaire (PACT-Q2).

Methods: Between July 2017 and February 2018, we recruited adult patients on long-term warfarin and at least 12 months experience with laboratory INR or POC INR. Two questionnaires (DASS range 25–175, lower scores higher satisfaction; PACT-Q2 range 0–100, higher scores higher satisfaction), available both in English and Maltese, were administered at inclusion, after signing the consent form. For the POC INR monitoring group, patients were enrolled from 5 Health Centres in the Maltese island (Cospicua, Floriana, Mosta, Qormi, Rabat). For the laboratory INR monitoring group, patients were enrolled from the Anticoagulation Clinic at Mater Dei Hospital (Msida, Malta). We planned a sample size of at least 300 patients.

Results: Three hundred and fifteen questionnaires were analysed (164 for the POC INR group and 151 for the laboratory INR group). The most common indications for warfarin were atrial fibrillation (64%), heart valve replacement (21%) and venous thromboembolism (16%). In the POC INR group mean age was 72 years and 60% were males, while in the laboratory INR group mean age was 68 years and 47% were males. The overall mean (\pm SD) DASS score was lower in the POC group vs the laboratory INR group (50.8 ± 16.9 vs 59.2 ± 18.1 , $p<0.001$). The following results were obtained in each dimension: “limitations” (16.4 ± 8.0 vs 17.8 ± 9.6 , $p=0.16$), “hassles/burdens” (13.7 ± 6.6 vs 17.8 ± 7.8 , $p<0.001$) and “psychological impact” (20.7 ± 6.6 vs 23.6 ± 6.7 , $p<0.001$). The PACT-Q2 for the dimension “convenience” was significantly higher in the POC group vs the laboratory INR group (85.9 ± 13.6 vs 79.7 ± 16.3 , $p<0.001$), while only a trend emerged for the dimension “treatment satisfaction” (67.6 ± 11.8 vs 65.5 ± 14.4 , $p=0.16$).

Conclusion: Maltese patients on warfarin treatment showed good QoL, measured either with the DASS or the PACT-Q2. Patients monitored with the POC INR showed less inconvenience and burdens and a better psychological impact than patients monitored with the laboratory INR.

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P4.06

An alternative to coronary implantation in aortic root surgery

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Introduction: The Bentall operation is widely employed in conditions of annuloaortic ectasia, and acute and chronic dissections of the aorta. Coronary implantation may be complicated by malalignment, torsion or haemorrhage, resulting in significant morbidity and mortality. This has led to a more conservative approach with reduction ascending aortoplasty, especially in high-risk patients and when the aneurysm is not large. Some authors advocate external wrapping but this may not completely secure long-term aortic integrity. Moreover this approach does not address the dilated left and right sinuses, which may become aneurysmal if left unsupported or may rupture in spite of external support.

Methods: The diseased valve is excised and replaced with a suitable prosthesis. Teflon-butressed sutures are passed along a line in the sinus of Valsalva joining two commissures, lying midway between the annulus and the coronary orifice. This ridge is plicated with four or five Teflon-butressed double sutures per sinus and incorporated into the valve implantation when this is tied down, keeping the remaining aortic wall adjacent to the coronary orifices to a minimum.

Results: The coronary orifices are bounded inferiorly by the Teflon-butressed valve sutures and superiorly by the sino-tubulo junction, virtually eliminating residual pathological sinus tissue. The possibility of torsion of the coronary arteries or haemorrhage from reimplantation, as well as the later possible dangers of external wrapping are avoided.

Conclusion: We describe a method of reducing the amount of pathological sinus tissue that may lead to later root dilatation, while avoiding coronary button implantation.

Disclosures: None

P4.07

Red blood cell distribution width and aortic valve implantation: a matched case-control study

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Introduction: Red blood cell distribution width (RDW) is an independent marker of myocardial ischaemia, ischaemic heart disease, heart failure and risk of death. The aim of the study was to investigate a possible relationship between RDW and different aortic valve implantation types to assess whether rapid deployment valves carried any significant advantage over conventional valves.

Methods: Perceval rapid deployment and Mitroflow conventional aortic valve patients were matched for pre-operative risk status using logistic Euroscore risk stratification. Haematological data was collected daily for the first week post-op. Independent t-tests and Mann-Whitney tests were used to compare variables between groups, with a binomial logistic regression model to determine independent variables.

Results: The peak rise in RDW occurred on post-operative day 3 ($p = 0.012$) and was a beneficial 1.29 units lower in the rapid deployment group ($p = 0.043$). White blood cell count also peaked at day 3 ($p < 0.001$) but there was no statistical difference between valve types. There were also advantageous lower bypass ($p = 0.001$) and cross-clamp ($p = 0.001$) times and increases in indexed effective orifice area ($p = 0.001$) in the rapid deployment group.

Conclusion: The use of rapid deployment aortic valves resulted in lower post-operative RDW levels, indicating a decrease in oxidative stress and a muted systemic inflammatory response as compared to conventional aortic valve replacement. This was probably due to the lower bypass and cross-clamp times, and an increase in indexed effective orifice area resulting in a reduction in patient prosthesis mismatch.

P4.08

Chest drain fall-out rate according to suturing practices - a retrospective direct comparison

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Introduction: Chest drains often become displaced and require replacement, adding unnecessary risks to

patients. Simple measures such as suturing of the drain may reduce fall out rates, however, there is no direct data to demonstrate this and no standardised recommended practice that is evidence based.

Methods: Retrospective analysis of all chest drain insertions (radiology and pleural teams) in 2015-2016. Details of chest drain fall out were collected from patient electronic records. Drain "fall out" was pre-hoc defined as the drain tip becoming dislodged outside the pleural cavity unintentionally before a clinical decision was taken to remove the drain. The objectives was to analyse the rate of chest drain fall out according to suturing practice.

Results: Three hundred and sixty-nine chest drains were inserted: sutured ($n=106$, 28.7%; 44 male (41.5%), median age 74 (IQR 21) years), and unsutured ($n= 263$, 71.3%; 139 male (52.9%), median age 68 (IQR 21) years. Of the sutured drains, 7 (6.6%) fell out after a mean 3.3 days (SD 2.6), compared to 39 (14.8%) ($p=0.04$) unsutured drains falling out after a mean of 2.7 days (SD 2.0) ($p=0.8$).

Conclusion: Within the limits of this retrospective analysis, these results suggest that suturing of drains is associated with lower fall out rates.

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P4.09

The Effects of breathing retraining on dyspnoea measures and the six minute walking distance in patients with Interstitial Lung Diseases

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Introduction: One of the commonest symptoms experienced in patients with a diagnosis of interstitial lung disease (ILD) is shortness of breath, a symptom which greatly affects their abilities to carry out activities of daily living. Breathing retraining has been reported to lead to improvements in dyspnoea and walking distance in chronic obstructive pulmonary disease (COPD) patients. Evidence regarding the effects of such an intervention in ILD patients is though lacking. In view of this, the aims of such a study were to identify whether breathing retraining led to better management of dyspnoea and improved walking distance in ILD patients.

Methods: Twenty-seven ILD patients were randomly distributed to either the control group ($n=15$) which received a 12-week Pulmonary Rehabilitation (PR) programme without breathing retraining or the active group ($n=12$) which received a 12-week PR programme with breathing retraining. All patients had both the 6-minute walk test and their level of breathlessness assessed using the Dyspnoea Borg scale assessed at baseline and at 4 weekly intervals for a 12-week period throughout the programme.

Results: Results show that the addition of breathing retraining resulted in improved dyspnoea scores at rest, measures which increased for the control group and higher percentage improvements in dyspnoea scores on exertion, and the six-minute walking distance in the active group.

Conclusion: As a conclusion, breathing retraining in a group of ILD patients resulted in clinically significant improvements in both dyspnoea measures and the six-minute walking distance

P4.10

Prevalence of Obstructive Sleep Apnoea Syndrome in Malta

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Introduction: Obstructive Sleep Apnoea Syndrome (OSAS) refers Obstructive Sleep Apnoea (defined as Apnoea/Hypopnoea Index, AHI >5) associated with daytime somnolence (defined as Epworth Sleepiness Score, ESS >9). The authors aimed to screen a cohort of subjects for OSAS in order to estimate its prevalence in Malta.

Methods: The authors interviewed a random cohort of 284 relatives attending Mater Dei Hospital Outpatients. Inclusion criteria: relatives aged 40-70 years, with no gender or weight preference. Patients attending for appointments were excluded from the study. Subjects with a high ESS (>9) were offered a sleep study and were followed-up at sleep clinic.

Results: Forty-seven subjects (16.5%) had a high ESS score while 235 subjects had a normal ESS score, including two receiving treatment for previously diagnosed OSAS. 17 subjects (5.99%) had confirmed OSAS on domiciliary sleep studies, and 28 subjects declined the sleep study. Of those diagnosed with OSAS, 52.9% had mild, 17.7% had moderate, and 29.4% had severe OSAS. The male to female ratio was 1.4:1. 41.2% were overweight and 47.1% were obese. The most common co-morbidity was hypertension (41.2%).

Conclusion: The prevalence of OSAS is high in Malta, and the diagnosis may be underestimated since symptomatic patients often deny symptoms and refuse to undergo investigation. Obesity and hypertension were particularly common in OSAS subjects. Screening as well as physician and patient awareness may help diagnose many symptomatic often undiagnosed subjects.

P4.11

Assessment of documentation and treatment of smoking cessation therapy in a main teaching hospital

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Introduction: Smoking is a common worldwide detrimental health addiction affecting around 1.1 billion people, killing 7 million people every year. Stopping smoking results in a better outcome across most diseases across all medical sub specialities.

Methods: Data was collected by means of a questionnaire relating to obtaining a proper smoking history, and the knowledge and prescribing tendencies of smoking cessation therapy (SCT) within the Maltese national health system.

Results: A total of 110 questionnaires were completed and quantitative data was drawn from the responses given. The overwhelming majority agreed that SCT is beneficial in regularly reviewed patients. A proper smoking history was taken by 63% of doctors, whilst none admitted to omitting the history. 5.5% of doctors always prescribed SCT whilst 16.4% admitted to never prescribing any. The commonest obstacle encountered to prescribing SCT was that of a lack of patient motivation (51.7%) followed by lack of familiarity of treatment (23.2%), cost of treatment (15.9%) and availability of treatment (9.3%). Just below a third (32.1%) admitted to always documenting their new treatment on patient's discharge letters whilst nearly a quarter (22.9%) admitted to never documenting the treatment. Further analysis of the data revealed that foundation year 1 doctors were the least likely to include such information and tendency increased with experience.

Conclusion: Although smoking history taking was performed regularly, initiation of treatment was poor and documentation of any treatment was also low amongst doctors, hence a need for better awareness of treatment options available and documentation of any treatment given.

P4.12

Audit on the use of acute non-invasive ventilation in Mater Dei Hospital

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Introduction: The use of Non-Invasive Ventilation (NIV) has revolutionised the management of patients presenting with Type II Respiratory Failure. The aim of this audit was to look at trends in practices with regards NIV use in Mater Dei Hospital (MDH) and compare it to current international guidelines.

Methods: Between November 2016 and February 2017, patients managed on NIV were audited throughout their hospital stay.

Results: A total of 117 patients were audited. Preliminary analysis of 54 patients yielded the following results: Mean age: 67.7, 51.9% were female. The highest use of NIV was in January and its use was highest in patient with pulmonary oedema (25.9%). Nine patients were excluded from further analysis as they remained on their previous home NIV settings. Of the remaining 45, 55.6% were admitted on monitor. In all patients arterial blood gases (ABGs) were taken prior to NIV. 71.1% had a pH<7.35; 7 patients had severe acidosis (pH<7.25). Documentation of Intensive Therapy Unit (ITU) involvement was found for 3 of these patients. A mean of 14.4 ABGs were taken per patient. A plan in case of NIV failure was documented in 10 patients while a resuscitation status was documented in 11 patients and a NIV weaning plan documented in 73.3% of patients

Conclusion: Although management of patients on NIV is adequate overall, there are still areas that need improvement. These include admitting patients on continuous monitoring, early appropriate involvement of ITU, decreasing the frequency of repeated ABGs and better documentation of resuscitation status, treatment failure and NIV weaning plan.

P4.13

An audit of the management of chronic obstructive pulmonary disease patients in an outpatient setting

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Introduction: COPD is a major public health concern due to its associated morbidity and mortality, most of which is respiratory-related, but there remain a number of associated conditions which independently contribute to morbidity and mortality, and must be recognised and treated. The aim was to study the management of outpatients with COPD in a Maltese tertiary centre; ensure that suitable candidates for mortality-modifying treatments were being prescribed them; analyse whether associated comorbidities were being identified and treated; and if not, establish more effective ways of recognising missed opportunities.

Methods: This retrospective study examined thirty-seven randomly-selected out-patients with COPD seen by one respiratory firm over 2 years. The inclusion criterion was a post-bronchodilator FEV1/FVC ratio of <0.7. Outcome measures included a correct diagnosis of COPD; documentation of smoking history; implementation of smoking cessation; appropriate COPD treatment and inhaler technique; assessment of non-adherence; appropriate prescription/usage of oxygen; referral to pulmonary rehabilitation; vaccination status; consideration of comorbidities; and documentation of end-of-life discussion.

Results: 90% were male, mean age 68.5 years, and 81% were ex-smokers. All had been correctly diagnosed as COPD, and virtually all were on inhaled short and long-acting bronchodilator. The uptake of Influenza and Pneumococcal vaccination was 62% and 54% respectively. Only 24% of patients were given physical activity advice or referral to pulmonary rehabilitation. 22% had sleep disordered-breathing, none had a raised haematocrit and there was no documentation of cor pulmonale. BP was documented and well controlled in all patients

Conclusion: The audit attempted to investigate whether practices are in-keeping with the recommended international guidelines, namely GOLD. A number of practices were adequate, with some others needing improvement. In order to narrow this discrepancy, the investigators suggest creating a template for COPD patients which includes all factors investigated, to be used at future visits.

P4.14

Compliance of asthma medication in Maltese asthmatic adults

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Introduction: Asthma treatment compliance is considered important to achieve adequate control. The aim of this audit was to calculate compliance with prescribed asthma medication and to identify reasons for non-compliance.

Methods: Eighty-four adult patients attending the asthma clinic of one respiratory firm at Mater Dei Hospital agreed to participate. These patients completed a questionnaire in the presence of the investigator. The questionnaire included demographic data, drug history and Asthma Control Questionnaire-7 (ACQ) score including spirometry.

Results: Our cohort included 84 patients (24% males). Compliance of inhaled corticosteroids was as follows: never missed a dose: 37% of patients, missed twice/week: 49%, four times/week: 7%, six times/week: 4%, non-compliance: 4%. Older patients were more compliant. Reasons for non-compliance included forgetfulness: 42%, feeling unwell: 14%, both: 5%. 62% had an ACQ-7 score <1, whilst 38% had a score >1. Patients who were always compliant to treatment ($n=31$) had a mean ACQ score of 1.2 while those not always compliant ($n=53$) had a mean ACQ score of 0.92, both groups indicating borderline adequate control ($p=0.21$), though better in the non-compliant group. Compliant patients had a mean FEV1 predicted of 81% while non-compliant patients had a mean FEV1 of 91% ($p=0.003$). 81% of compliant patients were receiving both inhaled corticosteroid and long-acting β_2 -agonist compared to 43% in the non-compliant group.

Conclusion: Increased treatment compliance was associated with poorer asthma control. This was associated with significantly worse lung function and increased necessity of dual treatment, suggesting that this patient group had more severe asthma.

P4.15

An audit of requests for CT Pulmonary Angiogram in haemodynamically stable non-pregnant patients with suspected pulmonary embolism

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Introduction: Pulmonary embolism (PE) is a common and occasionally fatal disease, therefore investigation must be targeted and accurate. Unnecessary investigation may pose harm to the patient. CTPAs are occasionally requested arbitrarily rather than according to guidelines. This study aimed to address the criteria by which CTPAs were being requested by medical or emergency doctors. Approval was obtained from data protection and ethical committees. Anonymous data was collected from hospital software and case notes between Aug-Sept 2017.

Methods: One hundred and six patients were recruited. Case notes were examined for demographics, reason for presentation, documentation of pre-test probability (PTP) testing, ABGs, ECG, indication for CTPA, and any complications. Hospital software provided data on blood investigations including D-dimer, CXR, time of CTPA order, and department and grade of doctor ordering CTPA.

Results: Dyspnoea was the most common reason for requesting CTPA (62.3%), followed by a raised D-dimer (45.3%). 60.4% of patients undergoing CTPA did not have arterial blood gases (ABGs) taken. One fifth (21.7%) of CTPAs were positive. A PTP score was documented in only 10.4% of patients and was equally divided between Wells and Geneva scores. The Wells score was retrospectively calculated, with only 9.4% having a score >4 indicating likely PE. One patient had anaphylaxis to contrast while 5 developed contrast-induced nephropathy.

Conclusion: A basis for requesting a CTPA needs to be established, utilising the well-validated Wells Score, and D-dimer where indicated. A suspicion of PE should trigger a request for an ABG. CTPA is not without morbidity, and therefore should only be requested according to evidence-base.

P4.16

The effect of weather patterns and hospital admission rates for respiratory tract infections in Malta

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Introduction: There is a large increase in hospitalisations during the winter months due to respiratory infections, with a corresponding increase in morbidity and mortality. Exposure to cold has often been associated with the increased incidence and severity of respiratory tract infections, leading to the misnomer 'winter flu epidemic.' The association between meteorological factors and rate of hospitalization due to lower respiratory tract infections (LRTI) was investigated.

Methods: Daily admissions between 2009 and 2014 to Mater Dei Hospital (MDH) of patients where the main discharge diagnosis was recorded as Influenza or Pneumonia (ICD-10 codes J10-J18) or Acute Lower Respiratory Tract Infection (J20-J22) were collected. Meteorological data including maximum and minimum air temperatures, daily rainfall, mean wind speed and average relative humidity covering the same period of time was collected from the Meteorological Office in Malta; apparent temperature was calculated from the data. Spearman correlation and Poisson regression model were used to evaluate data.

Results: Relative humidity, wind speed and rainfall were positively related to the number of daily admissions, while minimum, maximum and apparent temperatures were negatively related, all p-values ≈ 0 . The Poisson regression model identified apparent temperature (related to minimum and maximum temperature) and relative humidity (related to rainfall) as significant predictors. A decrease in apparent temperature of 1°C increased the daily admissions by 3.5% (CI 3.2 – 3.8%) and a 1% increase in relative humidity by 0.7% (CI 0.5 – 0.9%).

Conclusion: The daily number of patients admitted with LRTI to MDH can be extremely accurately predicted from meteorological data.

Disclosures: Support from the national Meteorological Office, Malta is acknowledged

P4.17

Auditing thoracocentesis, chest drain insertion and talc pleurodesis performed on patients with malignant pleural effusions in Mater Dei Hospital

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Introduction: The malignant pleural effusion is a common occurrence on the medical and oncology wards. This audit aimed to assess whether pleural procedures done within Mater Dei Hospital are in line with the British Thoracic Society (BTS) Guidelines.

Methods: Oncology patients with a diagnosed malignant pleural effusion who underwent thoracocentesis, chest drain insertion or talc pleurodesis between January and June 2016 were identified and data collected from both ICM and ECS as well as the patients' files. Data collected included: patient demographics, the performing department, the level of specialization of the performer, the documentation of the procedure and its details on the patient's file, day of admission performed and whether clotting and platelet count were available prior to procedure. Other data collected included the documentation of radiological investigations before and after procedure, the in-patient length of stay post-procedure and the early and late complications after the procedure.

Results: Twenty-eight patients and a total of 45 procedures were documented (62% chest drains, 23% taps, 15% talc pleurodesis). The medical department performed 62% of the total procedures taken into consideration, the surgical department performed 20% whilst 11% were done at the emergency department. 71% of the chest drains inserted (28 procedures) had respiratory specialty input in the management of such patients whilst 29% had cardiothoracic surgeons involved. Only 35% of the total procedures had consent taken and documented. The most common early complication post-procedure be it chest drains, taps or talc pleurodesis was pneumothorax (13%). >75% of patients did not develop any immediate post-procedure complications

Conclusion: Lack of documentation should be addressed. The date, person performing the procedure and level of specialization, the technique of the procedure

and consent should be included in the documenting note. Clotting and platelet count should be acknowledged prior to performing the procedure.

P4.18

On or off target? – an audit of time in therapeutic range in a cohort of outpatients established on warfarin therapy for atrial fibrillation

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Introduction: Background: Oral anticoagulant (OAC) therapy is used to prevent thromboembolism in patients with atrial fibrillation (AF). In Malta, warfarin remains the most widely prescribed OAC in AF. The time in therapeutic range (TTR) of 2.0 – 3.0 should be as high as possible to ensure adequate and safe anticoagulation. The aim of this audit was to establish the TTR in a representative cohort of patients taking warfarin for AF and receiving their INR monitoring at Mater Dei Hospital.

Methods: Methods: One hundred consecutive patients who had been on warfarin for at least 6 months and who had an Anticoagulant Clinic visit during the months of March/April 2018 were included. Serial INR results taken from iSoft Clinical Manager were used to calculate TTR following the Rosendaal method. Independent t-test was used to compare differences in mean TTR between (a) male and female patients and (b) younger (aged \leq cohort median age) and older (aged $>$ cohort median age) patients.

Results: Results: Fifty-three subjects in the cohort were male. Mean age was 74.10 ± 10.63 years and median age was 74 years. The overall mean TTR was $64.48\% \pm 19.21\%$ and median TTR was 65.55% (IQR 26.68%). There were no statistically significant differences in TTR between males (mean $66.94\% \pm 17.55\%$) and females (mean $61.71\% \pm 20.76\%$) ($p=0.18$) and between patients aged ≤ 74 years (mean $65.34\% \pm 18.67\%$) and patients aged > 74 years (mean $63.66\% \pm 19.86\%$) ($p=0.66$).

Conclusion: Conclusions: In our patient cohort, INR readings were outside target range for approximately 35% of the time, during which time patients could be exposed to higher risks of thromboembolic events or unnecessarily high risks of bleeding complications. Consideration for broader use of the direct oral anticoagulants in eligible patients might translate into safer and more effective anticoagulation. In the meantime, improving the current ACC system with the introduction of service improvements such as a dedicated Anticoagulation Clinic with permanent medical staff utilising an evidence based dosing software is urgently required.

Disclosures: With permission from Prof. Alex Gatt and under the supervision of Dr. Maryanne Caruana.

P4.19

The use of unfractionated heparin in cardiology wards, Mater Dei Hospital

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Introduction: Unfractionated Heparin (UH) is widely used despite the introduction of low-molecular-weight-heparin (LMWH). The use of UH comes with the need to monitor its effect on blood coagulation. It is common to discover that after days of heparinisation, a target aPTT-r (1.5-3.0) is not achieved.

The aim was to audit the adequacy of anticoagulation using UH (aPTT-r as a surrogate) within cardiology wards at Mater Dei Hospital (MDH).

Methods: Prospective audit from 15/5/18 to 11/7/18. Patients treated with UH admitted to cardiology wards were included. Data collected: patient demographics, indication, aPTT-r values and time taken. Data was processed on Microsoft Excel. The draft guidelines for Administration and Monitoring of UH, prepared by the Haematology Department, were used as a standard.

Results: Eighty-five patients recruited (52 male, average age: 69). Indications for UH: 54% - acute coronary syndrome; 34.1% - atrial fibrillation; 5.9% - thromboembolism; 5.9% - miscellaneous. 383 aPTT-r results were collected - 34.2% were within the recommended range of anticoagulation (1.5-3.0). 56.7% indicated under-anticoagulation (<1.5); 9.1% indicated over-anticoagulation (>3.0). 44.7% of patients never achieved a target aPTT-r. Another 44.7% had mixed results of aPTT-r within and out-of-range. 10.6% had aPTT-r within range throughout.

Conclusion: Most patients in cardiac wards at MDH who are receiving UH are undertreated, increasing risk for thrombotic events while a minority are over-treated, exposing them to excess bleeding risk. This highlights the need for education, implementation of guidelines, use of LMWH instead of UH when possible and possibly the introduction of point-of-care APTT ratio assays to facilitate monitoring/dose adjustment.

P4.20

Cardiovascular disease (CVD) risk factors in a local population of HIV positive patients

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Introduction: HIV patients have additional risk for CVD due to dyslipidemia resulting from the infection and its treatment. Our objective was to identify the most significant risk factors for CVD amongst HIV patients in Malta.

Methods: This was a retrospective observational study. Data collected included demographics, CVD risk factors, development of CVD and type of antiretroviral treatment (ART). HIV viral load and lipid profiles at time of diagnosis

and last visit were obtained. The Framingham Risk Score (FRS) was also calculated at both visits to determine the 10-year cardiovascular risk.

Results: Of the 101 patients, 77 were males. Mean age at diagnosis was 38.2 years and mean follow-up duration was 8.2 years. 38 were current smokers and 8 were diabetic. There was no significant correlation between development of CVD and gender, hypertension, smoking or alcohol. However, there was a strong association between baseline LDL and diabetes ($p=0.008$) and between both these variables and CVD ($p= <0.01$). Mean FRS score was significantly higher in patients who developed CVD ($p=0.001$). We found no significant relationship between CVD and viral suppression ($p=0.634$) or when comparing CVD rates between the two commonest ART combinations; NRTI/NNRTI and NRTI/PI ($p=0.695$).

Conclusion: Our findings confirm diabetes and elevated LDL as important CVD risk factors even in HIV patients. Furthermore, FRS appears to be a reliable screening tool in this population. As HIV life expectancy improves, morbidity and mortality resulting from CVD is likely to increase. Hence, identifying those at highest risk and addressing their modifiable risk factors is of utmost importance.

P4.21

Outcomes of transcatheter aortic valve implantation at Mater Dei Hospital, Malta

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Introduction: TAVI is an evolving alternative to surgical aortic valve replacement. There has been a steady increase in TAVIs performed locally since its introduction in 2010. This was the first study to assess TAVI outcomes in Malta.

Methods: TAVIs performed between January 2012 - December 2017 were retrospectively analysed for complications, length of hospital stay, 1-year mortality, change in left ventricular ejection fraction (LVEF). TAVIs performed until October 2016 using Edwards Sapien XT, Medtronic CoreValve, & Edwards Sapien 3 (Group 1), were compared to those performed from November 2016 using Medtronic EvolutR (Group 2).

Results: 25 TAVIs were performed using EvolutR versus 83 utilising other devices. Mean patient age was 77.8 years. Group 2 patients experienced less post-procedure paravalvular regurgitation and average hospital stay was shorter. Four patients in Group 2 required pacemaker insertion compared to 15 in Group 1. The most common access site was femoral (83%). Vascular access complications occurred in 1 patient in Group 2 and 7 in Group 1. Post-procedure acute kidney injury occurred in 2 patients in Group 2 compared to 11 in Group 1. No cerebrovascular accidents were recorded in Group 2, whereas 4 occurred in Group 1. One high-risk patient died within the first year with EvolutR compared to 10 in Group 1. There was an improvement in LVEF from 24% pre-TAVI to 47.5% post-TAVI ($p=0.04$) in Group 2, and from 36% to 48% in Group 1 ($p=0.03$).

Conclusion: TAVI-associated complications and mortality rates are low, and have improved with newer devices.

P4.22

Phenotype-genotype correlation in familial hypertrophic cardiomyopathy in the Maltese population

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Introduction: Hypertrophic cardiomyopathy (HCM) is the most commonly inherited cardiac condition. It carries a high risk for sudden cardiac death (SCD) and progressive heart failure. No genetic studies had yet been conducted on affected Maltese individuals. The aim of this study was to identify disease-causing mutations in HCM in the Maltese patients using high throughput sequencing (HTS) also looking into the genotype-phenotype correlation.

Methods: The medical, family and social history of the subjects was taken. Electrocardiogram, transthoracic echocardiogram and 24 hour ambulatory electrocardiogram results were collected. The SCD risk was calculated using the HCM-SCD risk calculator. Blood samples were obtained from the index subjects with more than one affected relative. HTS was used to sequence a number of known HCM genes. Dideoxy sequencing was used to confirm the genetic variants found.

Results: Interestingly two families carried the same mutation, and had a similar phenotype with increased incidence of atrial fibrillation, raised heart failure biomarkers, restrictive physiology on echocardiography and pulmonary hypertension. Apical HCM was associated with a lower NT-proBNP level. On assessing the families of the recruited patients, one notes that the clinical severity as well as the location of the hypertrophy may differ within members of the same family suggesting the presence of both genetic and/ or environmental modifiers. Syncope and ventricular arrhythmias increased the risk of SCD.

Conclusion: This study showed that families carrying a particular MYH7 mutation had a increased risk in developing atrial fibrillation, restrictive physiology, heart failure and pulmonary hypertension. Apical HCM was associated with a lower NT-proBNP level in accordance with the literature.

P4.23

The effects of coronary artery bypass surgery on hearing: a prospective study

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Introduction: Hearing loss has been reported to occur in coronary artery bypass grafting surgery with the use of the cardiopulmonary bypass machine. There is seldom any pre-operative hearing testing before such surgery, and

hence, any post-operative hearing loss may go unnoticed. The aim of the study was to investigate whether in the local population undergoing coronary artery bypass grafting in Malta hearing loss is a complication of such surgery.

Methods: Forty participants having a mean age of 63 years, and were scheduled to undergo coronary artery bypass grafting were recruited using the consecutive sampling technique. Their pre-operative hearing capacity was evaluated using pure-tone audiometry, non-word speech in quiet and in noise speech audiometry, and the self assessment of communication and significant other assessment of communication questionnaires. These tests were then repeated in the immediate post-operative period (approximately 5 days), and five weeks post surgery.

Results: With pure-tone audiometry the difference between pre- and post-surgery mean scores for both ears for the 2000 Hz, 4000 Hz, and 8000Hz showed highly significant differences ($p = <0.05$). The non-word testing similarly portrayed a significant reduction in whole word scoring between pre-operative and post-operative values ($p = <0.05$). The questionnaires did not portray a worsening in the subjective hearing perception between the pre-operative and the immediate post-operative session, but instead showed a difference (worse hearing capacity perception) between the immediate post-operative session and the five week post-operative session. The study also suggested that mechanical ventilation and the presence of hypertension and diabetes mellitus may contribute to the hearing loss.

Conclusion: It is believed that CPB and mechanical ventilation produce noxious effects which target the micro-circulation and the inner hair cells which can produce hearing loss. Finally it is recommended that pre-operative and post-operative hearing testing is routinely introduced for patients undergoing coronary artery bypass grafting, so that any hearing loss is treated without adverse effects.

P4.24

Pressure-based organs behave differently to secretory organs: a mathematical model for pressure-based organs behaving as biological pressure vessels

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Introduction: Organ systems can be divided into solid organs like the liver, pancreas and kidneys, and hollow organs that perform pressure-based work such as the heart, lungs, bladder, gut and blood. Hollow organs must be subject to the same laws of physics as other material pressure vessels.

Methods: We introduce a mathematical model that describes the allometry of physical characteristics of hollow organs behaving as pressure vessels based on the physics of ideal pressure vessels.

Results: The model was validated by studying parameters such as body and organ mass, systolic and diastolic pressures, internal and external dimensions, pressurization energy and organ energy output measurements of pressure-based organs in a wide range of mammals and birds. Seven rules were derived that govern amongst others, lack of size efficiency on scaling to larger organ sizes, matching organ size in the same species, equal relative efficiency in pressurization energy across species and direct size matching between organ mass and mass of contents.

Conclusion: Pressure-based hollow organs follow these predicted theoretical relationships with a similar relative efficiency across various mammalian and avian species; an exception is cardiac output in mammals with a mass exceeding 10kg. This may limit massive body size in mammals, breaking Cope's rule that populations evolve to increase in body size over time. Such a limit was not found in large flightless birds exceeding 100 kg, leading to speculation about unlimited dinosaur size should dinosaurs carry avian-like cardiac characteristics. These rules describe peak-energy generation and appear to guide organ size.

P4.25

Cardiac rehabilitation adherence: can we help?

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Introduction: Cardiac Rehabilitation (CR) plays an important role in the care of the cardiac patient, with the service being available in Malta since 2008. A study carried out in 2015 showed that only 56.5% of those referred actually attended the program. In this retrospective analysis, we explored the reasons for non-attendance and also ways to improve adherence.

Methods: A retrospective analysis of patients who failed to attend CR between Jan 2017 and Dec 2017 was carried out. Information was gathered from CR database, Isoft, CPAS and the patients themselves. The patients were contacted individually [Telephone] and asked to participate in a questionnaire.

Results: A total of 462 patients were referred for CR in 2017. Of the 177 [38.3%] who failed to attend, 114 [64.4%] were finally included in the analysis. Only 41.2% were informed about the content of the CR Program. The main reason for non-attendance was that only morning sessions were available [34.2%]. Other reasons included: lack of information about the benefits on discharge [33.2%], not interested [31.6%], no transport [28.1%] and work commitments [26.3%]. When challenged, 31.6% claimed they would have attended if they were given more information whilst only 13.2% and 11.4% said they would attend if sessions were held in the afternoon and weekends respectively. Finally, 30.7% commented that they were more likely to attend if sessions were held in the community.

Conclusion: CR adherence has improved since 2015, however we can do more in terms of advice and flexibility of training classes.

P4.26

A single center experience of long term follow up of cardiac myxomas

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Introduction: Cardiac myxoma is the commonest tumour of cardiac origin. It is a rare benign soft tissue tumour made up of fibroblasts embedded in myxoid stroma. It is found most commonly in the left atrium followed by the right atrium. It is diagnosed by echocardiography, cardiac CT or MRI.

Methods: An observational retrospective analysis of data of all the patients operated for cardiac myxoma in St Luke's and Mater Dei Hospitals from 1996 to 2017. Peri-operative and follow-up information was obtained from the departmental database, archived echocardiograms and patients case notes.

Results: A total of 23 patients underwent surgery for cardiac myxoma 21 of whom were histologically confirmed to be myxomas. The other 2 were excluded from the study. The mean age of the remaining 21 patients was 60.52 years (range 34-85). There were 8 males and 13 females. The tumour was in the left atrium in 20 patients and in the right atrium in the other patient. Follow up varied from 2 years to 22 years. One patient was lost to follow up. There was no recurrence reported. Thirty-day mortality was 4.7% (1 patient) and the death occurred from a CVA. All cause mortality during follow up was 15%. A quarter of patients had post operative atrial fibrillation One patient had lower limb embolism few hours after the excision which required embolectomy.

Conclusion: Although the numbers are small the results from this retrospective study show that cardiac myxoma can be operated on safely with no recurrence and low complication rate.

P4.27

Predictors of subclinical atherosclerosis & microalbuminuria in middle-aged women: a cross-sectional study

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Introduction: Cardiovascular disease is of increasing concern in women. The aim of the study was to assess the role of clinical and anthropometric measures in the development of subclinical atherosclerosis.

Methods: Carotid intima-media thickness (CIMT) was assessed as marker of subclinical atherosclerosis in both common carotid arteries in 203 European women; the higher value was taken as the reference CIMT. Blood and urine samples were taken in the overnight fasting state.

Results: The mean age of the study population was 38.3±5.4 years. The study population had few comorbidities. The participants were generally obese, with a median body mass index (BMI) of 29.25 (IQR 25.06-36.11) and median WI of 1.15 (IQR 1.06-1.34). Increased CIMT was present in 169 (83.25%) participants. Univariate analysis followed by multivariate analysis was performed to identify independent predictors of percentage difference in CIMT. Linear regression analysis revealed WI to be the sole predictor of increased CIMT ($b=24.387$, $p<0.001$). Post-hoc ROC analysis revealed a WI of 1.12 has 62% sensitivity and 53% specificity for predicting increased CIMT (AUC 0.63, 95% CI 0.55-0.72, $p=0.016$). The median urinary albumin-creatinine ratio (ACR) was 4.4mg/g and the prevalence of microalbuminuria was 8.9%; serum triglycerides were the only independent predictor of ACR.

Conclusion: Waist index is the major predictor of subclinical atherosclerosis in a contemporary premenopausal female population. A WI of 1.12 exhibits relatively good sensitivity & specificity in predicting the presence of atherosclerosis in this patient population.

P5.01

The risk malignancy index: Improving the ability to diagnose ovarian cancer in the Maltese population with an optimised cut-off score

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Introduction: In 1990, Jacobs and colleagues, developed a risk of malignancy index (RMI-I) depending on serum CA125, menopausal status and ultrasound findings, and commended its use in benign-malignant determination of adnexal masses. RMI-I is now recommended by the National Institute of Clinical Excellence in the UK and has been recently adopted by the Department of Obstetrics and Gynaecology at Mater Dei Hospital, Malta. A cut-off score of 200 is currently being utilised. We have assessed the ability of the RMI-I, to discriminate benign from malignant adnexal masses and attest the optimal cut-off based on the local scenario.

Methods: Between September 2015 and February 2016, 97 women with adnexal masses scheduled for surgery were enrolled. The sensitivity, specificity, positive (PPV) and negative predictive values (NPV) of the CA125 serum level, ultrasound findings and menopausal status in the prediction of ovarian cancer were calculated and compared individually or combined into the RMI.

Results: The RMI identified malignant cases more accurately than any individual criterion in diagnosing ovarian cancer. Using a cut-off level of 300 to indicate malignancy, the RMI achieved its peak performance, showing sensitivity of 72.7%, specificity of 97.7%, Positive Predictive Value of 80.0%, Negative Predictive Value of 96.6% and a Diagnostic accuracy of 94.8%.

Conclusion: For the local population, an RMI-I with a cut-off score of 300 is an appropriate method for diagnosing adnexal masses with a high risk of malignancy, thus better triaging for appropriate surgical approach and specialist referral.

P5.02

Obstetric and gynaecological complaints in general practice and the emergency room

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Introduction: When patients have a complaint they have the option of being reviewed at a community health centre or presenting to the accident and emergency department. In this audit we assessed how these complaints are dealt with in the community and the emergency room.

Methods: General practitioners (GPs) working in health centres were given a questionnaire to assess how common obstetric and gynaecological complaints are dealt with, when they refer and how they treat patients. A review of patients who presented to the emergency room over a period of time was also done and a note was taken of the patient's complaint, the source of referral and management.

Results: The questionnaire answers show that the majority of GPs are able to manage the pregnant patient: over 70% are able to appropriately advise the patient on dealing with hyperemesis, heartburn, haemorrhoids and antenatal screening. Similarly, they are able to deal with contraception, dysmenorrhoea and the climacteric to mention a few. On the other hand, over 200 patients a month are seen at the emergency room – about 60% were self-referred, 15% were referred by their GP and about 25% were referred from A+E. Over 60% of these patients were offered an ultrasound scan, most of which had normal findings. A substantial amount of patients were referred to the outpatient department where their complaint could be better dealt with.

Conclusion: Overall, one can note that GPs are able to deal with common obstetric and gynaecological problems, but the Maltese population needs to be more aware of the services that are available in the community, rather than presenting to hospital immediately. A question worthy of consideration is whether or not the emergency ultrasound service is being abused.

P5.03

The recurrent pregnancy loss clinic at Mater Dei Hospital

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Introduction: A pregnancy loss is defined as a clinically recognised pregnancy involuntarily ending before 20 weeks gestation. Recurrent early pregnancy loss (RPL) is classically defined as the occurrence of three or more consecutive pregnancy losses. The American Society of Reproductive Medicine has recently redefined RPL as two or more pregnancy losses. RPL affects 1-2% of the population. RPL clinics are designed to identify possible

causes for a woman's loss, provide emotional support and administer appropriate treatment. The causes of RPL include anatomical, immunological, thrombophilic, endocrine and genetic factors. Pregnancy loss is associated with a significant emotional toll. A team of psychologists is available to provide additional emotional support to all couples with RPL. However, 60 per cent of all women who are diagnosed with unexplained RPL achieve a successful pregnancy with minimal treatment. The rate of success improves to over 75 per cent for women who suffer recurrent loss as the result of an identifiable cause and undergo appropriate treatment. Recently more evidence has become available regarding the immunology and the genetics of RPL. The RPL clinic at Mater Dei Hospital occurs weekly. In this clinic investigations are ordered, treatment is prescribed based on the results and referral to various specialities particularly haematology, rheumatology and genetics is done. Approximately 125 women with RPL are reviewed at the clinic yearly. A specialised midwife provides support and organises the patients' appointments and follow-ups. A contact number is also available to improve accessibility to the service.

P5.04

An investigation into the influence of dydrogesterone therapy on uterine artery doppler flow indices in patients presenting with bleeding in early pregnancy

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Introduction: Progestogens have an established role in the management of bleeding in patients with a confirmed, viable, intra-uterine pregnancy. The process of miscarriage is effectively delayed with progestogens but achieving strong evidence-based conclusion that it can alter the course of an initiated miscarriage process has been impossible to achieve as RCTs are difficult if not impossible to conduct in these scenarios. This study seeks to address one possible mechanism of action which makes progestogens beneficial and that is the possible effect of improving uterine blood flow in a patient with threatened miscarriage.

Methods: Women presenting with bleeding in early pregnancy are being invited to participate in the study. A detailed explanation is given to the patient and consent forms are signed. An ultrasound exam is then carried out and the location and viability of the pregnancy confirmed. A doppler examination of the uterine artery blood flow is carried out at this time. Women who full fill the criteria as set out in the protocol are started on oral dydrogesterone 10mg three times a day and the ultrasound is repeated two weeks later. The protocol of this study has been approved by the research and ethics committee.

Results: 8 women with threatened miscarriage accepted to participate in this study over a period of 3 months from April to June 2018. The average maternal age was 27.8 years. 50% (4) of women were nulliparous and only 1 woman (12%) had history of miscarriages. 62.5% (5) of women presented at 6 weeks of gestation, while the rest presented between the 7th and the 9th week of gestation.

75% (6) of women have reached 2nd trimester, while 25% (2) of women experienced a first trimester miscarriage. The mean pulsatility index and the resistance index of their first scan is 2.05 and 0.82, respectively. The repeat scans after 2 weeks of treatment showed a mean pulsatility index and resistance index of 2.01 and 0.79, respectively. No statistical significance was found between the 2 groups: pulsatility index – p-value 0.44 and the resistance index – p-value 0.3.

Conclusion: This is currently an on-going study at Mater Dei Hospital. Recruitment is slow as is normally the case in studies on patients in early pregnancy. We will need larger numbers in order to be able to reach any definite conclusions although these preliminary results do not seem to indicate any significant effect of dydrogesterone on uterine artery blood flow in patients presenting with bleeding in early pregnancy.

P5.05

Audit of the obstetric theatre workload at Mater Dei Hospital

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Introduction: Locally, there is the impression that the workload in obstetric anaesthetic practice has increased significantly over the last few years- not just in the number of women who deliver and receive anaesthetic intervention, but also in the demand for an extension of traditional obstetric anaesthesia services such as the development of anaesthesia antenatal clinics. Auditing the obstetric anaesthesia workload at Mater Dei Hospital was done for eight weeks between September and November 2017. This abstract reports on the Obstetric Theatre Workload during that period. The aims of this audit were:

To assess the anaesthetic workload in the obstetric theatre from the 24/09/2017 to the 20/11/2017 To assess the type of anaesthetic (GA vs Regional) being performed for obstetric cases

To analyze how many elective caesarean sections are performed 'out of hours'

Methods: Approval for this audit was obtained from the Chairman of the Department of Anaesthesia and the Director of the Obstetric Department. The Data Protection Office at Mater Dei Hospital also gave the go-ahead for this study. The Data Collection Sheet included information on: timing and duration of procedure; type and urgency of procedure; and chosen anaesthetic technique. Data was collected daily between the 24th September and 20th November 2017, from the Central Delivery Suite and Main Operating Theatres theatre registers and double-checked with the anaesthesia workload diary. Data was inputted into excel and analysed

Results: Throughout the data collection period there were a total of 669 deliveries, of which 221 (33%) required intervention in theatre. Of these, 198 (90%) were caesarean sections, 10 (4.55%) were removal of retained placenta, 12 (5%) were suturing of tears / haemostasis while one case was for instrumental delivery (0.45%). These amounted to a total theatre time of 258 hours. Of the 198 caesarean sections performed, 27 (14%) were performed under

GA, while the rest (171, 86%) were done under regional anaesthesia. 116 (58.5%) cases were elective procedures while the rest were emergency (or undetermined). 11 (9.48%) elective cases were started after 14:00 hours, while 19 elective cases (16.4%) finished after 14:00 hours making them 'out of hours' procedures.

Conclusion: Since 1985 the international healthcare community has considered the ideal caesarean section rate to be between 10-15, but rates have continued to increase both in developed and developing countries (WHO, 2015).¹ From our data, the caesarean section rate stands at 29.6% which along with increasing requests for epidural analgesia in labour amounts to a significant workload for the anaesthetist. There needs to be analyses to identify why 11.5 % of elective procedures are being done 'out of hours' and how this could be rectified. The AAGBI and OAA guidelines advocate that planned caesarean sections should be performed as part of a scheduled list, resourced separately from the general workload of the delivery unit.

Two references: WHO Statement on Caesarean Section Rates 2015. Available at: http://apps.who.int/iris/bitstream/10665/161442/1/WHO_RHR_15.02_eng.pdf?ua=1 OAA/AAGBI guidelines for obstetric anaesthetic services 2013. Available at: https://www.aagbi.org/sites/default/files/obstetric_anaesthetic_services_2013.pdf

P5.06

Are partograms being used appropriately?

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Introduction: The partogram has been recognized as a useful tool to decrease delivery related complications since 1954. As shown by several studies, the appropriate use of the partogram has led to a decrease in maternal mortality, incidence of Caesarean sections, prolonged labour and intrapartum stillbirths. An audit was done to assess the appropriate documentation of progress of labour, parameter charting during labour as well as important antenatal and postnatal details being recorded on the patient's notes by health care professionals.

Methods: A random sample of partograms of mothers delivering at Mater Dei hospital were reviewed and appropriateness of documentation was assessed.

Results: From the partograms analysed, a little over half were normal vaginal deliveries with the rest being elective Caesarean section, emergency Caesarean section and instrumental deliveries. In the normal vaginal and instrumental deliveries only 13% had fetal heart plotting. About half the patients had maternal parameters plotted and syntocinon infusion rate noted. Estimated blood loss was not documented in 40% of the partograms. About a fifth of the mothers had an episiotomy or a tear which was not well documented.

Conclusion: In general, the documentation on the partograms included in this audit was inadequate. Having health care professionals well trained in the use of a partogram as well as understanding the importance of documentation would lead to better handover between midwives, nurses and doctors and therefore less delivery associated complications.

P5.07

Obstetric trends in Malta

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Introduction: Over recent years Malta experienced a change in demography. The aim of this study was to assess the change in obstetric trends over the past fifteen years.

Methods: Data was obtained from the National Obstetric Information System which collects detailed maternal demographic, pregnancy, delivery and infant outcome data on all births that take place in Malta and Gozo. Data for the 15 year period 2003 to 2017 was obtained and analysed using Excel and Chi-Square test for linear trend.

Results: There were 61,444 deliveries between 2003 and 2017, resulting in the birth of 62,513 babies. Births increased over the years from 3865 in 2005 to 4555 in 2016. Over the past 15 years there was a significant increase in the number of foreign mothers delivering in Malta ($p < 0.0001$), deliveries of pregnancies using Artificial Reproductive Therapy ($p < 0.0001$), deliveries via Caesarean Section ($p < 0.0001$), deliveries by unmarried mothers ($p < 0.0001$), pregnant mothers who smoke during pregnancy ($p < 0.0001$), as well as a significant increase in the number of preterm (<37 weeks) babies ($p = 0.01$). The average maternal age increased over the years from 28.0 years in 2003 to 30.2 years in 2017, with a significant increase in mothers delivering above the age of 35 years ($p < 0.0001$), and a significant decrease in teenage deliveries ($p < 0.0001$). There was no statistically significant difference in the number of babies with low birthweight <2500g ($p = 0.43$), neonatal, perinatal and foetal mortality over the years.

Conclusion: The maternal demographics and obstetric trends have changed over recent years, with a number of statistically significant changes observed.

P5.08

HPV vaccination- A time for change

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Introduction: Cervical carcinoma is the fourth commonest malignancy in women worldwide, with an estimated 9.8 per 100,000 being affected in the UK per year. The large majority of cases preceded by Human Papilloma Virus (HPV) infection. The aim of this study aims to assess the prevalence of HPV virus in the Maltese female population and the incidence of related cervical pathologies.

Methods: A retrospective study was carried out to assess the prevalence of HPV in the Maltese female population. The histological results for pre-malignant and malignant cervical lesions were obtained for an 18-month period from January 2017 to June 2018. The HPV status for each case was determined.

Results: A total of 196 abnormal histologies were obtained in this 18-month period ranging between koilocytosis to cervical malignancy. 3.57% were repeated case and 2 cases were excluded. 81.6% ($n = 151$) of cases were tested for HPV. Out of these 91.25% were positive with 98 cases having a single strain and 48 cases having

multiple HPV strain. Only 2.55% of cases were HPV negative. HPV 16 was found in 51.7% of cases ($n = 78$), followed by HPV 18 ($n = 28$), 33 ($n = 23$), 31 ($n = 13$), 51 ($n = 13$) and 39 ($n = 12$) respectively. If the cohort studied were to have been vaccinated by a bivalent vaccine, 43.71% ($n = 66$) would have been covered, whilst if they were vaccinated with the nonavalent vaccine 70.2% ($n = 106$) would have benefitted of complete cover whilst a further 16.5% ($n = 25$) would have gotten partial cover.

Conclusion: The most common HPV type is 16 associated with the highest number of high grade CIN and Cancer cases, followed by 33, 18, 52, 31, 51, 59. In view of this and the fact that the nonavalent vaccine increases percentage of complete cover by a further 27.5% should the National Immunization programme change from bivalent to nonavalent vaccine?

P5.09

Total laparoscopic radical hysterectomy (TLRH) and pelvic lymph node dissection for early-stage cervical cancer – the way forward

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Introduction: Cervical cancer ranks as the 16th leading cause of female cancer in Malta, with about 12 new cervical cancer cases diagnosed annually. Patients with early stage, FIGO IA2 or IB1 cervical cancer are traditionally offered an abdominal radical hysterectomy and pelvic lymph node dissection (PLND). More recently, TLRH for early stage cervical cancer has been proved to be both safe and efficacious.

Methods: We describe the technique of TLRH and PLND (in depth description to be presented in poster/oral presentation, including photos). The cases performed were also audited, comparing them to quality indicators proposed by the European Organization for Research and Treatment of cancer – Gynaecological Cancer Group (EORTC-GCG).

Results: 5 cases of TLRH and PLND were performed at Mater Dei Hospital, the first case performed around 1 year ago. The indication for surgery was cervical cancer Stage IB1 in all cases. No patients had tumour-positive resection margins on the hysterectomy specimen (accepted standard 5%). Pelvic lymphadenectomy specimens contained 7, 10, 20, 19, 14 examined lymph nodes (accepted standard of >11 examined lymph nodes in 90%). All patients received adequate administration of perioperative antibiotics (accepted standard 95%) and all patients started normal diet on day 1 after surgery (accepted standard 90%). No cases suffered short-term complications – postoperative mortality, postoperative haemorrhage, urinary tract injury, bowel obstruction, deep vein thrombosis or long-term complications – symptomatic lymphocysts, ureteral stenosis, incisional hernia, fistula requiring surgery.

Conclusion: TLRH and PLND proves to be both a safe and feasible procedure for the management of early stage cervical cancer in Malta.

P5.10

Audit of Mater Dei's post-menopausal bleeding fast-track clinic

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Introduction: In November 2017, a Post-Menopausal Bleeding (PMB) Fast-Track clinic was set up at the gynaecology department of Mater Dei Hospital. Its aim was to facilitate, centralize and speed up the investigation and management of women presenting with PMB. PMB is vaginal bleeding which occurs at least one year after the menopause. In around 10% of cases there is underlying endometrial cancer. Other potential causes are vaginal mucosal atrophy, cervical polyps, cervical cancer, endometrial polyps, endometrial hyperplasia or submucous fibroids. The likelihood of endometrial cancer increases with increasing thickness of the endometrium.

Methods: The pathway of investigation in the clinic involves an initial transvaginal ultrasound to assess the endometrium. Women with an endometrial thickness of ≥ 4 mm go on to have a biopsy of the endometrium as an outpatient procedure in the clinic.

Results: The data from the first ten months of the clinic will be presented. This will show how many women used the services of the clinic, how many needed an endometrial biopsy, how many endometrial cancers were diagnosed, how long it took from referral until date of review in the clinic, until date of communicating a cancer diagnosis and until date of initiating cancer treatment (where applicable).

Conclusion: The audit will show the benefits of the clinic in streamlining the patient journey. It will also reveal areas for improvement in order to further speed up the process of reaching a diagnosis or of excluding serious pathology. A research study to be performed at the PMB clinic is looking at the possibility of predicting endometrial cancer based on detailed ultrasound appearance alone.

P5.11

Intervertebral disc changes post-menopause in treated and untreated patients

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Introduction: To study the effect of post-menopause different treatment regimens on intervertebral disc height.

Methods: Patients attending a Bone Density Unit (1200) at the Obstetrics and Gynaecology Department at Mater Dei Hospital were recruited over a 2 year period (2010-2012). A Norland Bone Density machine was used. The intervertebral disc heights D1 (T12-L1), D2 (L1-L2) and D3 (L2-L3) were measured and compared.

Results: Patients were divided into various groups. The following graphs show the differences.

Conclusion: HRT is superior to no treatment in intervertebral disc height. It has also shown to be superior to bisphosphonates. A positive correlation between bone density and inter-vertebral disc height was found suggesting inter-vertebral disc height is also a contributor to vertebral osteoporotic fractures.

P5.12

Uterine artery embolization – a new approach for symptomatic fibroids

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Introduction: Uterine artery embolization (UAE) is one of the treatment options offered to patients having symptomatic uterine fibroids. Patients are consented about the possible risk of hysterectomy or premature ovarian failure in the event of complications, hence generally recommended to patients whose family is complete since evidence for fertility and pregnancy outcomes after such procedure is limited. This has been recently introduced at Mater Dei Hospital. Here we present a retrospective assessment of our patient's outcomes.

Methods: Patients who opted for UAE since its introduction in October 2016 till July 2018 were included and their demographics, various outcome variables and percentage reduction in fibroid size and fibroid volume recorded.

Results: 19 patients who underwent procedure at time of review were included, with an average age of 43 years. 8 patients had prior medical treatment. All patients were given antibiotics prophylactically, 2 of which continued post-procedure in view of high risk of sepsis. Various analgesia was prescribed, however all were given patient-controlled morphine pump. Of the patients who had a follow up MRI at the time of review, done on average 4 months post-procedure, there was a 54.3% reduction in size. All patients had no immediate or late complications and required an overnight stay.

Conclusion: Uterine artery embolization is an effective way of treating fibroids, possibly comparable or better than surgical or medical options. Longer observation will enhance our knowledge of such procedure.

P5.13

Omentectomy in endometrial cancer: an evidence-based insight

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Introduction: Metastasis to the omentum is a significant finding in endometrial cancer cases as it indicates upstaging to Stage IV-B (FIGO 2009). Assessment for omental spread helps indicate whether neoplastic deposits are spread beyond the conventional radiotherapy field and assist decision-taking with regards to platinum therapy. Omentectomy is the surgical removal of the omentum. It is a routine component of staging surgery for confirmed or suspected ovarian carcinoma; however there is currently no consensus regarding omentectomy in surgery performed for endometrial cancer. Additionally, the extent of omental resection in patients without macroscopic deposits is unclear.

Methods: A systematic search of PubMed MEDLINE resources was performed using the MeSH terms 'endometrium' 'uterus' 'omentum' 'surgery' 'neoplasms', and 'neoplasm metastasis'. The authors conducted a literature review of articles published through January 2016 to summarize the current evidence analyzing omental assessment in

endometrial cancer and the repercussions its involvement could have on patient management and prognosis.

Results: Macroscopic assessment of the omentum at the time of abdominal surgery for endometrial carcinoma has been shown to be highly sensitive (89-97.3%) and specific. Omental biopsies and histopathological examination are more likely to affect management planning in cases at high-risk of upstaging, these being poorly differentiated tumors, non-endometroid cytologies, cases with > 50% myometrial invasion, or cervical or adnexal involvement of the tumor. Total omentectomy and thorough histological assessment is superior with regards to detection of neoplastic spread however presents a significant strain on hospital laboratory services. Maximal surgical cytoreduction including omentectomy has been shown to improve overall survival in Stage 3 or 4 patients with good performance status.

Conclusion: Routine, thorough, macroscopic assessment of the omentum at the time of abdominal surgery for endometrial carcinoma is highly sensitive and specific for metastatic deposits and thus advisable. Omental biopsies are recommended for patients at relatively higher risk of disease upstaging, as in poorly differentiated tumors, non-endometroid cytologies and cases with suspected > 50% myometrial invasion or cervical/adnexal involvement on clinico-radiological assessment. Total omentectomy as part of maximal cytoreduction in FIGO III-IV cases has been shown to improve survival in patients with a good performance status.

P5.14

Subjective workload assessment of the obstetric anaesthetist at Mater Dei Hospital, Malta

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Introduction: Anaesthetists care for over 60% of pregnant women in the UK. Busy units were defined arbitrarily as those with >5000 deliveries per year [1]. The aim of this study is to assess the anaesthetists' subjective perspective of workload during obstetric duties at Mater Dei hospital.

Methods: The study was carried out over eight consecutive weeks (24th September to 20th November 2017). The obstetric anaesthetist on duty at Mater Dei hospital was asked a series of questions in the final thirty minutes of their 24 hour-duty. These included their seniority, whether they were busy during the day/night/both, if they had enough time to rest, what other work was done apart from epidurals and theatre work, if any epidurals were not done due to workload and if they had to involve the consultant on call.

Results: Anaesthetists were involved in the care of 56% of obstetric patients. In more than half (53%) the duties, anaesthetists were busy both during the day and the night. They felt there was not enough time for rest in 39% of duties where a basic specialist trainee (BST) was also on call, but this increased to 55% when no BST was on duty in obstetrics. The duty anaesthetist did patient reviews on 67% of the days. Epidurals were not done due to workload

on seven days, despite a BST being on call on two of these occasions. Vascular access outside theatre was done in 36% of duties and standby requests in half of duties. The consultant on call was contacted in 7 duties and attended on Labour Ward in 3 duties. Only on 41% of days was the general consultant anaesthetist on call someone who regularly works in obstetric anaesthesia.

Conclusion: Anaesthetists working obstetric duties report that there is a considerable workload, which is better distributed when a junior trainee is also on duty there. Together with the obvious theatre work and epidurals for analgesia, there is also an amount of "hidden work" including patient reviews, vascular access and standby requests. The workload was such that at times resulted in failure to provide patients requesting epidural analgesia for labour with pain relief. On most days, the consultant anaesthetist covering the obstetric anaesthetist on call does not regularly perform obstetric anaesthesia, and so help with decision-making may not be optimal.

P5.15

Self-assessed oral health care and dental knowledge among pregnant women in Malta.

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Introduction: The aim of this study was to identify changes in oral health care practices and dental knowledge in Maltese pregnant females.

Methods: This study was carried out using a self-administered questionnaire which was given out to 148 attendees at various Parentcraft classes held between January and April 2018 at Mater Dei Hospital.

Results: The participants rated their oral health before pregnancy as good (45.9%), very good (29%), excellent (12.8%), fair (10.8%), and poor (1.4%). 20.9% only visit a dental professional when they have problems. 93.2% of the participants brush their teeth daily. The groups with good oral hygiene prior to pregnancy all show a decline during pregnancy. Reported changes were: bleeding gums, sensitivity, swollen gums, toothache, caries, and mobility. A change in eating habits was reported by 81.1% of the participants, 32.5% of which report an increased frequency of eating, and 23.4% report consuming an increased amount of food. 16.9% report an increased sugar consumption. Dentists gave oral care advice to 64.7%, dietary advice to 20.6%, and fluoride advice to 41.2% of the participants, while other healthcare professionals who are in regular contact with pregnant women did not give oral health advice. 43% of participants received oral health related information during their pregnancy, mainly focused on oral hygiene (28.4%) and diet (20.3%) which led to 50% of them changing their oral brushing habits.

Conclusion: This study shows that females tend to eat more cariogenic foods, visit a dental professional less often, and perceive a decline in their oral health status while pregnant. Moreover, they are not receiving sufficient advice from professionals. A multidisciplinary approach between all health professionals is recommended, targeting both the mother and her child, to kick start healthy habits throughout the life course.

P5.16

An audit on the performance of cervical assessments in the Antepartum Period prior to delivery: are they affecting methods of delivery?

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Introduction: Caesarean Section rates are increasing with a consequent decrease in vaginal deliveries. Membrane sweep is associated with increased spontaneous onset of labour. Our main aim is to assess whether vaginal examinations are linked to increased probability of having a vaginal delivery.

Methods: A prospective study was designed and ethics approval achieved. Approximately 80 women were included from May 2017-August 2017. The amount of vaginal examinations from 38-41 weeks was counted as well as the mode of delivery.

Results: 60% of patients who had an antenatal vaginal examination had a vaginal delivery (2% of patients who had an antenatal vaginal examination had an emergency LSCS), whilst 20% of patients who did not have an antenatal vaginal examination had an emergency LSCS (19% of patients who did not have an antenatal vaginal examination had a vaginal delivery). 77.78% of women who had a vaginal examination subsequently had successful induction of labour, while only 22.22% of women with no antenatal vaginal examination had successful induction of labour.

Conclusion: This study suggests that antenatal vaginal examinations are associated with increased rate of vaginal deliveries. Hence ideally more vaginal examinations should be done at the antenatal clinic.

P5.17

Comparison of preoperative and postoperative endometrial cancer grade

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Introduction: Common tumours of the female genital tract include the cervical, endometrial and ovarian cancers. The endometrial cancer is the most common invasive tumour. This affects almost exclusively postmenopausal women. The objective of this study is to compare the preoperative and postoperative grading in endometrioid endometrial cancer.

Methods: A total of 45 patients with endometrioid endometrial cancer were retrospectively reviewed between January 2016 and December 2016. In all cases, dilation and curettage (D&C) was used as the method of endometrial sampling and all patients underwent surgical therapy. Accuracy rates and number of upgraded and downgraded reports were calculated for all grades in the preoperative assessment.

Results: The age of affected patients ranges between 48 years and 88 years. The mean age of the patients was 64 years. All of the patients with preoperative grade 1 were confirmed on resection. None of the cases with grade 1 were upgraded. One of the patients (2%) with grade 2, was found to be grade 3, while five cases (11%) were downgraded to grade 1. The majority of patients with preoperative grade 3 disease were confirmed on resection,

while 9% were downregulated to grade 1 and grade The overall accuracy rate of preoperative grade when compared to the postoperative one was 77%. 2% of cases were upgraded while 20% of cases were downgraded.

Conclusion: Literature shows that the accuracy of D&C and endometrial biopsy in predicting preoperative grade has been analysed. The majority show that although D&C is a blind procedure, this has superior results in identifying tumour grade when compared to other methods. Locally, all preoperatively diagnosed grade I tumours were confirmed to be grade I in the postoperative evaluation. Sampling limitation is the major cause of discrepancies between the preoperative and the postoperative grading.

P5.18

Syphilis- the return!

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Introduction: Syphilis is a sexually transmitted disease caused by the bacterium *Treponema pallidum* subspecies *pallidum*. 36 million people are infected worldwide, of which two million are pregnant women. Although most new cases of Syphilis occur in developing countries, syphilis is re-emerging in a number of developed countries over the past decade. Has this wave now reached our shores? Records kept by the Infectious Disease Unit show the number of new cases of Syphilis doubling since 2010.

Methods: Antenatal screening for Syphilis aims to prevent mother to child transmission and therefore prevent congenital Syphilis. Also, at least 50% of women with acute Syphilis will have adverse pregnancy outcomes. These include a stillbirth or spontaneous abortion rate of about 50%, a perinatal death rate or serious neonatal infection rate of 50% and a mortality rate in infected infants higher than 10%.

Results: 55 new cases of Syphilis were reported in 2014, of which 15 were non- Maltese. 4 patients were diagnosed antenatally ; 3 from sub-Saharan Africa and a local. All were diagnosed with a positive booking VDRL and all were EIA IgG positive and EIA IgM negative indicative of latent Syphilis. They all received treatment with 3 doses of benzylpenicillin, one week apart, as inpatients to allow for fetal monitoring due to the Jarisch-Herxheimer reaction. Three had emergency LSCS whilst one had a normal delivery. No cases of congenital Syphilis were reported.

Conclusion: Syphilis has indeed returned to our shores – and is here to stay! This study highlights the need for more awareness about Syphilis in general, and particularly in pregnancy, amongst all health providers.

P5.19

Transcervical resection of submucous fibroids at Mater Dei Hospital

A. Micallef Fava, M. P. Aguis, I. Knyazev Knyazev

Introduction: Hysteroscopic resection is the gold standard treatment for symptomatic submucous fibroids. It is also shown to increase pregnancy and delivery rates in patients presenting with infertility. This procedure was introduced at Mater Dei Hospital a year ago. We aim to examine the results of the transcervical resection of submucous fibroids that were carried out in our unit.

Methods: All patients who underwent hysteroscopic fibroid resection were included. Submucous fibroids were classified according to the FIGO classification. Outcome measures were number of complete resections, number of cases needing subsequent surgery, any complications, control of bleeding and fertility outcome.

Results: 13 patients were treated with hysteroscopic resection. 10 patients presented with abnormal uterine bleeding (mean age 36years) while 3 cases presented with infertility (mean age 40years). The fibroid size ranged from 1.1-4.0cm (mean 2.2cm). Most cases were type 1 fibroids (8cases) while 4cases were type 2 fibroid and 1case was type 0 fibroid. Hysteroscopic resection was finished in a single step in 12cases, with 1case needing 'two-step approach'. As regards complications, 1 case had infection and 1 case had bleeding during the procedure, which was managed effectively using a Foley catheter inserted in the uterine cavity. For bleeding outcome, we report a success rate of 100% and for fertility outcome, we report no pregnancy and delivery rates.

Conclusion: Hysteroscopic resection of submucous fibroids is a well-tolerated, effective procedure. As regards outcome measures, bleeding outcome did improve in our patients. Although pregnancy and delivery rates were not reported, further followup is necessary.

P5.20

Antenatal fetal biometry: ultrasound evaluation of the normal fetus to construct growth normograms for the Maltese population

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Introduction: The study was targeted to develop fetal growth centiles at different weeks of gestation for fetal biparietal diameter (BPD), abdominal circumference (AC), femur length (FL) and head circumference (HC) in the Maltese cohort of obstetric antenatal patients. Data was collected at the local tertiary referral hospital (Mater Dei Hospital-Tal-Qroqq, Malta) from pregnant women at gestational ages ranging from 11-40 weeks referred for their routine obstetric ultrasound as a part of their national antenatal care. For each measurement, separate models were derived to estimate the median, mean, standard deviation and 3rd and 97th percentiles at each week of gestation. Patients were followed up until delivery to cross-check that the actual born weight fitted into the developed growth charts.

Methods: Data protection clearance was obtained. Data was collected from 1st August 2015 to 21st July 2016 at Mater Dei Hospital, Tal-Qroqq, for BPD, HC, AC, FL, birth weight. Ultrasound machines were standardized. Patients were given a unique code that cross-referenced with the ultrasounds results for the pregnancy. A cross-sectional method of population acquisition was done. All pregnancies were cross-sectionally followed up from the medical records and antenatal scans until the birth of the baby.

Results: The 3rd, 50th and 97th Percentiles were plotted and graphically shown on charts. The 1224 BPD measurements were plotted in a scatter plot chart. The chart's equation of trend line was: $y=0.2675x-0.6549$ whilst

R2 was 0.96007 showing a curvilinear curve. The 1224 HC measurements were plotted. The chart's equation of trend line was: $y=0.9209x-1.0174$ whilst R2 was 0.95054 showing a curvilinear curve. The 1224 AC measurements were plotted. The chart's equation of trend line was: $y=1.0363x-5.7397$ whilst R2 was 0.96025, showing a near-linear curve. The 1224 FL measurements were plotted. The chart's equation of trend line was: $y=0.2355x-1.4825$ whilst R2 was 0.97061 showing a near-linear curve. The 1224 Hadlock '84 calculated fetal weight measurements were plotted against weeks of gestation in a scatter plot chart with the chart's equation of trend line was: $y=0.2355x-1.4825$ whilst R2 was 0.97061, showing a clear curvilinear graph. Actual fetal birth weight had minimum, maximum, mean, median, SD, 3rd and 97th centile and CI tabulated.

Conclusion: Customized fetal normograms help to identify fetal antenatal problems early due to visual representation of growth and visual view of growth velocity (70). As it has been shown by comparing to the Italian and the UK cohort, no population is the same, thus a one size fits all chart cannot be adopted and would give rise to errors if medical judgment is based on it. Adoption of the Maltese customized growth charts obtained from this study would hopefully help to improve the national Maltese antenatal to neonatal outcome and prove more accurate.

P5.21

Doppler assessment of uterine artery blood flow in women with spontaneous unexplained recurrent early pregnancy loss

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Introduction: Recurrent early pregnancy loss is classically defined as the occurrence of three or more consecutive pregnancy losses; however, the American Society of Reproductive Medicine has recently redefined recurrent pregnancy loss as two or more pregnancy losses. A pregnancy loss is defined as a clinically recognised pregnancy involuntarily ending before 20 weeks. A clinically recognised pregnancy means that the pregnancy has been visualized on an ultrasound or that pregnancy tissue was identified after a pregnancy loss. Pregnancy loss causes a significant emotional toll. However, 60 per cent of all women who are diagnosed with unexplained recurrent spontaneous pregnancy loss achieve a successful pregnancy with minimal treatment. The rate of success improves to over 75 per cent for women who suffer recurrent loss as the result of an identifiable cause and undergo appropriate treatment. Women who have no anatomical, immunological, thrombophilic, endocrine and genetic factors are labelled as having unexplained recurrent spontaneous pregnancy loss. The above can possibly be explained by having a deficient endometrium. The endometrium in women with unexplained infertility and recurrent miscarriages is different from that found in normal fertile controls, based on examination of many different biomarkers.

Conclusion: A substantial number of these differences can be accounted for simply by delayed histological development that is more common in unexplained recurrent spontaneous pregnancy loss. Uterine artery doppler flow differences in women with unexplained recurrent pregnancy loss may be a non-invasive investigation. Data to improve outcome in women with unexplained pregnancy loss is lacking.

P5.22

Assessing the see-and-treat approach for the management of high-grade squamous intraepithelial cervical lesions

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Introduction: To assess local histological outcomes in patients with HSIL cytology results on cervical smears, in both the see-and-treat and three-step approach.

Methods: A retrospective analysis of patients with HSIL on cervical cytology was performed, obtaining an 83 patient cohort. The histological result following the primary investigation (colposcopic-directed biopsy or excisional procedure) was noted for each patient together with their demographic variables and HPV status.

Results: Of 83 patients with HSIL cytology on cervical smear, 43 underwent LLETZ as a primary procedure, while 40 patients underwent a colposcopic-directed biopsy. There was no statistically significant difference in terms of demographics and HPV status between the two groups. In those patients who had LLETZ as a primary procedure, 29 had CIN2+ on histology. On the other hand, following colposcopic-directed biopsies, 17 resulted in CIN2+ on histology.

Conclusion: The conventional approach within our local setting potentially has inferior sensitivity in picking up CIN2+ lesions when compared to the see-and-treat approach. On the other hand, primary excisional procedures were associated with an overtreatment rate of at least 20.9%, subjecting patients to unnecessary risks. Local improvement of colposcopic skill will aid to reduce this overtreatment rate and missed lesions at biopsy.

P5.23

High risk obstetric anaesthesia clinic (HROAC): Who fits the criteria?

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Introduction: Anaesthetists are frequently involved in the management of high risk obstetric patients. Antenatal referral permits time to prepare an appropriate management plan for labour and delivery. The aim of this study was to determine how many mothers would satisfy high-risk referral criteria for a High Risk Obstetric Anaesthesia Clinic during August 2017.

Methods: Data Protection Clearance, as well as permission from the Chairman of the Department of Anaesthesia, was obtained. Parturient mothers who were one-day post-delivery were included in the study over the

month of August 2017. Informed consent was obtained and a referral checklist was used to collect data.

Results: A total of 302 patients were included in this study. 16% of the total parturient mothers satisfied referral criteria for the High Risk Obstetric Anaesthesia Clinic. The most commonly satisfied criteria were BMI>35 (34%), followed by spinal problems (23%) and anxiety (17%).

Conclusion: Our results highlight the need for the introduction of a High Risk Obstetric Anaesthesia Clinic at Mater Dei Hospital. Referral should be made by the caring obstetrician. The mothers would be reviewed by a senior anaesthetist with an interest in obstetric anaesthesia, to formulate an individualised management plan. The aim of the High Risk Obstetric Anaesthesia Clinic would be to provide optimal care in the interest of patient safety, to establish better multidisciplinary cooperation, as well as provide important information to the on call obstetric anaesthetist.

P5.24

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P5.25

The performance of cancer antigen 125 in discriminating between benign and malignant adnexal masses within a Maltese patient cohort

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Introduction: Ovarian cancer is a lethal gynaecological malignancy, the seventh-most common cancer and the eighth-most common cause of death from cancer among women. Cancer antigen 125 (CA125) is, to date, the best-known biomarker for the detection of ovarian cancer. Over time, it has become a great aid in the differential diagnosis of pelvic masses, as well as, in the monitoring of malignant ovarian disease progress in established cases. The aim of this study was to determine the ability of CA125 in the discrimination between benign and malignant adnexal masses within a local population.

Methods: Women scheduled for surgery for an adnexal mass from September 2015 to February 2016 at Mater Dei Hospital had their CA125 taken pre-operatively. The performance of CA125 was assessed and statistically tested for significance.

Results: A total of 97 patients were included: 86 benign, and 11 malignant tumours. The mean serum level of CA125 was significantly higher among women with malignancy when compared with women with benign tumours (394.7 U/mL vs. 27.6 U/mL) (U-Test, $p = <0.001$). At a serum level of 35 U/mL, CA125 had a sensitivity of 73%, specificity of 80%, positive and negative predictive values (PPV and NPV) of 32% and 96% respectively, an accuracy of 79% and an area under the curve (AUC) of 0.85.

Conclusion: Considering the distribution of malignancies within our study, CA125 performed even better than the sensitivity value of 62% initially quoted by the landmark study of Jacobs and colleagues.

P5.26

Will altering weighting of menopausal status and ultrasound score improve the performance of the risk malignancy index?

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Introduction: The Risk Malignancy Index (RMI) is a multi-modal scoring based on menopausal status (M), real time ultrasonography, and serum concentrations of CA125 developed by Jacobs in 1990, to provide a method for the pre-operative diagnosis of ovarian cancer. Tingulstad in 1996 (RMI-II) and again in 1999 (RMI-III) attempted to improve Jacobs' version, attributing different weighting to menopausal status and ultrasound score.

Methods: 97 patients with pelvic masses scheduled for surgery from September 2015 to February 2016 were included. Ultrasound scans were scored as one point for each for multilocular cyst, solid areas, intra-abdominal metastases, ascites, and bilateral lesions. An ultrasound score (U) was calculated. The difference between the three

RMIs was based on the allocation of the U and M scores. The sensitivity, specificity, positive predictive values (PPV) and negative predictive values (NPV) of RMI-I, RMI-II, and RMI-III were compared.

Results: The overall best performance from RMI 1 and RMI 3 was obtained at a cut-off level of 300 and for RMI 2 at a level of 400; at a sensitivity of 72.7%, specificity of 97.7%, PPV of 80.0%, NPV of 96.6% and an accuracy of 94.8%. A direct comparison of the three indices revealed that there was no statistically significant difference in the performance of the three methods.

Conclusion: All three Risk of Malignancy Indices perform equally as a clinically significant scoring system for the diagnosis of malignant adnexal masses. Altering the weighting to menopausal status and ultrasound score did not improve diagnostic accuracy in our sample.

P5.27

Monogenic diabetes and pregnancy – characterisation of two Maltese families with atypical presentations using whole exome sequencing

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Introduction: The diagnosis of atypical non-autoimmune forms of diabetes mellitus, such as maturity onset diabetes of the young (MODY) presents several challenges, in view of the extensive clinical and genetic heterogeneity of the disease. Monogenic diabetes is frequently misdiagnosed as either type 1 or type 2 diabetes mellitus, and its identification has practical implications for therapy, screening of family members and genetic counselling. Several studies have highlighted monogenic diabetes presenting during routine screening for gestational diabetes (GDM), and some authors recommend screening for MODY in women with GDM.

Methods: We describe two families with multigenerational early onset diabetes where monogenic disease was diagnosed through whole exome sequencing of probands with atypical presentations of diabetes in pregnancy.

Results: The first case involves a lean female who presented with hyperglycaemia requiring low dose insulin during pregnancy. There was no ketoacidosis or evidence of islet cell autoimmunity. A pathogenic frameshift mutation in exon 4 of HNF1 β was identified that segregated with the disease in the family. Two other siblings similarly presented with diabetes during pregnancy. The second case involves a female with presumed early onset type 2 diabetes, microalbuminuria, glomerular hyperfiltration, but no structural renal tract abnormalities. Her glycaemic control and renal function deteriorated significantly during pregnancy. An HNF1 β p.Arg527Gln missense mutation in exon 8 was detected, with damaging in-silico predictions. A detailed clinical, biochemical and genetic characterisation of the two families is provided.

Conclusion: Clinicians should be vigilant for the possibility of monogenic diabetes presenting during gestation.

Disclosures: This work was supported by institutional funds from the University of Malta. The Authors declare that they have no competing interest.

P6.01

Meta-regression analysis to explore between-study heterogeneity for disability outcomes in a systematic review and meta-analysis on SSRIs for stroke recovery

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Introduction: SSRIs are widely used for the management of mood disorders. There is also a place for SSRIs in post-stroke mood disorders. Recent evidence shows that they may improve post-stroke recovery however statistically significant between-studies heterogeneity was observed in a Cochrane review. Meta-regression analysis may better explain this.

Methods: Data available from the 2012 Cochrane review 'SSRIs for Stroke Recovery' by Mead et al., together with data from trials identified from an update of this systematic review, were used to perform a meta-regression analysis to investigate the extent to which study characteristics (independent variables) influenced between-studies heterogeneity for analyses on disability scores. The influence of trial quality characteristics, depression at time of recruitment, length of treatment, and type of SSRI were investigated. Univariate meta-regression was performed. Statistically significant covariates were then included in a backwards stepwise random-effects meta-regression to identify explanatory covariates that reached statistical significance.

Results: The subgroup: 'Trials that required patients to have depression at the time of recruitment' was responsible for 14.59% of the total residual between-studies heterogeneity (87.09%) for disability outcomes. The presence of depression at recruitment resulted in a greater improvement in disability scores by a factor of 0.621 (95% confidence interval: 0.019 to 1.223, $p=0.044$)

Conclusion: Observational data produced from this meta-regression analysis shows that trials that only recruited patients with depression tended to have better outcomes, implying that patients who suffer from depression may stand to benefit most from post-stroke therapy with SSRIs.

P6.02

Impact of cultural variations on autism spectrum disorder treatment

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Introduction: Risperidone and aripiprazole (RiAr) are approved drugs by the FDA for the treatment of irritability associated with Autism Spectrum Disorder (ASD) in children and adolescents. The aim of the research was to develop and administer a questionnaire to psychiatrists in India and Malta to evaluate cultural variations which may impact the approach towards the treatment of ASD.

Methods: A questionnaire entitled ASD-Q (IND-MT) was developed, validated (by 10 experts) and disseminated to psychiatrists (N=47) in India (n=31) and Malta (n=16). ASD-Q (IND-MT) consisted of 6 sections and 28 closed-ended Likert scale questions ranging from 1 (strongly disagree) to 5 (strongly agree) and gathered opinions on the perception of ASD, the influence of culturally developed screening tools, prescribing behaviour of RiAr and role of pharmacists in managing ASD.

Results: Statistical analysis of the ASD-Q (IND-MT) indicated a significant difference ($p=0.040$) in psychiatrists' prescribing behaviour of RiAr in India (n=31) and Malta (n=16). Thirteen Indian and 2 Maltese psychiatrists agreed to prescribe RiAr to patients with mild to moderate autism whilst 18 Indian and 14 Maltese psychiatrists agreed to prescribe RiAr in cases of severe autism only. A statistically significant difference ($p<0.001$) was noted between psychiatrists in India (Likert mean score 4.45 ± 0.506) and Malta (Likert mean score 2.56 ± 1.153) when asked whether screening tools could detect and differentiate between ASD and other developmental disorders.

Conclusion: Psychiatrists in India and Malta use different tools to determine the prescribing patterns of RiAr in ASD.

P6.03

A qualitative study assessing parents' perspective on young people with autism spectrum disorder in relation to the benefits of sport: comparing individual to group sport

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Introduction: There are few studies comparing effects between individual and group sport in young people (YP) with autism spectrum disorder (ASD), and on whether sport can benefit these individuals at present and future.

Methods: Parents of YP with ASD were selected by stratified random sampling from the Child and Young People's Services (2016-2017). Semi-structured questionnaire written up and readability testing and translation/back-translation carried out, followed by pilot study.

Results: Themes used: 1) Group sports, social interaction and communication; 2) Individual sports, self-esteem and venting one's frustration; 3) Lack of public awareness; 4) Lack of motivation in sports; 5) Physical and mental burden on relatives; 6) General improvement

in physical and mental health; 7) Technology and Internet addiction. General lack of physical exercise was reported (3/10 reported weekly exercise). Younger age groups and those with severe ASD were more physically active. Parents of YP with severe ASD were less physically active than milder forms of ASD. Parents preferred group over individual sports for their children, whilst children preferred individual sports.

Conclusion: This highlighted the importance of sport in YP with ASD. YP preferred individual sports, reflecting ASD symptomatology. Parents felt burnt out and unsupported by society. Sport therapy services for ASD should be YP-centred and include public/parent psychoeducation. This opens new fields of research in aid of national service.

P6.04

Identifying barriers to antiepileptic treatment adherence in Malta

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Introduction: Adherence to treatment and lifestyle advice in persons with epilepsy is important to minimize the recurrence of breakthrough seizures and complications including injuries, hospitalization and loss of work. The aims of the study were thus to determine the rate of drug adherence amongst persons with epilepsy in Malta and to identify possible factors which may be affecting non-adherence rates.

Methods: Following literature review, an Adherence Assessment Tool was designed with the aim of calculating patient adherence rate (Medication Adherence Rating Scale and Proportion of Days Covered) and identifying factors that may be influencing the persons' adherence. Relevant Permission was obtained from the Consultant Neurologists, Ethics Committee, and Mater Dei Hospital to approach persons with epilepsy and to gain access to patient files. Persons who agreed to take part in the study were asked to fill in the Adherence Assessment Tool. Responses were analysed using IBM® SPSS Version 22.

Results: A total of 200 Adherence Assessment Tools were distributed, of which 90 were returned filled in (response rate = 45%). This number was statistically representative of the patient population. The Proportion of Days covered was calculated for 47 respondents (52.22%). The Medication Adherence Rating Scale score showed that 75.56% of the respondents achieved either a high (9-10) or moderate (7-8) adherence rating score. Significantly higher adherence scores was obtained from respondents who did not take medications for other healthcare conditions, were supplied with written instructions by their neurologist or pharmacist, did not experience memory problems, did not mind taking their medications in public and had not experienced side effects. A higher quality of life in epilepsy

score, shorter periods of time feeling low or down-hearted and person experiencing less bothersome work limitations and social limitations were also associated with better adherence.

Conclusion: The results demonstrate that the majority of the respondents were adherent to their antiepileptic treatment. Increasing patient and carer knowledge about epilepsy, treatment options and the importance to adhere to treatment regimens may encourage the patients to become more adherent. Teaching patients self-management skills, life skills and education society in general about epilepsy can help persons with epilepsy be self-sufficient, find employment and feel less stigmatized.

P6.05

Effect of an intronic variant within Zinc finger protein 384 gene on pre-mRNA splicing in a Maltese family with osteoporosis

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Introduction: Osteoporosis is a skeletal disease with a strong genetic basis. A study on an extended Maltese family with a highly penetrant form of osteoporosis, revealed the presence of the rs146089604 variant (c.686+32G>A) in intron 7 of the Zinc finger protein 384 (*ZNF384*) gene, predicted to affect pre-messenger RNA (mRNA) splicing. The aim of this study was to assess the functional effect of the variant using an exon-trapping vector transfected in three human cell types.

Methods: The target DNA region harbouring G or A allele was inserted in the p.SPL3 vector, creating mini-gene constructs that were transfected in human kidney-derived cells (HEK-293) and two human osteoblasts-derived cells (SaOS-2 and h-FOB). Extracted mRNA was converted into complementary DNA (cDNA), amplified by PCR and sequenced to determine the transcript size and identify any splicing variants.

Results: Mini-gene construct with the alternative A allele lead to exon 8 and part of intron 8 to be retained, both of which were spliced off in the presence of the G allele. These results were observed for constructs transfected in the osteoblasts-derived cell lines. In HEK-293 cells, no difference in transcript size was seen for the G or A allele, suggesting different splicing mechanisms.

Conclusion: Observations may indicate that the *ZNF384* rs146089604 could be a causal variant contributing to osteoporosis. *ZNF384* transactivates type I collagen and matrix metalloproteinases, and suppresses bone morphogenic protein (BMP) and Wnt signalling resulting in reduced bone volume and strength. Thus, impaired *ZNF384* splicing could alter the protein's function affecting bone homeostasis.

P6.06

Assessing the satisfaction and expectations of rheumatology patients attending a dedicated biologic clinic

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Introduction: Biologic disease-modifying anti-rheumatic drugs have been a major breakthrough in the treatment of inflammatory arthritis. Providing timely monitoring to ensure continued efficacy and safety can be challenging. The availability of a dedicated biologic clinic may help meet these standards.

Methods: Forty-four patients on a biologic for over two years were interviewed about their degree of satisfaction regarding waiting times, education, involvement in decision-making and duration of consultations at this biologic clinic.

Results: Satisfaction with arthritis and biologic education before initiating treatment was 91% and 84% respectively, dropping to 76% and 81% respectively after treatment initiation. Eighty-four percent (84%) of patients reported being satisfied with their involvement in the decision to start and continue biologic therapy. Over 90% were satisfied with consultations lasting 15 minutes and 77.3% were satisfied with 6-monthly visits. Communication with the caring rheumatologist was the most valued source of education, followed by specialist nurse education, Internet resources and leaflets. Over 90% (95.4%) of patients reported to have rarely or never missed an appointment. Fifty-four percent (54%) of patients reported to have used the rheumatology advice line, with the greater majority being very satisfied with the service provided. Better arthritis education and the introduction of telephone consultations were amongst the unmet needs mentioned.

Conclusion: Continued education by the caring rheumatologist and specialist nurse is greatly valued. Patients attending this clinic were highly satisfied with the length and frequency of consultations. Nonetheless, a significant number suggested the need for telephone consultations, especially for stable patients after receiving proper education.

P6.07

An audit to evaluate local prescription guidelines (with respect to Donepezil and Memantine therapy) in patients diagnosed with Alzheimer's disease (AD)

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Introduction: Dementia is a neurodegenerative disease associated with a change in behaviour, impaired reasoning and cognition. Dementia contributes to 11.2 per cent of years lived with disability in people over 60 years. Locally, 6,071 individuals suffer from dementia (1.5% of the population). Alzheimer's disease (AD) accounts for 70% of dementia cases.

Methods: This was a prospective study. Questionnaires were distributed to consultant geriatricians, psychiatrists and neurologists (the only specialists who can prescribe anti-dementia treatment) asking them what their treatment of choice for mild to moderate and moderate to severe Alzheimer's disease (AD) was, and the reasons behind their choices. The drug options were; Donepezil only, Donepezil and Memantine or Memantine only.

Results: Sixteen questionnaires were collected; 8 psychiatrists, 6 geriatricians, and 2 neurologists (representing 60% of all local consultants). For mild-to-moderate AD, 94% answered with Donepezil only and 6% answered with a combination therapy; whilst for moderate to severe AD, 25% chose Donepezil only, 37.5% a combination, and 37.5% choosing Memantine only. When asked about whether they had ever prescribed a combination therapy for moderate to severe AD patients; 50% said they did (citing a delay in initialization (50%), improvement of behaviour (25%) and decrease in functional decline (25%)) whilst 50% said they never did (citing insufficient evidence (62.5%), increased costs (12.5%) and intolerable side effects (25%)).

Conclusion: There was a common consensus on the treatment of mild-moderate AD (with Donepezil only) but uncertainty over the treatment in moderate-severe AD remains, despite current new evidence suggesting superiority for combination therapy.

P6.08

Audit: acute kidney injury in older adults after hip fracture

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Introduction: Acute kidney injury (AKI) is defined by the RIFLE criteria into risk, injury, failure, loss of kidney function and end stage renal failure requiring dialysis. AKI is a common post-operative complication in older adults after hip fractures. The aim of this audit is to compare local practices with the National Institute for Health and Care Excellence (NICE) criteria.

Methods: Older adults above the age of 70 with proximal hip fractures on the orthopaedic wards at Mater Dei Hospital were included in the study. Data was collected over a 31 day period. Files were reviewed to check compliance with the NICE guidelines.

Results: Forty-seven (47) patients were included in the audit. Fifteen out of forty-seven (31.9%) patients had AKI. Three out of fifteen (20%) of these patients were at risk as per RIFLE criteria. Four out of fifteen (26.7%) of these patients had acute kidney injury as per RIFLE criteria. Seven out of fifteen (46.7%) of these patients had AKI as per RIFLE criteria. One out of fifteen (6.7%) of these patients had end stage renal failure as per RIFLE criteria. Causes varied from dehydration; urinary retention, hypotensive episode (secondary to blood loss amongst others); urinary tract infection, post-contrast. Management included intravenous fluids, treatment review and investigations. Five out of fifteen (33.3%) had ultrasound performed and fourteen out of fifteen (93.3%) had urinalysis performed. Treatment was appropriately reviewed and nephrologists involved in a timely manner.

Conclusion: AKI is a common complication in older adults post-op and there should be more awareness about its management amongst doctors.

P6.09

Transcranial magnetic stimulation (TMS) use to treat migraine and pain: a local study

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Introduction: Pain has many sources which limits one's quality of life. It is a risk factor for several physical and psychological conditions including suicide. This study looks at the efficacy of transcranial magnetic stimulation (TMS) to treat migraine and radiculopathic pain.

Methods: Forty-one (41) patients presented with migraine and pain (mainly of radicular origin). They were treated using a TMS pain protocol. Likert scale scores were used to determine the progression of symptoms in relation to the treatment (i.e. before, during and after treatment).

Results: For migraine: Immediate improvement within the first 2 sessions. For radiculopathic pain: Relief after a TMS treatment package although many variables influence outcome.

Conclusion: Based on our findings, TMS is a safe, effective and rapid non invasive intervention which can be a useful adjunct to treat pain in combination with pain specialists in the pain clinic.

P6.10

The medical profession, dealing with work stress and mental health problems, across the board

D. Cassar

Introduction: Medical professionals are able to adapt well in face of adversity, and are more resilient than other professional groups. Yet burnout is found in almost one in two doctors. It is associated with exhaustion, frustration, anger, and a sense of incompetence. Non-clinical issues at the place of work dominate the causes and cause secondary traumatic stress. Distress and fatigue lead to poor job performance and error with increased risk to patient safety. Deleterious effect influences doctors' physical and mental wellbeing, their families, colleagues, and teams. Of important note is the deep suffering, inappropriate guilt, anxiety, depression, use of alcohol and substances, and risk of suicide. Stressors include professional relationships, lack of senior level support, undermining behaviour, bullying, career transitions, career frustration, long hours of work, sleep deprivation, work and career pressure. Of concern is that most morbidity is hidden and untreated because of shame, stigma, fear of ridicule, and fear of effect on career. More important than increasing personal resilience is the targeting of the work environment. The author explores the development of a culture of work wellbeing, with awareness; advocacy for better conditions of work and career progression; intra and interprofessional harmony with common vision; motivation to seek adequate treatment, safe and confidential systems for reporting

unprofessional behaviour; and systems of management of unprofessional behaviour. The author further explores individual support systems including confidential points of reference, signposting to adequate confidential care outside the work environment, and one-on-one GP, Psychotherapist and/or Psychiatrist within an identified and trained group.

P6.11

Interprofessional learning between medical and physiotherapy students at the University of Malta: a pilot study

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Introduction: Interprofessional education (IPE) has the potential of contributing significantly to better-informed patient care. The divide in training between students of medicine and the health sciences at the University of Malta impairs communication and understanding, and sets up barriers by promoting preconceived unilateral assumptions about each other's roles and responsibilities in the clinical setting. The aim of this study was to examine how pre-clinical interprofessional interactions in the anatomy dissection laboratory are perceived by medical and physiotherapy students.

Methods: A team of 5 medical students provided 6 upper limb and 6 lower limb anatomy demonstration sessions to 83 physiotherapy students across the first three years of their course. Anatomical knowledge and student attitudes towards IPE were assessed with written tests and a Readiness for Interprofessional Education (RIPE) questionnaire, respectively, done both before and after IPE.

Results: Analysis of pre-intervention responses to the RIPE questionnaire showed that physiotherapy students had a positive perception of IPE and would welcome more such sessions into their course. Post-intervention RIPE responses showed an improvement in students' concepts of Teamwork and Collaboration (+0.15, p=0.02) and Positive Professional Identity (+0.20, p=0.01) in all years, among other points of focus.

Conclusion: This first-ever pilot study of peer-assisted interprofessional learning was well accepted by students in both faculties, potentially leading to improved cooperation between professions and more efficient services.

P6.12

Assessing factors influencing intraoperative body temperature during prosthetic joint surgery within laminar flow theatres

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Introduction: Perioperative hypothermia is recognised as a major factor in development of surgical site infections (SSI). Ambient temperature, anaesthetic drugs, intravenous and irrigation fluids influence the development of hypothermia intra-operatively.

Methods: We audited a sample of 53 patients requiring elective total knee/hip replacement and measured factors influencing perioperative body temperature. Warming devices, type of anaesthesia and duration of surgery were recorded for each operation. Patient's perception of body temperature was also recorded in the pre-operative phase. Data loggers were used to measure each operating room (OR) temperature every 15 minutes of each operation. Body temperature was recorded using oral digital thermometer on arrival to operating theatre department, after induction of anaesthesia and in recovery. Ethics approval was obtained from the hospital's ethics committee.

Results: The median patients' body temperature in the pre-operative phase was 36.5°C. This temperature dropped to a median of 35.5°C in the intra-operative phase and to 35.4°C in the post-operative phase. The lowest body temperature was recorded in the post-operative phase at 33.8°C. The median ambient OR temperature was 20°C with the lowest temperature recorded at 16.5°C. Patients with the shortest duration of surgery (<90 minutes) had the highest median temperature loss and those with surgery time longer than 150 minutes had least temperature loss. Further analysis of the relation between warming device, ambient temperature, duration of operation and type of anaesthesia will be presented.

Conclusion: Although the majority of patients entered the operating theatre department with a body temperature higher than 36°C, this fell significantly after induction of anaesthesia and continued to drop in spite of use of fluid warmers and active warming devices. Duration of operation seemed to be inversely related to the body temperature loss. Our study shows that more active management is required in our orthopaedic ORs to ensure perioperative hypothermia is prevented.

P6.13

Audit on the application and implementation of the tool for assessment of suicide risk: adolescent version (TASR-A)

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Introduction: Suicide is the second leading cause of death for adolescents, following motor vehicle accidents. According to the World Health Organisation, more than 1.2 million adolescents die from suicide every year. Patient safety is of paramount importance. The Tool for Assessment of Suicide Risk: Adolescent Version (TASR-A) is a semi-structured instrument which is a clinically useful tool to identify imminent suicide risk in depressed adolescents. It can be utilised to assess risk at baseline and throughout the management period. Furthermore, the TASR-A comprises the Kutcher Adolescent Depression Scale (KADS-6) which is a 6-item self-rating scale to aid with diagnosis and severity of depression of the adolescent. It has good reliability and validity, comparable to Beck's Depression Inventory, with sensitivity and specificity of 92% and 71% respectively.

Methods: This is a prospective audit where the TASR-A is being implemented in clinical practice at the Young People's Unit (YPU), ages twelve to eighteen years. Suicide

risk will be assessed using the TASR-A on admission, during on-call hours, during the pre-admission review and each ward round review, during hospitalisation.

Conclusion: The TASR provides an objective assessment of suicide risk which substantiates clinical judgement. With its implementation, patients who are of high risk to self will be identified and managed using the biopsychosocial patient model. Additionally, this objective tool will support doctors further in a medicolegal inquest.

Disclosures: Collaboration with Professor S. Kutcher who developed the TASR.

P6.14

The paceville project: adolescent exposure to drugs of addiction: long-term behavioural and neurochemical effects in long evans rats

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Introduction: The long-term effect of adolescence drug abuse on mood (anxiety traits) and associative learning in male and female adult rats was investigated.

Methods: The treated group (10 males and 10 females) received daily intraperitoneal (i.p.) treatment with nicotine (1 mg/kg) from 30 days after birth (P30) for 28 days, along with i.p. administration of WIN55,212-2 (1.2 mg/kg) and alcohol (3 g/kg) on two consecutive days per week. The control group (10 males and 10 females) received drug vehicle with similar timing. Behavioural testing was performed at P30, P60 and P90 on the elevated plus maze and hole-board and at >P90 in the operant conditioning chambers. Additionally, post-mortem monoamines and their metabolites concentrations of selected brain regions were analysed by HPLC coupled to electrochemical detection.

Results: Rats showed an increase in anxiety-like behaviour (anxiety) with age. Male rats in general showed higher anxiety than females at P60. The treatment enhanced this behaviour in males. Both treated sexes showed elevated anxiety. Only treated females showed learning impairment when compared to their controls and also to treated males. Treatment induced a number of changes in monoamine and their metabolites concentrations of various brain regions in both males and females.

Conclusion: Binge-like consumption of cannabinoids and alcohol together with abuse of tobacco caused significant acute and long-term effect on behaviour, learning capabilities and brain neurochemistry. Sex was a determining factor in the resulting effect of these drugs, as females were found to be more sensitive to the deleterious effect of this drug combination.

P6.15

L-lactate reduces ischemic white matter injury and modulates HCA1 oligodendrocyte expression in an in vivo mouse model of focal ischemia

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Introduction: L-lactate is a metabolite that is oxidized preferentially to glucose under conditions of high metabolic stress. The discovery and localization of the lactate receptor HCA1 in various brain regions suggests that lactate is additionally an important signaling molecule in the brain. Lactate is neuroprotective in various ischemia paradigms, reduces axonal injury in vitro and is avidly utilized by oligodendrocytes (OLs). The protective potential of L-lactate to reduce white matter (WM) injury in a mouse stroke model was investigated.

Methods: A single dose of L-lactate (250mg/kg-1) or vehicle was administered intraperitoneally shortly before or following a transient 60-minute middle cerebral artery occlusion (MCAO) in mice. Integrity of WM was assessed using histological and immunohistochemical methods at 24 hours and 7 days of reperfusion. Modulation of the lactate receptor HCA1 on WM OLs with or without L-lactate treatment was investigated by immunofluorescence.

Results: Treatment with L-lactate resulted in improved histological staining in affected WM, reduced ischemia-induced OL loss and attenuated apoptotic signaling in OLs compared to vehicle at acute and subacute stages. Further to previously reported neuronal expression, HCA1 was found to be localized on WM OLs. Ischemia elicited an increase in HCA1 fluorescence expression on WM OLs, particularly in regions proximal to the occluded artery. HCA1 expression was further amplified by exogenous L-lactate at acute and subacute stages.

Conclusion: These data suggest that protection by L-lactate extends beyond gray matter in a clinically relevant rodent focal ischemia model. Modulation of the HCA1 receptor on OLs presents a novel role for lactate signaling in WM which could be involved in OL injury and survival pathways.

P6.16

Role of the cannabinoid system in absence epilepsy

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Introduction: Absence epilepsy is a paediatric neurological condition characterised by recurrent generalised non-convulsive seizures. Currently, pharmacological intervention for the management of epilepsy aims to achieve total seizure control, and is sometimes successful. However, at present, there exists no medication to prevent epileptogenesis from occurring in the first place. Research has shown various key players in the regulation of neuronal hyperexcitability. Some highlighted neurotransmitters include monoamines,

serotonin, as well as endocannabinoids. Phyto- and synthetic-cannabinoids (CB), and endocannabinoids have shown to have anti-epileptic effects; however, their effects on comorbid memory impairment, anxiety and depression are not known.

Methods: The aim of this study is to investigate the effect of endocannabinoid neuronal systems on seizure control, development of depression and anxiety in the Genetic Absence Epilepsy Rat from Strasbourg (GAERS) and in their Non Epileptic Control (NEC) rats. EEG recording and behavioral tests such as hole board, elevated plus maze and forced swimming test will be used to evaluate the effect of cannabinoid compounds.

Results: This has been carried out by using low doses of the cannabinoid agonist WIN 55, 212-2s (WIN) at 2mg/kg IP, compared to its vehicle. The use of drugs blocking the cannabinoid receptor CB1-antagonist AM251 (1mg/kg IP) will also be investigated to verify whether WIN effects are mediated by this receptor.

Conclusion: We will provide evidence for CB dysfunction in this disease and identify potential targets that may, in the medium term, lead to novel anti-absence drugs.

P6.17

The European Audit of seizure management in hospitals: the local experience

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Introduction: Seizures remain a common important neurological presentation to all acute hospitals worldwide. The National Audit of Seizure Management in Hospitals (NASH) collected data on about 9000 patients presenting with seizures to over 150 hospitals in the UK, identifying an unacceptable variation in the quality of care. The European Audit of Seizure Management in Hospitals (EuroNASH) is currently being undertaken in a number of European countries, including Malta.

Methods: The aim of EuroNASH is to establish the first European benchmark for the management of seizures. Anonymous data was collected retrospectively on acute management, prior care and onward care for 50 patients who presented to Mater Dei with seizures between August 2016 and 2017, by reviewing the clinical notes. While the results from EuroNASH are yet to be published, we can compare local data with that from NASH.

Results: The median age was 47, and 60% were male, (NASH: median age 44, 57% male). 54% of Maltese patients and 61% of NASH patients had a known prior diagnosis of epilepsy (p=0.33). Of these, 63% of Maltese patients were seen by an epilepsy specialist during the previous year compared to only 37% of patients in the UK (p<0.05). Ninety-eight percent (98%) of our patients were reviewed by a specialist during admission or got early referral, compared to 53.9% of NASH patients (p<0.05). Ninety-four percent (94%) of Maltese patients were seen by a doctor within 4 hours of presentation to the emergency

department. All (100%) the Maltese patients presenting with a first ever seizure underwent CT scanning, compared to only 55.8% of NASH. Sixty-three percent (63%) of Maltese patients with known epilepsy got a CT scan compared to 22.4% of patients from NASH ($p < 0.05$). There was poor documentation of important parameters locally such as GCS (74% vs 90% $p < 0.05$) and temperature (76% vs 92% $p < 0.05$).

Conclusion: Our patients benefit from better access to a neurology specialist, as well as imaging investigations when indicated. Better documentation of parameters on admission is a potential area of improvement.

P6.18

In silico design and optimisation of Oleuropein and Lisinopril analogs as MMP-9 receptor modulators for the management of breast cancer and Alzheimer's disease

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Introduction: Matrix metalloprotease-9 (MMP-9) drives malignant cell proliferation in breast cancer and drives tau oligomers formation in Alzheimer's Disease. Oleuropein and lisinopril have been shown to act as antagonists at the MMP-9 ligand binding pocket (LBP). Given their diverse structures, both scaffolds were used to probe the MMP-9_LBP in order to identify analogs through virtual screening (VS) and to design structures de novo capable of MMP-9 modulation.

Methods: Pdb crystallographic deposition 2OVZ describing the MMP-9:phosphinate inhibitor complex was used as template. Apo MMP-9 was modelled, lisinopril and oleuropein docked, conformational analysis performed and optimal bound conformers of each found. Each selected conformer was submitted to ViCi[®] database for analog identification. A consensus pharmacophore was also generated using the phosphinate inhibitor and the optimal lisinopril and oleuropein conformers. This was submitted to the ZINCPharmer[®] database for analog identification. A protomol (idealised LBP) was modelled and Lipinski Rule compliant hits identified, docked into the protomol and ranked by affinity. LBP maps of MMP-9 circumscribed by the optimal conformers of lisinopril and oleuropein were generated. Seed structures were modelled, planted into each LBP map and de novo growth sustained.

Results: One-thousand one-hundred and forty-four (1144) and 610 Lipinski Rule compliant molecules were identified through the VS and de novo approaches respectively. Their pharmacophores were analysed and compared. The optimal structures in terms of combined affinity and physicochemical properties were identified and earmarked for further computational and in vitro validation.

Conclusion: This study supports the hypothesis that both the oleuropein and lisinopril scaffolds are suitable for the design and identification of high efficiency MMP-9 modulators.

P6.19

Audit about intravenous fluids prescription on acute orthopaedic wards.

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Introduction: Intravenous fluids are commonly used in pre-operative, peri-operative and post-operative periods. Prescription of such fluids should be included on the treatment charts. To identify the use of intravenous fluids, the indication, prescription and appropriate monitoring compared to the National Institute for Health and Care Excellence.

Methods: Patients on the orthopaedic ward were included by convenient sampling. Case notes and treatment charts were evaluated.

Results: Sixty-two (62) patients were included in the audit. Five out of sixty-two (8.1%) patients had no fluids prescribed. Twenty-six out of sixty-two (41.9%) patients had fluids given but not prescribed at any point during the admission. Eleven out of sixty-two (17.7%) patients had fluids given and prescribed at times; and others given but not prescribed. Twenty out of sixty-two (32.3%) patients had fluids given and appropriately prescribed. Reasons for fluid prescription varied between pre-operative, peri-operative and post-operative reasons, acute kidney injuries, hypotension, dehydration and hyponatraemia. Fourteen out of fifty-eight (24.1%) did not have appropriate monitoring during their stay.

Conclusion: Limitation of the audit is that convenient sampling was used a small number of patients were included. While indications for fluid prescription is easily identified in the files; and renal function is appropriately monitored; not the same may be said about the actual prescription on the treatment charts. Increased education about fluid prescription would allow better interdisciplinary communication and better patient safety outcome.

P6.20

The Impact of a senior clinical pharmacist's interventions on patient care: a single-centre prospective national health service study across neurology and nephrology

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Introduction: Clinical pharmacy interventions have been shown to optimise therapeutic outcomes for patients in conjunction with other health-care professionals. The percentage of hospital pharmacists who regularly log their interventions varies from 50-72% across countries with no difference by specialty. Clinical pharmacists with postgraduate qualifications seem to document significantly more interventions compared to those without and they contribute more interventions.

Aim: To quantitatively measure the impact of a senior clinical pharmacist's contribution to consultant-led neurology and nephrology ward rounds.

Methods: This was a prospective single-centre study conducted in a European tertiary care centre. HanDBase Desktop 3.0 was used to document the interventions carried out during a 12-month period by a single senior clinical pharmacist with >10 years experience in the field and post-graduate subspecialty qualifications. All interventions were logged in real-time and on site (during the ward round) and subsequently batch inputted into the information governance-secure database on a daily basis.

Results: Six-thousand three-hundred and ninety (6,390) drug therapy problems were discovered. Four-thousand seven-hundred and sixty-three (4,763) treatment reviews were conducted. One-thousand four-hundred sixty-four (1,464) treatment clarification procedures were performed of which 26% dealt with incomplete treatment and 21% dealt with unnecessary treatment. Collectively these interventions benefited the quality of clinical care delivered to a total of 62% patients attending the. A significant number of interventions resulted in the avoidance of patient harm (19% prescribing errors, 1% missed treatment, 1% administration error, 0% contraindications).

Conclusion: The interventions performed by a senior clinical pharmacist during consultant-led nephrology and neurology ward rounds substantially benefit patient care and importantly, they prevent patient harm making the case for each National Health Service framework to integrate senior clinical pharmacists into the multi-disciplinary care team.

P6.21

Temporal characteristics of behaviour in Wistar, NEC and GAERS rats tested in the Hole-Board apparatus

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Introduction: The "Genetic Absence Epilepsy Rats from Strasbourg" (GAERS), derived from the Wistar strain, is an essential animal model to study absence seizures (ASs). In the present study we describe and compare the behavioural characteristics of Wistars, "Non Epileptic Controls" (NEC) and GAERS in the Hole-Board apparatus. The Hole-Board is a very well-known tool to study locomotion, exploration and anxiety-related behaviour in freely moving rodents. We utilize both Wistars and NEC as controls, to be able to better describe the results obtained in GAERS subjects.

Methods: Subjects included 15 male rats from each strain of rats, namely Wistar, NEC and GAERS. Quantitative and multivariate approaches were applied. Multivariate T-pattern analysis was carried out to investigate the existence of possible significant relationships among the events in the course of time.

Results: Quantitative analysis shows a clear-cut and significantly higher anxiety level both in NEC and GAERS rats, if compared to Wistar subjects. The analysis of the T-patterns shows that the behaviour of NEC and Wistar is in some extent similar, whereas GAERS exhibit a different behaviour both in terms of complexity (i.e. longer T-patterns) and variability (i.e. more different T-patterns), which is an indicator of an increased anxiety level.

Conclusion: We confirmed that GAERS rats show increased anxiety-like behaviour and highlight the importance to include Wistar rats as external control.

P6.22

Role of serotonin 2C receptor agonist Lorcaserin in absence epilepsy

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Introduction: The aim of this study is to evaluate the role of lorcaserin, an FDA-approved drug for obesity, in neuromodulation of serotonin 2C receptors and its effects on absence seizures and neuropsychiatric sequelae in Generalized Absence Epilepsy Rats from Strasbourg (GAERS) and Non-Epileptic Control (NEC) rats.

Methods: A total of 30 GAERS rats and 30 NEC rats were injected with either vehicle (saline) or lorcaserin (3 mg/kg) prior to undergoing behavioural testing, namely, the hole board test, elevated plus maze test and the forced swimming test. The rats' behaviour is analysed using the programme Observer 2.0 by Noldus, thus allowing for a quantifiable comparative statistical analysis of behaviour between GAERS vs NEC rats and lorcaserin treatment vs saline treatment.

Results: We hypothesize that through the potentiation of 5-HT_{2C} receptor signalling, it is possible to reduce symptoms related to epilepsy, such as anhedonia, depression, anxiety, and memory impairment as well as stopping the absence seizure. The results of these behavioural assessments on this animal model of absence epilepsy will be quantified and the presence of a statistical significance between GAERS rats and NEC rats will be ascertained..

Conclusion: We will provide evidence as to whether lorcaserin plays a role on comorbid neuropsychiatric symptoms of absence epilepsy.

P6.23

Effect of lorcaserin, a 5-HT_{2c/2a} receptor agonist, on dopaminergic systems: an electrophysiological and neurochemical study in rats

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Introduction: Serotonin-2C Receptors (5-HT_{2CRs}) are involved in numerous physiological and pathological functions, such as energy balance, motor control,

depression, and addiction. Some of these function are regulated by Serotonin (5-HT) via modulation of dopamine (DA) neuronal activity. Lorcaserin is a selective 5-HT_{2C} receptor agonist that has been approved by the Food and Drug Administration (FDA) as a treatment for obesity. The aim of this study is to understand how this drug influences the DA neuronal activity in the ventral tegmental area (VTA) and in the substantia nigra pars compacta (SNc) and DA neurochemistry in different brain regions.

Methods: The neuronal activity of single DA cells was recorded by standard extracellular recordings from the VTA and the SNc of anaesthetised SD rats. The changes in the levels of DA and its metabolites induced by lorcaserin were determined by HPLC system with coulometric detection from brain tissue.

Results: Treatment with lorcaserin i.v. (5 to 640 µg/kg) and i.p. (0.3, 3 mg/kg) significantly affected firing rate and burst firing of VTA and SNc DA neurons. Lorcaserin (0.3, 3 mg/kg) also modified the DA content in different brain areas, including striatum and nucleus accumbens.

Conclusion: Our data show that the selective 5-HT_{2C} agonist lorcaserin mediates a complex modulatory action on DA system and it might be indicated for the treatment of DA dysfunctions, such as schizophrenia and addiction.

P6.24

Risk factors for adolescents developing substance use disorders: what should our prevention programs be targeting?

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Introduction: This review seeks to identify the main risk factors and high risk groups of adolescents with substance use disorders (SUD). Furthermore it presents the epidemiological data on SUDs in Malta and discusses possible ways of tackling prevention, whilst offering suggestions based seminal studies from published literature to service developers. This presentation contains data with relevance to the Maltese readers given the current topical debate on legislation of illicit substances in Malta.

Methods: The authors chose to focus their research on adolescents since it is a developmental period of high risk, more than the half individuals with SUDs identify that the problem began before the age of 20. Eighteen percent (18%) of adolescents in Europe have reported a lifetime use of illicit drugs, the prevalence rates in Malta are similar.

Results: In this presentation, the authors bring to light the risk factors, heritable factors; familial environmental, phenotypes and endophenotypes which have most evidence from the published research, to be associated with the development of SUDs. Furthermore there is a description of the highest risk groups for developing SUDs.

Conclusion: Lastly this presentation will give an overview on the best evidence for tackling prevention in this age group, and to encourage the government to focus their budget on prevention strategies which improve a nation's mental well being. It's estimated that more than half of the young people with SUDs are not provided with the appropriate information to help with prevention

and furthermore treatment. For every dollar invested in addiction treatment, 3-5 euros are saved in drug related crime, theft and criminal justice costs.

P6.25

Determining the adequate staffing levels to assure quality of patient care

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Introduction: Calculating staffing needs in physiotherapy is a complex task since the process is reflective of the caseload or number of cases of varying severity and case mix. The caseload has also been described to be inversely related to complexity requiring specialty skills, overall skill mix and expected quality standards to be factored in. The purpose of this study was to calculate the adequate staffing levels required to provide safe and effective physiotherapy services at ward and outpatient level at Mater Dei Hospital (MDH).

Methods: There are various models available to assist in staffing level quantification each with their own set of limitations. Generic staffing determination utilizing a procedure-based approach is founded on the underlying principle relating to the work that can be dealt with by 1.0 whole time equivalent (wte). The workload of each physiotherapist working in the different hospital areas was therefore analyzed. The total number of hours required to carry out the daily routines identified was calculated and converted to the number of whole time equivalent (wte) staff required to carry out these tasks. This would determine whether the staffing levels in place could meet the current volume.

Results: The model and methodology adopted in this exercise highlighted the need of an additional six (6) wte Physiotherapists to complement the current staffing levels and workload at MDH.

Conclusion: Caseload management is an ongoing issue of concern. The methodology utilised in this study assists in workforce planning to meet current and future hospital needs and quantifies the level of input required in the different areas.

P7.01

Socioeconomic status and its impact on the prevalence of severe ADHD in the Maltese Islands

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Introduction: ADHD is a condition associated with hyperactivity, impulsivity and reduced attention, possibly leading to various impairments, and accident-prone behaviour. Various studies have demonstrated the implication of both genetic and environmental factors, such as a low socioeconomic status. The islands of Malta have traditionally been divided for statistical purposes into 6 districts, with some of the districts traditionally attributed to low socioeconomic demographics. The main aim of this

study was to investigate whether higher prevalence rates of ADHD are present in districts classically associated with a low socioeconomic status.

Methods: All ADHD cases aged 0-18 attending governmental clinics having a diagnosis sufficient enough as to warrant pharmacotherapy were identified. Information related to the demographic data of the Maltese islands was obtained from the National census carried out in 2011. The chi-squared test was performed in order to assess whether there is significant difference between the prevalence of severe ADHD cases requiring medication. Using the Spearman test, it was further evaluated whether correlation exists between the prevalence of severe ADHD per district and a number of socioeconomic status variables.

Results: A significant difference ($p < 0.0001$) in the point prevalence of ADHD between the 6 districts was noted, with higher rates occurring in the harbour districts. Though not statistically significant, a positive correlation has also been demonstrated between ADHD prevalence and a number of socioeconomic variables, which included rate of smoking ($p = 0.111$), number of people classified as at-risk-of-poverty per district ($p = 0.397$), and number of people with no schooling per district ($p = 0.156$). The overall point prevalence obtained was 0.85, a value which is less than the average prevalence noted worldwide.

Conclusion: The overall point prevalence obtained is potentially an underestimate, since this study did not take into consideration confirmed cases off pharmacological treatment and cases seen privately. Rates of ADHD were noticed to be higher in districts that are classically associated with low socioeconomic status. Though not achieving a statistically significant result, positive correlations were demonstrated between prevalence of ADHD on treatment in those aged 0-18 and a number of socioeconomic variables

P7.02

Pyridine derivative causes cell death in human neuroblastoma SH-SY5Y cells

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Introduction: Nervous system tumours, including brain tumours are a varied group of neoplasms affecting both children and adults, being among the cancers with the worst outcome. Neuroblastoma is the most common solid extra-cranial paediatric tumour, accounting for around 15% of paediatric cancer deaths. Despite multimodal treatment including tumour resection, radiation and chemotherapy, patients often show relapse. Hence the purpose of this study is to find improved therapy options and outcomes for patients diagnosed with this debilitating neoplasm.

Methods: Human neuroblastoma SH-SY5Y cells were treated with different chemicals from the STEM-CHEM COST consortium database for 14 days. Morphology, cell numbers and Acetylcholinesterase (AChE) levels were evaluated. Neurite elongation, decreased cell numbers and increased expression of AChE are markers of differentiation.

Results: Already after 7 days, a pyridine derivative from among the chemicals tested caused cell death at all concentrations tested: 0.1 μ M, 1 μ M and 10 μ M.

Conclusion: These results suggest that the chemical has potential as a chemotherapeutic drug. Repeated tests at earlier time points will give further information on the chemical's method of action. Also, further cytotoxicity tests on lymphocytes and cord blood will be able to confirm the chemical's suitability as a chemotherapeutic drug.

Disclosures: Funding for this project has been provided by ALIVE Charity Foundation Malta through the RIDT.

P7.03

The duration of breastfeeding in babies born at Gozo General Hospital - 2016

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Introduction: The World Health Organization advocates exclusive breastfeeding for the initial six months, followed by continued breastfeeding complemented with adequate food for up to two years or beyond. Over the years there has been a substantial effort to promote breastfeeding. A re-audit regarding the duration of breastfeeding at Gozo General Hospital, carried out initially in 2010, was carried out during 2016.

Methods: Data was collected prospectively from 27/02/16 to 30/09/16. Of the 158 mothers, 92 were identified to have started breastfeeding and were followed-up. A questionnaire was completed at discharge and post-delivery at 3 weeks, 6 weeks and 3 months. Multiple variables that could affect the duration of breastfeeding were analyzed. Fisher's exact test was used to test for significance.

Results: In 2016, 58% were breastfeeding at discharge compared to 66% in 2010. This decreased subsequently to 43% at 3 weeks, 35% at 6 weeks and 30% at 3 months. This evidenced a minor decline in breastfeeding rates as compared to 2010, rates being 48%, 40% and 33% consecutively. Giving 3 or more formula feeds during hospital stay was associated with early stopping of breastfeeding. Using a breast-pump or pacifier and the mode of delivery, were not associated with early stopping. The commonest reason for stopping was that the baby was 'too hungry or cried too much'.

Conclusion: This evidenced the need to implement further measures to promote breastfeeding and help mothers continue breastfeeding once it is started. These include the introduction of breastfeeding walk-in-clinic and workplace incentives. Popular incentives, including antenatal classes and discharge-liaison midwives should be strengthened.

P7.04

Comparing the management of cases presenting at the Child and adolescent psychiatric emergency service (CAPES) between the first 3 months and a later 3 month period of its operation

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Introduction: CAPES is a consultation emergency service for patients, their families and care givers who suffer from an acute mental health problem. It was established in June 2016 and is run from the emergency department of Mater dei hospital. The aims of this audit were to investigate how the cases presenting in the first 3 months were managed and compared to the management modality of the cases presenting in a 3 month period one year later.

Methods: The data used was compiled in a logbook by the registered mental health nurse practicing at CAPES. Information collected was the name, surname, ID-card number, gender and age, presenting symptom and management type: Whether the patient was admitted to the psychiatric ward at MDH or admitted at the young person's unit of Mount Carmel hospital, whether they were discharged with no follow up or with follow up.

Results: The number of cases presenting at CAPES between the first cohort and the second cohort of patients audited increased by 24.6%. Most of these cases were referred from schools. Male patients presented slightly earlier in life than females. The most common presenting symptom in the 1st cohort was aggressive behavior whereas in the 2nd cohort it was suicidal ideation. It was noted that about half the cases were referred to CYPS.

Conclusion: The increasing number of cases referred to CYPS raises the question whether CAPES is functioning efficiently. As it stands CAPES is not functioning within its full capacity due to the lack of services it provides; it lack a social worker and psychologist. In fact it refers patients to access other services when it could make these services available within its realm

P7.05

Children who get pregnant - an insight on a Maltese cohort

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Introduction: Pregnancy is a life changing event, especially in the paediatric age group. Such pregnancies are complex, involving medical and psychological complications on the patient. Our objective was to investigate the obstetric and social variables that impact on pregnancy in the paediatric population.

Methods: A retrospective study involving a cohort of 66 patients was studied. All the patients aged 16 years or under at booking between January 2014 and December 2016 were included. Variables of interest included gestational age at booking, number of ante-natal visits and antenatal complications. In addition to the obstetrics

related factors, information on social support and level of education was also recorded.

Results: The average patient was 15.45 years old with the youngest patient aged 13 years. The mode was 15 years. The national average maternal age for 2014-2016 was 30 years. The average gestational age at booking was 16.45 weeks, which is considered as late booking in Malta. The average gestational age at delivery was 39 weeks. During our study period, 87.8% of births were delivered as a normal vertex delivery, 3% were delivered as assisted vaginal delivery and 9.1% by emergency or elective caesarean section. When comparing the above data with the national average for 2014-2016, one can notice a significantly higher rate of delivery by caesarean section in the latter, as this reaches 32%. There were 22.7% of patients who smoke which is significantly higher than the national average of 7.4%, possibly due to a higher prevalence of dangerous habits in the age group (<16 yrs) under study, irrelevant of pregnancy. Of all the vaginal deliveries, 50% of the patients sustained a perineal tear or an episiotomy. This was found to be of statistical significance ($p < 0.05$) when compared to a national average rate of 65.03%.

Conclusion: Pregnancies in the paediatric population are on the decline with the increased awareness on sexual education and contraceptive use, however, the present rates still warrant concern.

P7.06

Delaying fluid administration in paediatric diabetic ketoacidosis: does it matter?

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Introduction: The first step of treatment for diabetic ketoacidosis (DKA) involves fluids. A recent local audit showed that fluids were only started within one hour from presentation in 20% (12/60) of children with DKA. This study aims to assess whether delays in fluid administration affect the patients' condition at time of starting fluids.

Methods: Children presenting to the paediatric emergency department at Mater Dei Hospital between 2008 to 2017 with DKA were identified in the initial audit. This study assessed for any change in baseline clinical and biochemical parameters at presentation and at time of fluid administration for those children in whom fluids were delayed beyond one hour from presentation to hospital. Paired t-test was used to assess for significance.

Results: Forty-six children were included; median (interquartile range) time to fluids was 111.5 (83, 160.8) minutes. The only significant change from presentation to starting treatment was an increase in respiratory rate (RR) from a mean of 26 to 33.6 per minute ($p=0.007$). There were no significant changes in temperature, heart rate, capillary refill time, Glasgow Coma Scale, blood pressure, blood glucose, pH, bicarbonate, base deficit, or electrolyte levels. Documentation was incomplete for most parameters; in fact, urea and creatinine could not be analysed.

Conclusion: This study demonstrated a significant rise in RR for paediatric DKA patients in whom fluid administration was delayed beyond one hour from

presentation. However, patient numbers are small and clinical relevance is not known, especially since RR is not a known risk factor for DKA severity or cerebral oedema.

P7.07

'Kids Save Lives': does this apply to Malta?

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Introduction: Children have been shown to be able to perform effective cardiopulmonary resuscitation (CPR) if old enough to carry out good chest compressions. The Kids Save Lives Campaign was launched by the European Resuscitation Council (ERC) in 2015, with the aim of promoting CPR in schoolchildren at a national level. To-date, 5 European countries have adopted this policy with others, including Malta, working to implement this initiative.

Methods: Since 2017, Malta, through the Malta Resuscitation Council (MRC), has embarked on a programme of CPR-AED training for teachers based on the ERC BLS-AED course. These, in turn, have created a module for training of school children. Both Ministries of Education and Health had been asked to endorse and support the initiative.

Results: All equipment including consumables required for this training has been made available to the Health and Safety Unit, Division of Education, and sponsored by the MRC. Both Ministers of Health and Education have endorsed the 'Kids Save Lives' Campaign, and have supported the ERC's initiative to place this item on the WHO agenda. To-date, >15 teachers are trained in CPR-AED and have trained >200 schoolchildren. These have been given an MRC-approved certificate of completion.

Conclusion: The Kids Save Lives campaign is up and running in Malta, but more work is required to increase the number of school children trained in CPR and, certainly, to include CPR on the National Curriculum of Education.

P7.08

Measles in Malta, are health care workers at risk?

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Introduction: Following the fraudulent publication of a possible link between the measles, mumps and rubella (MMR) vaccine and autism, the uptake of this vaccine has decreased in several developed countries. This has resulted in the current ongoing outbreaks of measles, a highly contagious illness characterised by fever, coryza, conjunctivitis and rash. In countries like Malta, where measles relatively well controlled, imported cases may be challenging to diagnose and may risk spreading to health care workers and to unvaccinated people. We highlight the risk posed by 2 cases of measles presenting to the Accident and Emergency department at Mater Dei Hospital. A 14 and 16 year old sister and brother from Russia presented to

hospital with malaise, lethargy, sore throat, fever and rash. None of them had been immunised with MMR vaccine. Their siblings in Russia were unwell with measles. Both were confirmed to have measles, the girl from a positive salivary and blood measles Ig M and the boy from a positive measles PCR on a blood sample. All exposed healthcare staff was assessed to determine their risk of developing measles and prevent transmission to others. The risk of hospital personnel to acquire measles is around thirteen times higher than that of the general population. All health care providers should be assessed to ensure they are protected against measles and prevent hospital outbreaks.

Conclusion: All health care providers should be assessed to ensure they are protected against measles and prevent hospital outbreaks.

P7.09

Transcutaneous bilirubinometry – an accurate alternative?

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Introduction: Babies are frequently referred to the paediatric emergency department from the breastfeeding clinic and community discharge liaison service with jaundice as indicated by high transcutaneous bilirubin (TCB) readings measured using transcutaneous bilirubinometry. Serum bilirubin (SEB) testing is then performed in the emergency department and the need for admission for phototherapy decided based upon on SEB. If there is strict correlation between these modes of bilirubin measurement, there would be no need to verify TCB with SEB levels in cases where bilirubin is clearly above cut-off, thus reducing hospital waiting time, costs and time to starting treatment.

Objectives: To establish whether TCB is a reliable screening test for neonatal jaundice necessitating phototherapy based on the relationship between TCB and SEB in patients in Malta.

Methods: Neonates referred from the breastfeeding clinic to the paediatric emergency department with raised TCB over five months (June-October 2017) were included. Data was obtained from the breastfeeding clinic, local delivery suite and iSOFT clinical database, and interpreted using in-built data analysis tools and custom-made data analysis spreadsheets on Microsoft Excel.

Results: There was a significant difference between the two groups, mean TCB being significantly greater than SEB ($t=2.32$, $p=0.04$). However, TCB occasionally also under-read bilirubin levels.

Conclusion: These findings differ from results of similar studies conducted in other centres. Given the significant difference between TCB and SEB, it is recommended that baseline SEB levels continue to be repeated in the Emergency Department prior to establishing the need for phototherapy in neonatal jaundice.

P7.10

Clinical work-up and neuroimaging in paediatric patients with Neurofibromatosis (NF)

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Introduction: Type-1 NF is a neurocutaneous syndrome arising from mutations in chromosome 17q11.2. The UK Neurofibromatosis Association Clinical Advisory Board have specified guidelines for clinical assessment of children with NF-1. We reviewed our local practice to assess compliance to existing recommendations and to highlight the distinctive features of our population.

Methods: Patients were identified through a paediatrics neurofibromatosis register. Data was collected from the patients' clinical notes, Radiological Information System (RIS) and via iSoft Clinical Manager. Demographics, genetic results, clinical follow-up, and neuroimages were recorded.

Results: Twenty-nine patients were included in the study. The mean age at diagnosis was 2.3 years. Thirteen patients had a positive family history. Fourteen patients underwent genetic testing, with mutations in the *NF1* gene identified in 11 patients (79%). 10/15 (67%) patients who did not undergo genetic testing were known to have a family history. 70% of patients were seen at least annually by a paediatrician. Only 57.1% of children who were diagnosed before age 7 were seen annually by an ophthalmologist. All 29 patients had MR imaging at some stage of their follow-up. The commonest MRI findings were white matter hyperintensities ($n=10$), optic gliomas ($n=8$) and hamartomas ($n=4$). Six patients had normal scans.

Conclusion: We note a particularly high incidence of optic gliomas in our NF1 patients. Although our numbers are small, this observation should prompt further research into identifying relevant mutations. Patient follow-up should be systematic, timely and consistent hence we propose a fillable patient form that includes diagnostic criteria and checkpoints for review and appropriate referral.

P7.11

Congenital anomalies of the kidney and urinary tract – interplay between genetic and environmental hits

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Introduction: Congenital anomalies of the kidney and urinary tract (CAKUT) are the commonest cause of chronic/end-stage kidney disease in children. Most cases are sporadic but familial clustering strongly suggests a genetic predisposition. Environmental factors including maternal diabetes, enalapril, alcohol and prematurity are thought to play a role. The aim was to screen first-degree relatives of index cases for asymptomatic renal anomalies, identify any common antenatal environmental factors, and look for evidence of proteinuria in all cases.

Methods: Participants included families of the first 10 consecutive children with CAKUT whose data was entered

into the Malta BioBank against written informed consent. Ethics approval was obtained from the University of Malta Research Ethics Committee. Parents and siblings were invited for an ultrasound and to submit a urine/blood/buccal cell sample for subsequent biochemical and genetic analysis. Urine dipstick, urine protein: creatinine ratio (UPUC) was performed and a questionnaire on maternal health in pregnancy was filled.

Results: Three of 26 (12%) ultrasounds showed a renal anomaly. Six (23%) had incidental findings. The questionnaire did not reveal any notable findings regarding medications, disease, infections, diet, work, smoking or alcohol intake. 34/37 (89%) had a normal UPUC which was significantly higher in index cases ($p=0.013$).

Conclusion: Twelve percent of relatives of index patients had evidence of CAKUT. No environmental factors were identified but the sample size was small. The higher degree of proteinuria in index cases, although still within the norm, suggests the presence of urinary proteins which might be used as biomarkers in CAKUT.

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P7.12

Genotype and phenotype in congenital anomalies of the kidney and urinary tract

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Introduction: Congenital anomalies of the kidney and urinary tract (CAKUT) are individually rare birth defects that collectively represent the commonest cause of kidney failure in children. In most patients the etiology of CAKUT remains to be identified, but an increasing number of studies have implicated genetic factors in the pathogenesis of renal anomalies. The aim of this study was to characterise the genetic causes of CAKUT in the Maltese population.

Methods: Ten samples of unrelated patients from the kidney disease sample collection at the Malta BioBank were analysed by whole-genome sequencing at Complete Genomics using the DNA nanoarray platform. Interpretation of the single nucleotide variants, and short insertions and deletions detected in the exons of 96 genes was sought in the first instance. The genes were selected based on their implication in non-syndromic CAKUT and participation in kidney development. Rare variants previously reported to be causative of CAKUT or predicted to be damaging by *in silico* tools were prioritized and confirmed by Sanger sequencing.

Results: Nine candidate variants were identified in *DSTYK*, *FRAS1*, *ITGA3*, *LAMA5*, *NPNT*, and *TRAP1* in

seven of the 10 patients. No variants of interest were found in *HNFB* and *PAX2*—two genes that are initially screened in molecular diagnostics.

Conclusion: CAKUT is a complex disorder. In addition to encompassing a broad phenotypic spectrum, it is also genetically heterogenous. Segregation data will provide stronger evidence on causality and mode of inheritance of the variants identified.

Disclosures: This research has received funding from LifeCycle (Malta) Foundation through the University of Malta Research Trust (RIDT), and the Endeavour Scholarships Scheme (Malta). The scholarship is part-financed by the European Union - European Social Fund (ESF)

P7.13

Follow-up care of late-preterm infants at Mater Dei Hospital

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Introduction: Evidence suggests that both late preterm and low birth weight infants experience an increase in morbidity and mortality. These children experience a broad spectrum of growth, health, and developmental issues. While very preterm babies are often recognised as being at risk for many co-morbidities and followed-up closely the same is often not offered for late-preterm infants.

Methods: Late preterm was defined as beginning from 34 0/7 and ending 36 6/7 weeks' gestation. The World Health Organization definition for low birth weight of 2,499g or less was used. These two criteria were selected for and all babies born within the two year of period 1st January 2015 to 31st December 2016 were noted. The number of children's outpatients' appointments scheduled for these individuals within a thirty-day period postnatally was then explored.

Results: The follow up appointments assigned for infants who fell into either one or both of the criteria for late preterm or low birth weight ranged between 16% to 20% with the late preterm group being the least group being followed up and low birth weight babies being followed up the most.

Conclusion: Given that these factors influence morbidity and mortality, consideration should be taken as to whether they alone should be enough to influence the scheduling of outpatients' appointment within a month of birth.

P7.14

Vitamin D levels in cerebral palsy patients in Malta

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Introduction: Cerebral palsy (CP) patients are at an increased risk of Vitamin D deficiency especially those with a more severe type of CP in view of poor light exposure, non-ambulatory nature, anticonvulsant use and feeding difficulties. The aim of this study was to assess current screening practice for Vitamin D deficiency in children with CP in Malta and in the adult CP group.

Methods: Data was collected as part of the national CP register. Patients' electronic results were reviewed to check whether Vitamin D levels had been checked, and if no whether the levels were adequate, insufficient or deficient. Their gross motor functional classification system (GMFCS) level was also noted.

Results: A total of 98 children below the age of 16 with CP were included in this study; 54% had their Vitamin D levels checked. 39.6% of those checked had normal Vitamin D levels (30–100 ng/mL), 39.6% had insufficient levels (20–29 ng/mL) and 20.8% had Vitamin D deficiency (<20 ng/mL). From those whose levels were not checked 46.7% had a GMFCS of I, 26.7% had a GMFCS of II, 6.6% were GMFCS III, 15.5% GMFCS IV and 4.4% GMFCS V. 57 adult patients born before after 1988 were included in this study. Only 22.8% had their Vitamin D levels checked. 54% of them had normal Vitamin D levels, 15.3% had insufficient levels and 30.7% had Vitamin D deficiency (<20 ng/mL).

Conclusion: Screening for Vitamin D deficiency in CP patients needs to improve.

P7.15

Transport of critically ill newborn infants via commercial airline

J. Martic

Introduction: Transport medicine is recognized as a specialist area of clinical practice. The primary objective of this study was to describe transport of critically ill infants via commercial national airline: a modus operandi that is unique to Malta. This airtransport of high risk and critically ill infants requires skilled personnel and specialized equipment.

Methods: All critically ill infants who were transferred from Malta to overseas from 1st of January 2012 till 31st of December 2016 were identified in our transport database.

Results: A total number of 876 paediatric patients were referred for specialist care overseas, mostly to London over a period of 5 years. Eighty-one (9.2%) were critically ill newborn infants required specialist care in tertiary care centers. Seventy-six (93.8 %) of these were neonates with congenital heart disease required an urgent cardiac surgery. The other five patients had metabolic disease, isolated fetal ascites, taft enteropathy, VACTERL syndrome and congenital spinal tumor. Two babies required resuscitation during the transport due to deterioration of medical condition. Adverse event was recorded in one patient and was related to medication. All patients survived the transport.

Conclusion: Transport of critically ill newborns can be safely performed via commercial airlines. It is an alternative in particular clinical and geographical circumstances for infants who would require transport with airambulance

P7.16

Open reduction of extension- type supracondylar humeral fractures in children: which approach?

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Introduction: Displaced extension- type supracondylar humeral fractures in children are managed by closed reduction and percutaneous pinning. An open reduction is indicated if a closed reduction cannot be obtained, usually due to soft tissue interposition, or if neurovascular structures are involved. Various approaches are described. We have carried out a meta-analysis of the orthopaedic literature to assess the outcomes and complications of the different surgical approaches.

Methods: An electronic search of EMBASE, Medline, PubMed, ProQuest, Web of Science, the Cochrane library, Google Scholar and Europe PMC was performed. Nine hundred and seventy articles were identified and seven were included. The cosmetic and functional outcome and overall assessment of each approach was compared using Flynn's criteria and assessed for statistical significance using Fisher's exact test.

Results: Anterior, posterior, medial, lateral or combined medial and lateral approaches are described. The medial approach gave excellent cosmetic results in 100% of cases. No other statistically significant difference in outcome was observed. The lateral and medial approaches showed a tendency towards better functional outcomes, and the anterior approach demonstrated the best overall assessment. There was no statistically significant difference between the approaches with regards to complications, which included pin tract infection, cubitus varus and transient nerve palsies.

Conclusion: The evidence in the current literature does not favour one approach over another. Surgeons should carry out the approach which they are familiar with and which they can perform safely. Consideration should be given to the anterior approach, as it avoids breaching intact soft tissues, and allows direct access to the fracture.

P7.17

Service evaluation of the paediatric surgery outpatient department

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Introduction: Healthcare systems are under increasing pressure to become more patient-centred and provide the best medical care for their patients. The services provided can be evaluated two-fold: in terms of short-term customer satisfaction and specific to the immediate service provided, and service quality which is the long-term evaluation on performance and patient satisfaction.

Methods: A questionnaire was distributed to parents/guardians of all patients attending the outpatients' clinics for consecutive clinics at their discretion. The patients were reviewed by either the consultant or surgical trainees of varying grades. Copies of the questionnaire were made available in either English or Maltese. It was emphasised that the questionnaire was voluntary and completely anonymous.

The filled questionnaires were returned at the reception desk in a locked box to ensure anonymity. These were collected at the end of the clinics. The questionnaires were distributed over 6 outpatient sessions in October. A total of 83 filled in questionnaires were returned and 200 distributed.

Results: Of the returned questionnaire, 87.5% were from follow up appointments, with the rest from new cases. Most parents reported that appointments received in good time (98.7%), and contained the required information (98.7%). No difficulties in locating the clinic were noted. Support staff was also reported as being friendly and helpful. Similarly the nursing staff care was also well received by patients. With respect to the consultation most patients report that most of the doctors introduced themselves prior to the consultation (96%), and over 96% identify the quality of consultation as either excellent or good. The advice provided is highly rated as shown below, with most parents requesting written information (96%). Unfortunately discrepancy between scheduled time and time seen by clinician was quite significant, with approximately only 20% seen within half an hour and 27% seen beyond 90 minutes of scheduled time.

Conclusion: Changes to our practice. In response to the above findings, the following changes are being implemented: ·Development of new patient-centred leaflets for oesophagogastroduodenoscopy, colonoscopy, circumcision, and constipation amongst other with more up-to-date and child-centred information. ·Streamlining of patients into speciality clinics such as spina bifida clinic. Both of these changes are aimed at making the clinic visits more efficient and effective by employing faster working methods. This in turn would translate into short clinic times without negatively impacting the quality of the visit, but improving the overall service times.

P7.18

Coarctation of the aorta - an epidemiological review of the Maltese Islands

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Introduction: Coarctation of the Aorta (CoA) is congenital heart defect resulting in a constriction of the descending aorta. Data including the number of total cases and live births with Coarctation of the Aorta in Malta was obtained from the Congenital Anomaly Register after proper ethical approval.

Methods: Data was collected for the period of 1993 to 2015. The total prevalence of CoA was then calculated per 10,000 births in Malta. The data for the prevalence of patients with CoA, in all European Surveillance of Congenital Anomalies (EUROCAT) registered European countries was then obtained for the same period of 1993 to 2015. All prevalence data has a confidence interval of 95%. This was then compared to the prevalence in the Maltese Islands. The comparison was done via two methods, first by working out a European Average which was assessed against the Maltese average, and then by evaluating the total prevalence of each EUROCAT registered country with that of Malta.

Results: In the first scenario, it was observed that when compared to the European average of total prevalence, Malta seems to be fluctuating having years with higher and lower prevalence than that of Europe. However, from the trend line, it is evident that the Maltese prevalence has been on the decline and is currently below European average. On the other hand, when assessing the total prevalence of each country, out of the thirty-one registered European countries, Malta is the 10th country when starting from the highest total prevalence, with a value of 4.66.

Conclusion: In conclusion, having a high birth prevalence of CoA births does not necessarily mean that the prevalence in Malta is increasing, but rather that having improved diagnostic methods is contributing to the fact that more cases are being diagnosed. Further studies are required to identify any possible environmental factors contributing to the fluctuations in the rate of incidence of this disease. This will ultimately influence the treatment provided and hence the prognosis of this anomaly.

P7.19

Understanding the trends in development of medicines in paediatric acute lymphoblastic leukaemia

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Introduction: The aim was to review clinical development programs (CDPs) of medicinal products for acute lymphoblastic leukaemia (ALL) to understand trends in development of medicines for paediatric acute lymphoblastic leukaemia

Methods: CDPs for medicinal products approved in Europe through the centralised procedure to treat ALL in children were retrieved from European public assessment reports (EPARs) of the European Medicines Agency (EMA). CDPs for drugs in the development phase were retrieved from the EMA Paediatric Investigation Plans and from clinical trials registered in the EU clinical trial register and the United States national library of medicine database of clinical trials.

Results: Nine products were granted marketing authorisations under the centralised procedure to treat paediatric ALL and 35 different products are in phase II and phase III development. New active substances, both authorised and in development, tended to target specific population subgroups with poor outcomes such as imatinib for Philadelphia chromosome positive ALL, nelarabine for T-ALL in third relapse, lestaurtinib for infants with mixed lineage leukaemia and ruxolitinib for Junas Kinase-activating ALL. Reformulations of known active substances were observed in authorised products and in the development phase, examples included PEGylated asparaginase, liposomal cytarabine, asparaginase encapsulated in erythrocytes and oral liquids of methotrexate and mercaptopurine.

Conclusion: This study suggests two main emerging patterns in the development of medicines for paediatric

ALL; (i) companies are developing new formulations of established products and (ii) companies that develop new active substances target niche (narrow) indications where there is an unmet medical need.

P7.20

Nurses perception of intravenous medication administration errors in paediatrics

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Introduction: Paediatric nurses' activities are challenging and require constant vigilance in providing quality care to patients. The aim was to assess the perception of nurses about which factors may contribute to medication administration errors (MAE) and impact administration safety and possible preventive measures.

Methods: A questionnaire was developed and validated by eleven healthcare professionals and distributed to nurses working in paediatric wards. The questionnaire consisted of a demographic and a closed-ended questions section to assess the perception and knowledge of nurses administering intravenous (IV) medications to paediatric patients. Nurses were asked to rate from 1 to 5 (1 being the lowest and 5 the highest) factors which contribute to medication errors and the impact of different scenarios on the safe administration of medications.

Results: Fifty-five nurses answered the questionnaire. Lack of specialised training in paediatrics ($n=49$), illegible writing ($n=49$), prescription full of abbreviations ($n=47$), no access to a pharmacist or a medical practitioner during shift ($n=45$), instructions lacking special warnings ($n=46$) and complicated calculations ($n=40$) were rated as the highest (>4) contributing factors for MAEs. Lack of availability of a standard guide for administration ($n=43$), inconsistency between different resources and references ($n=43$) and lack of time to check a reference for administration ($n=40$) were rated as having the highest (>4) impact on medication administration safety. Introducing a guide for IV administration ($n=32$) and pharmacological education ($n=36$) were identified needs by nurses.

Conclusion: Developing a standard guidance for administration of IV medications in paediatric patients and educational sessions in pharmacology may contribute in reducing preventable MAEs.

P7.21

A selective neonatal hip ultrasound screening programme in malta

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Introduction: Early-diagnosed developmental dysplasia of the hip (DDH) can be treated in the majority of cases with a simple hip abduction orthoses with minimal risk, and a universal neonatal hip clinical screening programme is in place. This is supplemented with a selective hip ultrasound screening programme for those

neonates with risk factors, including breech presentation, a family history, congenital deformities, and an abnormal clinical examination. The aim of this study is to identify the true incidence of DDH in Malta and to compare treatment rates and outcomes.

Methods: Neonatal hip ultrasound scans were identified on Mater Dei hospital PACS for the year 2017. The data collected included demographics, indications for US screening, Graf scale, treatment and outcomes.

Results: In 2017 283 neonates from a total birth rate of 4319 live births underwent a hip ultrasound. There were 128 males and 155 females. The indications were breech delivery - 67% (including both normal vaginal and caesarean deliveries), abnormal clinical examination - 24%, presence of dysmorphic features - 4.95% and assisted vaginal delivery leading to plexus injury - 1.77%. 92% of hips were classified as Graf I and required no further treatment. 24 neonates (8.48%) had abnormal hip scans with 8 neonates (2.82%) requiring treatment with hip abduction orthoses.

Conclusion: The results of the selective hip US screening programme in Malta are comparable to published norms in the literature with a screening rate of 6.55% and a treatment rate of 0.19%.

P7.22

Hip surveillance in maltese children with cerebral palsy

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Introduction: Hip displacement is more prevalent among cerebral palsy (CP) patients. Clinical examination alone is ineffective in identifying those at risk and Reimer's migration percentage (MP) is used as the prime radiological measure for hip surveillance. The aims were to assess (a) adequacy of hip surveillance as compared to guidelines and (b) occurrence of hip disease, in children with CP in Malta.

Methods: Ninety-four CP patients born between 2001 and 2014 were included. Data was collected as part of the national CP register. Patients' files and electronic results were reviewed to obtain their gross motor functional classification system (GMFCS) level, type of CP, hip X-ray dates and outcomes.

Results: Of these 75.5% had at least one hip X-ray however the MP was never reported. Only 34.0% had the first X-ray done by 2 years. 50.0% and 26.7% of those with a GMFCS of I and II respectively had no X-ray taken. 87.3% of those with a GMFCS of III, IV and V had an X-ray taken but only 23.6% had a yearly hip X-ray until 7 years of age. 19.1% were found to have hip pathology, 83.3% being GMFCS III to V. Five had dysplasia, 8 subluxation and 5 dislocation. 80% of those with dislocation did not have yearly imaging and 80% had subluxation identified prior to dislocation. Bilateral osteotomies were performed in only 2 of the 5 patients with confirmed dislocation.

Conclusion: Local hip surveillance clearly needs to improve highlighting the need for a Maltese

hip surveillance guideline. Hip disease occurred in 149/1000 of those who were screened.

P8.01

Thromboembolic events (TEs) in the adult patients with solid malignancies: cancer and chemotherapy type and timing of TEs

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Introduction: The aim of this study was to explore thromboembolic events (TEs) in adult patients with solid malignancies in relation to the site of primary malignancy, use of chemotherapy agents at time of diagnosis of TE and time from diagnosis of malignancy to TE.

Methods: Adult patients receiving chemo/immunotherapy for solid malignancies at the Sir Anthony Mamo Oncology center in the first three weeks of August 2017 were recruited for the study. Patient specific electronic and paper records were reviewed from date of patient specific diagnosis of malignancy to the 20th August 2017. A total of 414 patients were identified. There were 71 TEs in 58 individuals (incidence of 14%).

Results: 30.99% of TEs occurred in patients with a lower GI primary (22 in 99 patients), 19.71% in those with breast cancer (14 in 113 patients), and 15.49% in those with a lung primary (11 in 42 patients). 42.25% of patients were not receiving chemotherapy/ immunotherapy at the time of diagnosis of TE. 38.02% (N=27) of the TEs occurred within the first 3 months from the diagnosis of malignancy.

Conclusion: TEs may occur in any patient with malignancy but the highest risk tumours in our cohort are lower GI and lung tumours. The peak incidence involves the initial period of cancer management with a third occurring within the first 3 months from diagnosis. Nearly half the diagnoses occurred when the patient was not receiving any chemotherapeutic agent indicating that tumour biology plays a very important part in the development of thrombosis in these patients.

P8.02

A snapshot of the Incidence, characteristic features and management of Venous Thromboembolic disease in a single center adult oncology practice

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Introduction: The aim of this study was to assess the incidence of venous thromboembolic events (VTEs) in adult patients with solid malignancies. Sites of VTE, choice of anticoagulation and duration of treatment were also studied.

Methods: Patients receiving chemotherapy/immunotherapy on all the oncology wards at Sir Anthony Mamo Oncology center in the first three weeks of August 2017 were recruited for the study. Patient specific electronic and paper case records from patient diagnosis of malignancy to the 20 Aug 2017 were studied.

Results: 414 patients were identified. Patients with different solid tumours were studied. The most common tumours were breast (27.29%) and lower GI malignancies (23.91%). 14.01% of our study population suffered a thromboembolic event. There were equal numbers of patients with deep vein thrombosis (DVT) and pulmonary embolism (PE) (37.5% DVTs, 37.5% PEs). The remaining 25% of patients had a VTE at other sites eg central venous catheter related, splanchnic veins, inferior vena cava and superficial veins. Enoxaparin was the anticoagulant of choice for most patients receiving chemotherapy and accounted for 59.4% of our study population. The rest received different treatments including warfarin, DOACs (often overlapping with enoxaparin), surgical intervention and conservative treatment for different reasons. Around half the patients received anticoagulation for three to six months; and 43.66% of the patients received lifelong anticoagulation.

Conclusion: This study highlights the different types of venous thromboembolic events and the variety of treatments and duration given.

P8.03

A new subset of CD19⁺ CD5^{dim} B cells: precursors of malignancy or promoters of health aging?

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Introduction: Chronic Lymphocytic Leukemia (CLL) are in some cases stereotyped for immunoglobulin variants in different populations, suggesting emergence of B cell subsets following presentation of the same antigen. CLL cells may originate from CD5⁺ naïve cells and from CD5 memory cells. Gene expression studies characterized a common cell of origin of the two clinical categories of CLL; the unmutated aggressive type and the mutated indolent type. The aim of this study was to investigate the presence of CD5 positive B cells in the elderly and their potential stimulation with exosomes derived from tumor cells. The findings from this study is aimed to create a model to identify instigating carcinomatous factors that may stimulate B1 cells to transform into a CLL-like model. In this study we show that CD19⁺ cells (B cells) in cord blood have a high expression of CD5. The ultimate goal of this study is to identify instigating carcinomatous factors that may stimulate B1 cells to transform into a CLL-like model. A longitudinal study 4 years after this research was done of the cases studied were checked for mortality. It was discovered that those with 20% of CD19/CD5 cells were all alive whereas a significant percentage of those without were dead.

Methods: CD19/CD5 staining of blood samples from senior citizens showed the presence of B cells which also

express the CD5 marker, though at a lower expression when compared to CLL cells (CD19⁺/CD5 dim B cells). Measurement of clonality using λ /K flow cytometry staining show a monoclonal origin of the human CD19⁺/CD5 dim B cells. Monoclonal B cell Lymphocytosis in the elderly is a potential cell compartment that represents the origin of B cell proliferative disorders. The origin of the B cell proliferative disease requires antigen stimulation. A preliminary experiment showed that sorted lymphocytes can be stimulated by exosomes isolated from 2 cancer cells lines, A549 (lung epithelial) and PC3 (prostate cell line). In comparison with phytohaemagglutinin (PHA) and phorbolmyristate acetate (PMA), known lymphocyte stimulators, the exosomes stimulated the proliferation of monocytic-like cells. Further characterization is required to know the origin of these cells.

Results: The result shows that one can speculate that exosomes present cancer-derived antigens and stimulate cell proliferation. Further studies are required to evaluate the potential transformation capacity of cancer-derived exosomes. In addition, various cytokines were measured in the sera of senior citizens to investigate a differential release of cytokines in the presence or absence of the CD19⁺/CD5 dim B cells. Cytokines examined were not significantly different between the 2 groups and further evaluation of cytokine levels is required.

Conclusion: The new subset of CD19⁺ CD5^{dim} B cells are precursors of malignancy (CLL) and/or promoters of health aging and longevity.

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P8.04

Analysis of diagnosis and growth dynamics of adrenal incidentalomas in Malta

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Introduction: Adrenal incidentalomas are adrenal masses discovered incidentally on imaging studies originally not performed for suspected adrenal disease. The aim of this study was to characterise a cohort of adrenal incidentalomas found on CT imaging the adrenal region.

Methods: This was a retrospective analysis, taking into account all the adrenal incidentalomas discovered on CT between July and December 2014 at Mater Dei Hospital. Only those with an adrenal lesion greater than 1cm were included in the study. The adrenal lesions were then classified according to these radiological features. Previous CT scans and any CT scans done after the study period were also reviewed to establish any change in size of the lesions.

Results: A total of 9100 CT scans were reviewed and adrenal incidentalomas were identified in 296 patients. Mean age was 66.9 years (± 12.2 SD). 97 (33%) adrenal lesions could not be classified, as no unenhanced imaging or washout calculations were available. Of the remaining 199 incidentalomas, 156 (78%) were confirmed adenomas

(Hounsfield units <10, relative or absolute washout values of >40% or 60% respectively), 28 (14%) were metastasis, 12 (6%) myelolipomas, 3 (2%) ganglioneuromas. In the adenoma group, 49.4% were males whereas in the metastasis group 71.4% were males. In the adenoma group, 57% had a left-sided lesion, 34% had a right-sided lesion and 9% had bilateral lesions, whereas in the metastasis group 61% had left sided lesions, 21% right sided and 18% bilateral lesions. Longest mean diameter was 20.0mm (± 7.4 SD) in the adenoma group and 31.1mm (± 18.7 SD) in the metastasis group ($P = 0.033$) Median follow up in the adenoma group was 46.3 months (ICR 4.9-96.5) whereas in the metastasis group median follow up was 28 months (ICR 0-28.5). Mean change in size was 0.3mm (SD ± 2.0) in the adenoma as compared to 20.8mm (SD ± 19.7) in the metastasis group ($P=0.0001$).

Conclusion: This study shows that adrenal adenomas are the commonest adrenal lesion encountered in clinical practice and the majority of adenomas, by far remain stable in size over time.

P8.05

An analysis of the reasons for deferral of blood donors in Malta in the years 2015 and 2016

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Introduction: The aim is to ascertain reasons for deferral of blood donors in the Maltese islands in 2015 and 2016.

Methods: National Blood Transfusion Service (NBTS) records of all donors deferred from blood donation in 2015 and 2016 were reviewed. The reasons for deferral were identified.

Results: All deferrals occurred between January 1st 2015 and December 31st 2016. In 2015 the total number of callers was 21454, 21.01% of whom were deferred. In 2016 the total number of callers was 22226, of whom 4338 (19.51%) were deferred. Out of the deferred callers, the majority were deferred because of a temporary medical condition (33.3% in 2015; 34.7% in 2016.) The next category of deferrals was due to haemoglobin below the acceptable threshold for donation (<13.5g/dl for males; <12.5g/dl for females.) 25.22% (2015) and 25% (2016) were deferred because their haemoglobin level was too low. Administration of medication preventing eligibility for donation was another main category for deferral. This amounted to 9.25% of deferrals in 2015 and 9.6% of deferrals in 2016. Uncommon reasons for deferral (less than 4%) included: serious medical problems in the donor, recent (<6 months) change in sexual partner, travel to a malaria endemic country less than one year previously and having a low blood volume.

Conclusion: The identification of common reasons for blood donor deferral in Malta can pave the way for an attempt at deferral reduction e.g. by more targeted donor education and improving the iron status of regular donors therefore reducing deferrals due to low haemoglobin levels.

P8.06

Investigation of platelet product wastage rate - 2016

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Introduction: Blood product wastage is internationally measured by the Wastage According to Products Issued (WAPI) method, defined as discarded units per issued units. The Mater Dei Hospital (MDH) platelet WAPI in 2016 totalled 9.672% (research indicates overall WAPI in European region = 8%; range 0-54.5%; median 3.3%). Expiry was almost exclusively the reason for discard.

Methods: An investigation of practices at the Blood Establishment and at the MDH Blood Bank (MDHBB) was performed. Recommendations were proposed according to results obtained.

Results: An average of six therapeutic doses (TD) per day are used at MDH, mostly in Haematology (82.53%). Total stock at MDHBB was required to be 12 TD. Of these, one TD each of groups A and O Single Donor Platelets (SDP) were always required to be on the shelf. SDPs were also distributed to MDH if not enough Pooled Platelets (PP) were created. A number of SDP units which were not requested were also distributed to MDH. A platelet appropriateness audit held in 2015 indicates an overall appropriate use (78.07%).

Conclusion: Factors contributing to wastage include practices from the Blood Establishment, MDHBB and clinical ends, thus appropriate changes in practice were implemented in 2017. Measures taken included modification of donor attendance to ensure a more constant provision of PP, an increase in the number of platelet units irradiated, change in stock requirements (2 group A TD twice weekly) as well as educating prescribers as to indications, optimal product. WAPI for 2017 will be reassessed.

P8.07

Can Incidental branch-duct intraductal papillary mucinous neoplasms lacking complex features herald pancreatic adenocarcinoma development?

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Introduction: Often presumed low-risk, incidental branch-duct intraductal papillary mucinous neoplasms (BD-IPMNs) should undergo surveillance imaging according to international guidance in view of a potentially increased risk of metachronous development of pancreatic adenocarcinoma (PADC), distinct from malignant transformation.

Methods: This single-centre, retrospective study aims to establish whether BD-IPMN patients are at an increased risk of PADC when compared to the general Maltese population. BD-IPMNs incidentally identified on

cross-sectional imaging between 2007 and 2017 were subdivided according to size in line with Fukuoka guidelines: <10mm, 10-19mm, 20-29mm and >30mm. Follow-up imaging and change in IPMN size data was collected until end of December 2017. PADC was defined as a histological or radiological diagnosis.

Results: From 328 BD-IPMNs, 43.0% ($n=141$) underwent follow-up imaging for an average period of 17.6 months until data collection. 2.1% of followed-up patients developed PADC ($n=3$). The population-matched and age-adjusted relative risk of metachronous development of PADC in all BD-IPMNs is 5.8 (95% CI 1.9 to 17.8; $p=0.002$). This increases further to 9.2 in BD-IPMNs larger than 10 mm (95% CI 3.0 to 28.2; $p=0.0001$). Larger BD-IPMNs were followed-up more frequently, for a longer period of time and showed increased interval growth when compared to smaller ones. One BD-IPMN measuring 10-19 mm progressed into a mixed-type IPMN.

Conclusion: BD-IPMNs lacking complex features harbour a significantly increased risk of metachronous PADC development, hence, imaging surveillance is warranted in all BD-IPMNs. The role of BD-IPMNs in the potential enrolment of pancreatic cancer screening programmes should be explored further.

P8.08

Diagnostic utility of flexible bronchoscopy in lung malignancy

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Introduction: Flexible bronchoscopy is the gold standard for the investigation of central lung lesions via bronchial washings, brushings and biopsy. The study aimed primarily to analyse the yield of each bronchoscopic procedure, and compare it to previous local figures as documented by Agius *et al.* in 2009. The study also aimed to calculate the pick-up rate for each procedure, which was not previously known locally, and compare it to American College of Chest Physicians (ACCP) data.

Methods: The study included bronchoscopies performed by one respiratory firm at Mater Dei Hospital in 2014-2015. Yield was calculated as positive results from the individual procedure, over positive results from bronchoscopy in general. Pick-up rate was calculated as positive results from the individual procedure, over positive results from all investigations, including non-bronchoscopic investigations.

Results: 48 patients were diagnosed with malignancy, and a further 11 patients were diagnosed through other means after a negative bronchoscopy. Bronchoscopic yield was 83.3% for bronchial washings (*vs* 54.3% in 2006-2007), 81.3% for bronchial brushings (*vs* 85.3%), and 76.5% for endobronchial biopsy (*vs* 70.0%). The pick-up rate for malignancy was 81.4% for bronchoscopy overall (*vs* 88% in ACCP data), 67.8% for bronchial washings (*vs* 48%), 67.2% for bronchial brushings (*vs* 59%), and 68.4% for endobronchial biopsies (*vs* 74% in ACCP data for visible lesions alone).

Conclusion: When compared to previous local figures, the yield for endobronchial biopsy is similar, that for

washings has improved, while the yield of brushings has declined slightly. Our local figures for pick-up rate compare well to international data.

P8.09

A retrospective study on the radiological follow-up of community-acquired lung pneumonias and subsequent lung malignancy diagnosis in the Maltese islands

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Introduction: The British Thoracic Society (BTS) guidelines for community-acquired pneumonia (CAP) recommend a repeat chest radiograph 6 weeks after treatment for patients over the age of 50 to detect lung malignancy. The benefit of this is not well determined.

Methods: A retrospective study was conducted involving patients from the community over 50 years old with consolidations on chest radiography using the local Picture Archiving and Communication System (PACS). Only patients presenting to Mater Dei Hospital, Gozo General Hospital and Maltese Health Centres during the months of January 2013-2017 and August 2013-2016 were included. The occurrence of follow-up imaging and diagnosis of lung malignancy was documented. All chest radiographs were reviewed by a radiologist.

Results: 402 (n) patients met our inclusion criteria. Follow-up imaging was done in 214 patients (53.2%) within 12 weeks. Clinical predictors such as the patients' age and gender, the presenting month, whether radiologists recommended repeat imaging and whether patients were admitted to hospital did not significantly affect the follow-up rate (p -value >0.05). The diagnostic yield of lung malignancy was 1.74% (7 patients) within 12 weeks with all malignancies being detected at an advanced stage (most favourable stage was IIIA). All seven patients had a smoking history.

Conclusion: 53.2% of community-acquired pneumonia patients over the age of 50 had follow-up imaging within 12 weeks. No clinical variables explaining this low rate could be identified. This practice provides a low diagnostic yield of lung cancer. The detection of lung malignancy is achieved at an advanced stage, making it a poor screening tool.

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P8.10

Evaluation of ward-based clinical pharmacy services in oncology wards: a pilot study

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Introduction: Cancer treatment regimen may be highly complex with frequent dosage adjustments. Cancer medications are considered as high risk medications with potential errors in prescribing, dispensing, preparation

and administration resulting in serious consequences including death. The role of the pharmacist, as the expert in medications, contributes to safe medication use. Clinical pharmacy services involve comprehensive medication review integrating chemotherapy, supportive care and treatment for other co-morbidities, medication information and supportive care counselling. The study aimed to introduce the clinical pharmacy services in oncology wards and explore the clinical interventions performed by the pharmacist within a multidisciplinary team.

Methods: Ward-based clinical pharmacy services were initiated in oncology in-patient wards at the national oncology hospital in May 2015. The pharmacist conducted medication review for every patient admitted in the ward twice weekly. Drug related problems were identified from medical charts based on laboratory tests and parameter charting. Proposed interventions were then discussed with the medical team prior to implementation. Information regarding each proposed intervention and outcome gathered over a 3-month period were recorded and analysed using Microsoft® Excel®.

Results: Medical charts of 71 patients were reviewed over a 3-month period of clinical pharmacy services in oncology wards. One hundred and thirty-one interventions were recorded. The interventions were mostly counselling needs ($n=23$, 18%) followed by failure to receive medicines appropriately ($n=17$, 13%). The proposed interventions were implemented in 122 cases (93%).

Conclusion: The evaluation of the clinical pharmacy services in oncology wards has shown optimistic results in preventing possible errors in medication use, even with a modest contribution.

P8.11

Patient knowledge on lung cancer - a local survey study

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Introduction: Lung cancer locally is responsible for 16% of all deaths in adults and 12% of all deaths in Malta. Currently, knowledge of red flag symptoms creates the necessary lead time bias, is the most effective tactic to pick up these tumours at an early and potentially curable stage. Our aim was to carry a small scale survey to determine local awareness of lung cancer risks and redflag warning signs.

Methods: Utilised a modified version of the survey instrument, developed by the University College London and Cancer Research UK in 2007-2008. Four surveyors over a period of 3 months collected data from outpatients department. All the data was provided to a fifth member of the study who did not participate in data collection and tabulated the data accordingly.

Results: Our cohort was made up of 82 males and 75 females with 96.8% of cohort of Maltese origin. Data collected was divided into Demographic data (13 questions) and Knowledge based questions (7 questions further subdivided into sub-sections). A breakdown of all the question-answer responses is presented graphically.

Conclusion: In conclusion we still note that more than 50% of patients from this random survey smoke, even though 100% recognise that smoking is a major risk for developing lung cancer. Incorrect labelling of symptoms, such as headaches or constipation could lead to delay in seeking correct specialist and a waste of resources. From our results there is a potential link between demographic features and awareness. Further patient education is necessary to avoid unnecessary misconceptions and unwarranted stress, but more pressing to detect as early as possible this potentially curable pathology.

P8.12

Timespan of the ticket of referral to the definite treatment of all skin cancers

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Introduction: The team at the Plastic Surgery & Burns Unit, Mater Dei Hospital have noticed an increase in the time from first referral to treatment in patients with skin cancers. The aim of the audit was to assess this delay in comparison to international guidelines.

Methods: A retrospective study was carried out on all skin cancer referrals, to the Plastic Surgery consultants, over a period of 13 months (June 2017 to June 2018). Patient data was extracted from patients' medical files, theatre and outpatient lists. Histology reports and the outpatient appointment dates were sourced from iSOFT, the public hospital database.

Results: 631 patients, of whom 405 were males and 226 females, were included in the study. The age range was 12 to 98 years of age, with a mean age of 86. NICE guidelines state that 93% of patients that are suspected to have skin cancer must be seen by a specialist within 2 weeks of General Practitioner referral. 94% of patients should receive 1st treatment within 31 days. These timelines were not met locally.

Conclusion: If the NICE guidelines are not adhered to, skin tumour growth may lead to the need for more complex surgical excision under general anaesthetic, more extensive reconstruction and potentially a higher incidence of post-operative morbidity. Waiting lists are long and the stipulated guidelines are hard to adhere to. To overcome the waiting lists an increase in resources is necessary. More Plastic Surgery firms with their respective outpatient clinics and theatre time would surely improve outcomes.

P8.13

Non-indicated thrombophilia testing: a retrospective study of non-obstetric thrombophilia testing

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Introduction: Acquired and hereditary thrombophilia testing is costly and is employed in cases of suspicious or unexplained venous thromboembolic events. Testing for these defects should be for a select group of patients for the sake of cost effectiveness and diagnostic yield.

Methods: Thrombophilia tests requested from beginning of 2015 till end of 2016 were recruited. We considered indications for these tests as cited by the clinician in the notes; ISOFT; Electronic Discharge Summaries. Obstetric patients and patient without hospital notes were excluded from the study. The recommendations for thrombophilia testing are based on guidelines published by the British Journal of Haematology; American College of Pathologists; International Society for Thrombosis and Haemostasis and the International Consensus Statement.

Results: Two-hundred seventeen inheritable thrombophilia screens were included of which 40% ($n=86$) were for Deep Vein Thrombosis/PE; 16% Arterial events including strokes/Transient ischaemic attacks ($n=36$); 12% Retinal Vein Thrombosis ($n=25$); 33% are for other reasons ($n=72$). Only 18% of tests were requested according to a guideline indication ($n=40$), 10% of which were taken at the wrong timing hence affecting results. Seventy-two percent of tests requested came back abnormal ($n=157$) of which only 3% ($n=5$) results factored in clinical decision making, all of whom fit the criteria for testing.

Conclusion: Unnecessary testing creates a burden on our national health service. Patients need to be counselled very carefully of thrombophilia testing. We need to issue guidance as regards indications or possibly shift the stewardship of this laboratory tool.

P8.14

A retrospective audit on the adequacy of bone marrow trephines

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Introduction: A trephine length of 1.6cm (1.2cm after processing) is deemed adequate. True adequacy of a trephine biopsy is based on the number of intertrabecular spaces a specimen contains.

Methods: All H&E stained trephine slides prepared over a six month period were collected and reviewed. The length, number of intertrabecular spaces and number of trephine fragments for each specimen was recorded. Paired patient demographics, diagnosis and the official iCM trephine biopsy report were also recorded.

Results: A total of 176 slides were reviewed. 22/176 (12.5%) had a total trephine length of <1.2cm; 46/176 (26.1%) had ≤ 4 intertrabecular spaces; The total number of males with a trephine length of <1.2cm was 15/103 (14.6%) vs 8/73 (11%) for females; Whereas the total number of males with trephines containing ≤ 4 intertrabecular spaces

was 26/103 (25.2%) vs 21/73 (28.8%) for females. 30.8% of the trephines biopsies taken from the age group 40-49 years were <1.2cm in length and 30.8% of this same age group were also found to have ≤ 4 intertrabecular spaces. Trephine biopsies were most frequently carried out in patients suffering from multiple myeloma (28%) followed by non-hodgkins lymphoma (25%).

Conclusion: Trephine length does in fact correspond to number of intertrabecular spaces. There is a mixed result when comparing trephine length and intertrabecular spaces in different genders. When comparing age to both trephine length and intertrabecular spaces both showed poor sample quality in the 40-49 age group. Multiple myeloma patients are most frequently trephined, significant percentage of these samples showed inadequate trephine length and intertrabecular spaces.

P8.15

Thromboelastographic changes in patients with BCR-ABL negative myeloproliferative disorders

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Introduction: Patients with BCR-ABL negative myeloproliferative disorders (MPDs), present with an increased incidence towards thrombosis and bleeding. The mechanisms responsible for the thrombotic risk are still ill-defined. Several pro and anticoagulant factors have been measured in previous studies but the separate measurement of each factor is not sufficient in MPD patients due to complex abnormalities present. A global assay, thromboelastography (TEG) might be more suited to detect the procoagulant imbalance in similar patients. The aim of the study is to investigate the haemostatic differences between MPD patients and a normal cohort by using TEG, including a novel TEG modification using protein C activator, Protac.

Methods: Thirty-nine MPD patients were enrolled from Haematology-Oncology Outpatients at Sir Anthony Mamo Oncology Centre in Malta and 18 normal subjects were taken as controls. After ethics approval and informed consent, citrated whole blood samples were collected. TEG was carried out with and without Protac.

Results: Reaction (R) time was significantly longer in MPD patients than in controls both with and without Protac. There was no significant difference in TEG parameters, kinetics (K) time and α -angle between patients and controls with and without Protac. Maximum amplitude (MA) was significantly higher in patients than in controls without Protac but no significant difference was found in MA with Protac. No significant differences were detected in the MA ratio (MA with Protac/MA without Protac) between controls and patients.

Conclusion: MPD patients show a more prolonged R time and a higher MA. However, using the Protac

modification, they did not demonstrate a protein C resistance profile. Further studies are ongoing to try to explain these TEG changes.

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P8.16

The design of novel protein kinase inhibitors using the naturally occurring isojacareubin scaffold as a lead

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Introduction: The Protein Kinase C (PKC) isoenzymes endogenously phosphorylate cellular proteins through the transfer of phosphate groups from adenosine triphosphate to serine, threonine, or tyrosine residues. Dysregulated phosphorylation results in the structural and functional alteration of substrate proteins associated with malignant disease. PKC inhibition is a viable target for cancer mitigation. Literature indicates that the naturally occurring isojacareubin scaffold is a potent PKC inhibitor.

Methods: Pdb crystallographic deposition 2I0E describing the bound co-ordinates of a bisindoylmaleimide inhibitor:PKC complex was identified. The bioactive molecule was extracted, isojacareubin docked in its stead, conformational analysis performed, and the optimal conformer identified. The two small molecules were superimposed, and their combined contact points used to model an average pharmacophore. A surface map of the energetically unstable amino acids at the core of the PKC receptor were modelled into a protomol. The consensus pharmacophore was submitted as a query to the ZincPharmer database, and the hit molecules that were structurally and spatially similar to the query were identified, filtered for lead-like properties, docked into the protomol, and ranked in order of affinity.

Results: This Virtual Screening exercise yielded 300 molecules compliant with Lipinski's recommendations for lead molecules. The two molecules with the optimal affinity and physicochemical properties were identified for further optimisation.

Conclusion: The isojacareubin scaffold was a suitable query structure for the identification of small, high affinity lead-like molecules, for which synthetic pathways were also known. Further computational and in vitro validation will show their potential utility in a clinical scenario.

P8.17

Design and identification of poly ADP ribose polymerase (PARP) inhibitors for the mitigation of neoplastic disease

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Introduction: *In vitro* studies show that Poly ADP Ribose Polymerase (PARP) inhibition is associated with neoplastic disease mitigation. PARP inhibition drives the DNA damage process from single to double strand breaks causing cancer cell apoptosis in which PARPs are over expressed. An important breakthrough was made through the development of the third generation inhibitor Olaparib.

Its scaffold was further modelled for the identification of novel structures with PARP inhibitory properties.

Methods: Pdb crystallographic deposition 3U9Y describing Olaparib bound to the human tankyrase 2 catalytic domain was designated as template. The bioactive coordinates of Olaparib were extracted, and submitted as query to the ZincPharmer database suite for Virtual Screening (VS). Molecules of morphological and electronic similarity and which satisfied Lipinski's recommendations for lead molecules were identified as hits, and docked into a modelled protomol or idealised ligand binding pocket (LBP). A 2D topology map highlighting the critical interactions between Olaparib and the receptor guided seed fragment formation. These were planted, in a *de novo* approach into a 3D bioactive LBP map, and molecular growth sustained. Optimal structures identified through both approaches were identified.

Results: Protomol modelling allowed for the ranking of the molecules identified through VS. The highest ranked molecules were docked into the human tankyrase 2 LBP and critical interactions were compared with those produced by Olaparib. In the *de novo* approach, the seed-derived Lipinski Rule compliant seed structures were grouped into families of pharmacophoric similarity, and the highest ranked structures were identified.

Conclusion: Molecules exhibiting a binding affinity exceeding that of Olaparib were chosen for further validation and optimisation.

P8.18

Molecular genetic studies of Haemophilia A in Maltese patients

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Introduction: Haemophilia A (HA) is an X-linked bleeding disorder caused by diverse mutations in the human coagulation factor VIII (FVIII) gene. The factor VIII gene (F8) comprises of 26 exons and spans 186kb. F8 has 3 copies of an A domain of 330 to 380 amino acids, a B domain of about 925 amino acids, and 2 C domains of about 160 amino acids. The domains are arranged A1-A2-B-A3-C1-C2. Occurring in around 1:30,000 this is considered to be a rare disorder. Diagnosis in Malta has been largely dependent on haematological and coagulation laboratory tests rather than direct identification of mutations. We have analysed DNA from 18 Maltese patients including some carriers with HA for their FVIII gene defects. Almost all the male patients had severe (FVIII:C <1%) HA with the exception of one having a moderate (FVIII:C 3%) HA.

Methods: These patients were first screened for the commonest occurring mutations i.e. intron 22 and intron 1 inversions. Inversion negative samples were screened for mutations by whole exome sequencing and confirmed by DNA sequencing and Multiplex Ligation-dependent Probe

Amplification (MLPA). In total, 8 different mutations were identified in 18 patients, 2 of which are novel mutations.

Results: These included 4 patients with intron 22 inversions, 3 patients with an amino acid missense mutation for the c.5399G>A (p.Arg1800His) and c.3780C>G (p.Asp1260Glu), 3 patients with a duplication frameshift c.4825dupA, 2 different types of large deletions affecting 3 patients, a novel nonsense mutation in one patient and a novel indel mutation in 2 other patients. 2 Individuals in the study had a normal F8 sequence and are not carriers of HA.

Conclusion: This project lays the foundations for a more useful and better genetic counselling and will also aid in choosing the appropriate method for the treatment of patients. The data also show that the genetics of rare blood disorders in Malta remains a very important field for the discovery of new genetic variants previously unreported elsewhere.

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P8.19

Effects of biological extracts on terminal differentiation of leukaemia and solid tumour cell lines

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Introduction: Cancer is the second leading cause of death worldwide (22.8%) following heart disease (26.6%). Unlike normal cells, cancer cells show a block in differentiation leading to uncontrolled proliferation, eventually invading surrounding tissues and organs. This can lead to metastases as the cancer cells spread to other parts of the body through the haemopoietic and lymphatic systems. The aim of this research is to cause terminal differentiation of cancer cells using conditioned media and extracts from the organisms with regenerating and differentiating cellular systems such as planarians and axolotls. Planaria conditioned media (PCM) and axolotl extract (AXE) were tested against several leukaemia and solid tumour cell lines. AXE was also tested in combination with two histone deacetylase inhibitors namely belinostat and BML-210. Following treatment of different cell lines, PCM and AXE were evaluated for their ability to induce granulocytic differentiation in several leukaemia cell lines using the NBT test and osteosarcoma cell line using the ALP test. Their anti-proliferative and cytotoxic effects were tested using the MTT assay, and trypan blue was used to determine the number of live and dead cells. HL-60 cells were also tested for cell surface antigens CD11b and CD14, cell cycle analysis, and degree of apoptosis

Conclusion: Conclusions and implications: These results indicate that PCM and AXE merit further investigation to elucidate the pathways in which they are implicated and also isolate and identify any active compounds that can be used in cancer therapy

Disclosure: The Project is funded by the University of Malta, sub-project anarp17-18

P8.20

Tumour formalin fixed vaccines and secondary immune responses to elicit therapeutic immune responses in solid tumours

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Introduction: The treatment of metastatic tumour disease and tumour recurrence has not shown significant success, mainly due to the complexity of tumours, the effect of the tumour microenvironment and the high adaptability of tumour cells. Most therapeutic approaches also target singular tumour protein or gene mutations which can be easily selected against as a result of treatment, thus resulting in therapy failure and progression of a tumour. In this study, by developing the autologous tumour formalin fixed vaccines, we are trying to tackle these two main issues in the treatment of solid tumours. Tumour antigens are obtained from tumour tissue biopsies, processed and injected into the patient model along with certain immunostimulatory agents (viruses) that are previously used for the immunisation so that a secondary immune response can stimulate a stronger tumour response. In order to save immunogenicity of the tumour specimen and on the other side to increase that immunogenicity by obtaining neo-antigens, tumour specimens are being processed in formalin. Benefits of this approach would be the generation of the memory immune response that would have longer effects on the tumour and that would as that prevent or reduce the possibility of recurrence. Due to their extreme efficiency and specificity, adequately triggered immune response should be able to trace and eliminate cancer cells thoroughly so as the metastatic threat would be eradicated completely.

Methods: We began with the construction of the metastatic model of tumour disease in experimental models. These models include chemically induced carcinogenesis of liver, lungs and skin (Kumar and Shafi. 2003; Hu et al. 2016) and ectopical transplantable spontaneous model in which we have used the mammary tumour cell line MT450 (Thiele et al. 2013). Along with this, we have modified and we are still optimising the process of autologous formalin-fixed vaccine preparation, that was previously used in one clinical study in Japan (Ishikawa et al., 2007). Prior to the immunisation, experimental models are being immunised with the virus, and during vaccine immunisation, an autologous formalin-fixed vaccine is being injected along with the same virus, which should elicit a secondary immune response. After a certain time period, experimental animal models are sacrificed and organs and tissue of interest are obtained and prepared for histological and immunohistological procedures. The immunohistological procedure will be mainly focused on the infiltration of lymphocytes in tumour tissues. Functional assays such as MTT (3-(4,5-Dimethylthiazol-2-yl)-2,5-Diphenyltetrazolium Bromide) will be employed in vitro

in order to estimate T cell proliferation and activity in co-culture with the tumour cell line. This will be done in vitro with the use of MT450 cells in co-culture with cytotoxic T lymphocytes that are previously isolated from lymph nodes of the experimental animal models.

Conclusion: Regarding that study is still in progress, the final conclusion cannot be made with certainty.

Disclosure: The study was funded by RIDT/Alive foundation

P8.21

Chalcones and their complexes: differentiation-inducing effects on KG1A and NB4R2 myeloid cell lines

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Introduction: Cancer is the current leading cause of global death. Research has focused on finding new and alternative treatments, with a recent shift towards targeted therapy. Differentiation therapy is one such treatment, aiming at inducing neoplastic cells to mature, differentiate and enter natural apoptotic pathways. The major cancer type which has shown promise is leukaemia. Following the revolutionary introduction of all-trans retinoic acid (ATRA) in the treatment of acute promyelocytic leukaemia (APL), research has focused on identifying compounds which induce differentiation of immature leukaemic cell lines. Our model focuses on cell lines KG1A and NB4R2, on which eight Chalcone agents from the COST Consortium (STEMCHEM) were applied following a validated method.

Methods: Each of the eight chemicals were applied to NB4R2 and KG1A cell-lines at three concentrations (10µmol, 1.0µmol, 0.1µmol) in three replicates for three trials (n=9). For each trial, dimethyl sulfoxide (DMSO) and propylene glycol monomethyl ether acetate (PMA), known to induce differentiation, were used as a positive control and the respective growth medium for each cell line was used as a negative control. Dimethyl thiazol diphenyl tetrazolium bromide (MTT) and nitro blue tetrazolium (NBT) were used as the initial determination of cellular differentiation. The former acts as a measure of cell number and activity, whilst NBT indicates the degree of differentiation. The ratio of NBT:MTT was determined spectrophotometrically, measured on Day 3 and Day 5 of each trial. The ratio was then used as a marker of the activity of the agents.

Results: Several chemicals have shown compelling results for KG1A cell line, suggesting a degree of differentiation occurred.

Conclusion: Further morphological and flow-cytometry testing is to be carried out on the chemicals which have shown most differentiation to consolidate data obtained. A previous study using similar agents on HL-60 cell line also showed encouraging results.

P8.22

Venous thromboembolism in patients with diffuse large B cell lymphoma

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Introduction: Venous thromboembolism (VTE) is a common complication in patients with carcinoma. Less is known about the risk of VTE in lymphoma. The aim of the study is to determine the incidence of VTE in patients treated for Diffuse Large B Cell Lymphoma (DLBCL) and assess the impact of VTE on the overall survival (OS).

Methods: Data from patients with DLBCL treated between January 2010 and December 2017 was retrospectively evaluated. Episodes of symptomatic VTE, confirmed by imaging, present at diagnosis or during initial therapy were identified. We compared the association of VTE with various clinical and laboratory parameters and assessed OS in patients with or without VTE.

Results: A total of 198 patients were included. The median age was 65 years (range 18–97); 104 patients (52.5%) were female. Thrombosis occurred in 10.1% (21 events in 20 patients). Patients with and without thrombosis were not significantly different with respect to age, gender, histological subtype and number of extranodal sites involved. Patients with thrombosis were more likely to have AnnArbor Stage III or IV disease ($P=0.023$), elevated baseline Lactate Dehydrogenase ($P=0.018$), elevated C-Reactive Protein ($P=0.028$) and higher revised International Prognostic Index scores ($P=0.03$). The median time to VTE from diagnosis was 20 days (range -23 to 95 days). Thrombosis was present at diagnosis in 5patients whilst in 11patients occurred during the first course of chemotherapy. The median OS of patients with VTE was 8.3months while this was not reached for patients without VTE ($P<0.001$).

Conclusion: VTE is common in DLBCL, with most events occurring at diagnosis or during initial therapy. VTE is an independent poor prognostic marker in DLBCL.

P8.23

What do patients know about warfarin?

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Introduction: Warfarin is the commonest oral anticoagulant used, despite complex administration, monitoring and interactions. Lack of patient education can lead to preventable adverse events. We assessed the discrepancy between patient's expected and actual knowledge about warfarin.

Methods: Patients attending the Anticoagulation Clinic for INR testing were asked to answer 26 questions, designed to assess information found on the Patient Information Leaflet.

Results: Fifty-nine patients participated; 39 males (66.1%) and 20 females (33.9%), with a median age of 68.5 years (range 33 – 85 years). Forty-three patients (72.9%) correctly stated their indication for anticoagulation. Three patients required temporary anticoagulation, but one had

no cessation instructions. Ten patients with mechanical valves (90.9%) knew about possible pre-operative heparinisation. Thirty-four patients (70.8%) with other indications were aware of possibly stopping warfarin pre-operatively. Around 62.7%, 76.7% and 52.5% knew about interactions with food, alcohol and other medicines respectively. Only 40.6% of respondents were aware of potential bleeding with concomitant use of non-steroidal anti-inflammatory drugs. In cases of significant blood loss, 16.9% of patients were not aware that they need to seek medical help. Four women started warfarin at an age less than 55 – three had not been informed of the potential teratogenicity. Regular bloodletting disrupted patients' life in 32.2% of cases. Thirty-four patients without mechanical valves consider switching to direct oral anticoagulants, but only seven accepted the current prices. Most patients learnt about warfarin from doctors (69.5%).

Conclusion: Some lacunae in patients' knowledge exist regarding drug interactions, risk of bleeding with NSAIDs, and teratogenicity. Patient education can improve, but the various possible ways to address this need to be evaluated.

P8.24

Colorectal screening: will raising the “positive test” cut-off decrease cancer pickup?

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Introduction: Colorectal cancer is one of the most prevalent carcinoma in Malta, which can be successfully treated if detected in its early stages. In 2012, a screening program was introduced, making a percentage of the Maltese population (aged 60-64), eligible to undergo colo-rectal screening. Out of the total population eligible, the uptake is low at 20%. A faecal immunochemical test (FIT) level of more than 100µg Hb/g faeces is considered positive and subjects are then referred for Colonoscopy; with findings varying from polyps, neoplasia or benign pathology to normal. This is a retrospective study looking into the local scenario to see whether the FIT level correlates with specific pathology and to investigate whether raising the cut-off level for FIT to 600µg Hb/g faeces would be safe. Data collected by the CRCS unit was analysed for the study period. Out of a total of 16,563 FIT tests carried out in 2017, 24 cohorts were diagnosed with colorectal carcinoma, out of which, 9 cohorts had FIT levels of less than 600µg Hb/g faeces. This study determined that raising the cut-off level to 600µg Hb/g faeces would have missed almost 40% of cancers as well as 25% percent of high grade dysplastic polyps in this cohort.

Conclusion: In conclusion this study confirms that while FIT is a useful test to identify subjects that might be harbouring colorectal cancer in the general population as means of a screening test, it is not very specific. Hence, raising the cut off level would significantly reduce the sensitivity of this test.

P8.25

The role of *FLVCR1* isoforms on inter-erythrocytic distribution of human foetal haemoglobin

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Introduction: We sought to expand the genetic repertoire underlying the developmental switching of *gto* *bglobin* genes with haematological and molecular exploration among two families from Malta with the *KLF1* p. K288X truncation. The data revealed competitive interplay between *KLF1* and *FLVCR1* isoforms on *BCL11A* that acted on the inter-erythrocytic distribution of Hb F among F-Erythrocytes, the MC-HbF of adults.

Methods: HbF concentration, expressed as the percentage of total haemoglobin was determined with the Bio-Rad VARIANT™ Haemoglobin Testing System (Bio-Rad Laboratories, California, USA). F-Erythrocytes were quantified by flow cytometry on a BD FACSCalibur™ cytometer (Becton Dickinson Biosciences, California, USA) The cMC-Hb.F was confirmed by semi-automated quantitative imaging immuno-cytometry (qMC-Hb.F) that gave a mean value of 6.2 pg ranging from 3.0 to 9.8 pg in the *KLF1*± heterozygotes. Human erythroid progenitor cells (HEPs) were cultured from samples of ten family members and allowed to differentiate for two days. Cells were classified morphologically by microscopy and counted with an electronic cell counter (CASY-1, Schärfe System). Lentiviral transfection of buffy coat HEPs was conducted using clones obtained from The RNAi Consortium (Sigma-Aldrich, St.Louis)

Results: The two families from Malta segregated a unique truncation mutation of the *KLF1* locus such that the protein product was inactivated and expressed HbF over a broad range of 230 - 2480 mg/dL in peripheral blood. Non-linearity between the HbF (mg/dL) and the F-Erythrocyte numbers ($N \cdot 10^{12}/dL$) suggested independent gene control of the inter-erythrocytic distribution of the HbF calculated as the Mean Corpuscular HbF or cMC-HbF (0 - 9.2 pg) The cMC-HbF correlated well with direct immune-cytometric quantification (qMC-HbF) Bio-Informatic studies with exome sequences from both families revealed a strong connection between the cMC-HbF and a new mutation in *FLVCR1* (p.F473L; SIFT -5.37; Polyphen 0.029). *FLVCR1* is a known Haeme transporter producing two isoforms. *FLVCR1a* is plasma membrane bound and *FLVCR1b* is bound to the mitochondrial membrane. *In vitro* transcriptomics and knockdowns

showed that the *FLVCR1* mutation decreased the output of BCL11A independent of KLF1 and it shifted the relative amounts of the two isoforms with increasing cMC-HbF.

Conclusion: The interplay between the two FLVCR1 iso-forms could regulate intra-cellular concentration of Haeme and the total rate of translation with differential effects on specific messengers depending on the strength of the translation initiation complex. These data widen the understanding of globin gene switching and the possibilities of therapeutic intervention to increase Hb F levels in human haemoglobinopathies through alternative pathways.

P8.26

Cancer incidence and annual mean exposure to PM10: the case of Malta

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Introduction: Air pollution is a risk factor for several pathologies and of concern for Public Health. Predictions for its future projections in various localities provide no halcyon scenarios. Particulate Matter with a diameter 2.5 - 10 µm (PM10) has been associated with increased pulmonary, cardiovascular, cancer mortality and morbidity. However, from the plethora of other air pollution agents, whether PM10 could be utilized as an outdoor air pollution (OAP) indicator that could possibly contribute to the onset of cancer (Ca) is less clear. The current study aimed to evaluate the effects of annual average PM10 concentration on overall Ca incidence and on specific other types of Ca incidence for the inhabitants of the Maltese islands.

Methods: The database of PM10 annual average concentration for the islands of Malta from the European Environmental Agency (EEA, European Union, 2018) was utilized. Data for the years 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015 was obtained. The PM10 annual average concentrations comprised contributions from urban traffic, Sahara dust and sea salt trapping, all within the sea breeze phenomenon system. Population data was sourced from the EUROSTAT Statistics Database (EUROSTAT, © European Union, 2018) for the years 2000-2015. Data on Ca Incidence was extracted from the European Cancer Information System (ECIS - European Cancer Information System, European Union, 2018). The years available were 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, and 2013. Data on incidence for Lung Ca, Non-Hodgkin Lymphoma, Hodgkin Lymphoma, Leukemia, Breast Ca in females and Lymphocytic Leukemia was obtained. We had the World Age Standardized Rates ASR (W) for the population, by gender. The initial analysis involved eyeballing of trends in Ca incidence and PM10 annual average levels in Malta. There seemed to be a rise in PM10 concentration corresponding to rises in Ca incidence overall and lung Ca incidence specifically. In order to formally test for correlation between PM10 annual mean concentration and Ca incidence, analysis of Ca incidence data in relation to

PM10 was carried out using the Spearman correlation test on SPSS v.24. Analysis was repeated with a time delay for 0, 1, 2, 3, 4 and 5 years.

Results: This study showed that exposure to PM10 alone was linked to a rise in Ca incidence, particularly for haematological Ca. Furthermore, this was evident with specific time lag.

Conclusion: These findings support the hypothesis that PM10 may be linked to the onset of Ca, possibly by suppressing immune response systems, indicating a possible new role for pollution exposure in Ca and/or disease susceptibility. However, the immune system has complex and multifunctional defense mechanisms and more work needs to be done to assess the significance of this finding. This study suggests that air pollution is an important research area for health outcomes that should be investigated furthermore.

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P8.27

Leucocyte and platelet activation in patients with BCR-ABL negative myeloproliferative disorders

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Introduction: Polycythaemia vera, essential thrombocythaemia and primary myelofibrosis are BCR-ABL negative myeloproliferative disorders characterised by the overproduction of mature blood cells. MPD patients have a high risk of suffering from thrombotic episodes, the pathogenesis of which is thought to arise in part from the overproduction and overactivation of blood cells.

Methods: Flow cytometry was used to assess the degree of platelet, neutrophil and monocyte activation using the activation markers P-selectin, leucocyte alkaline phosphatase and CD11b. The microparticle (MP) procoagulant activity was quantified using a functional enzyme linked immunosorbent assay. Several parameters were also extracted from a complete blood count.

Results: P-selectin, LAP, MP activity and all CBC parameters investigated except for the monocyte count were higher in MPD patients than in controls. PV patients had increased monocyte CD11b when compared to ET patients, as observed in *JAK2+* patients when compared to *JAK2-*. The MP procoagulant activity was higher in patients taking aspirin only when compared with patients taking cytoreductive therapy with aspirin. The MP procoagulant activity was also significantly higher in intermediate-risk ET patients than in high-risk ET patients.

Conclusion: MPD patients have increased production and activation of leucocytes and platelets when compared to controls; this could possibly play a role in the increased thrombotic risk. PV and *JAK2+* patients had increased monocyte activation when compared to ET and *JAK2-*

patients respectively. Therapy with HU and aspirin tends to have an inhibitory effect on MP procoagulant activity as compared to aspirin only, suggesting a new mechanism for HU effectiveness.

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P9.01

Quantification of lysine methylation status of heat shock proteins in colorectal cancer following gain of chemoresistance via different mechanisms

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Introduction: Colorectal cancer (CRC) is the third most commonly diagnosed cancer in Malta. CRCs present a broad spectrum in terms of cellular metabolism, proliferation, differentiation, and survival. Chemotherapeutic drugs work through a limited number of mechanisms, mainly by either inhibiting DNA synthesis, enzyme activity, or microtubule function, and detecting the point at which tumours start to escape the mechanism of the administered drug and become chemoresistant would be beneficial in treatment selection. The aim of this study was to investigate changes in the methylation pattern following gain of chemoresistance via different mechanisms.

Methods: Cell lines for Duke's stage 3 and 4 CRCs were cultured and made chemoresistant by treated with increasing concentrations of Gemtibatine or Doxorubicin. Differences in the levels of total HSP27, HSP60, HSP70, GRP78 and their lysine methylation due to chemoresistance were quantified by using ELISA assays.

Results: The total HSP levels increased in most cell lines following gain of chemoresistance with either drug. The ratios obtained for lysine mono, di and tri methylation over total protein for the selected chaperones were linked to the drug used and not the TNM staging.

Conclusion: The methylation status of the selected HSPs in the eight CRC cell lines follows a trend which could indicate the involvement in the mechanism leading to chemoresistance or a consequence of the gained resistance. Further analysis are required to identify the position of the methylations on the proteins and determine if these play the same or different roles for the two drugs investigated.

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P9.02

Incidence and demographics of non-alcoholic fatty liver disease in Malta

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Introduction: Nonalcoholic fatty liver disease (NAFLD) is characterised by excessive hepatic fat deposition in the absence of secondary causes. It refers to a spectrum of liver disease ranging from simple steatosis to cirrhosis. An evaluation for metabolic risk factors and the

severity of the underlying liver disease is mandatory. The analysis of incident cases may guide the development of therapeutic interventions.

Methods: All abdominal imaging done at Mater Dei Hospital during July 2017 was screened for newly diagnosed cases of hepatic steatosis. Patients with a history of excessive alcohol consumption and/or drugs associated with steatosis were excluded. The incidence of diabetes mellitus, hypertension and hyperlipidaemia was determined. We also analysed the proportion of patients who underwent further investigations and were referred to gastroenterology out-patients.

Results: The incidence was 309 new cases per 100,000 population, of which 61.3% were female. 58.6%, 69.4% and 59.5% of patients suffered from diabetes mellitus, hypertension and hyperlipidaemia respectively, while 27.0% suffered from all three. Liver function tests were checked in 72.1% of cases, and were deranged in 33.8% of these. Only 8.1% of patients were referred to gastroenterology out-patients, and only one patient (0.9%) had evidence of cirrhosis at diagnosis of hepatic steatosis.

Conclusion: NAFLD is currently the commonest cause for liver cirrhosis and will remain the commonest cause for referral for liver transplantation in the coming years. The presence of risk factors in any given patient should prompt an assessment for NAFLD, and vice versa.

P9.03

Gallstone pancreatitis: are management targets achieved?

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Introduction: Gallstones are the commonest etiology of acute pancreatitis in the West. Whilst gallstone pancreatitis (GSP) is frequently mild and self-limiting, a ten percent mortality & thirty to forty percent morbidity rate is associated with recurrent attacks. The British Society of Gastroenterology and UK 'Management of Acute Pancreatitis' guidelines have recommended timeframes for definitive treatment to reduce mortality and complications of GSP. The audit's primary scope is to assess adherence to specified timeframes for diagnostic, acute and definitive management of GSP.

Methods: In this retrospective audit, patients diagnosed with GSP during 2010 - 2017 were reviewed.

Results: Eighty-five patients were reviewed (36 males & 49 females) with 95.3% of cases being mild and 4.7% severe. 97.6% of cases were diagnosed within 48 hours of admission, with patient diagnosis based on symptoms, biochemical and radiological investigations. Although 28 patients had features indicative for early endoscopic retrograde cholangio-pancreatography (ERCP), only 1 case was performed within the stipulated timeframe (72 hours since admission). Sixty-eight patients were deemed fit for cholecystectomy, with 62 patients having their cholecystectomy after the stipulated time period (2 weeks from admission). 19% of such patients had re-admissions for recurrent pancreatitis or cholecystitis, with the delay to operate due to limited theatre availability.

Conclusion: The audit highlights the unnecessary delay in acute and definitive treatment of GSP, with associated consequential complications. Provided that emergency theatre is functioning on a twenty-four seven basis, GSP should be listed for surgery on emergency lists to ensure adequately timed treatment.

P9.04

Trans-abdominal pre-peritoneal vs total extraperitoneal laparoscopic inguinal hernia repair – a meta-analysis of the literature

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Introduction: Minimally invasive surgery is gradually becoming the mainstay of surgical treatment of many conditions. Two laparoscopic techniques have been developed in the management of inguinal herniae – the Trans-abdominal pre-peritoneal (TAPP) and the Total extraperitoneal (TEP) laparoscopic repair.

Methods: A literature search has been carried out on PubMed, MEDLINE, EMBASE and Google Scholar academic search engines, using the MESH terms 'Inguinal Hernia', 'Randomised Controlled Trials', 'TEP', 'TAPP', 'Laparoscopy' and Boolean Operation such as 'and' and '+'. All randomized controlled trials published until December 2017, comparing TAPP and TEPP inguinal hernia repair were identified. Data was collected on post-operative pain at 1 hour and 24 hours, hospital stay, operative time and seroma formation. Each outcome was calculated with 95% confidence intervals and with intention-to-treat analysis. 12 randomised controlled studies were eligible for analysis.

Results: Twelve blinded prospective randomised controlled studies were used to set up the meta-analysis. When compared to Total extraperitoneal laparoscopic repair of inguinal hernia, Trans-abdominal pre-peritoneal repair has comparable Seroma formation rates (Chi 2 = 7.94; (P=0.02); CI -4.31, 0.55; I2 = 75%) and Post-op pain at 24 hours (Chi2 = 30.28; (P=0.00001); CI -0.31, 0.06; I2 = 87%). However, Total extraperitoneal laparoscopic repair is associated with a significantly shorter operative time (Chi2 = 502.95; (P=0.00001); CI 0.24, 0.48; I2 = 98%), Post-op pain at 1 hour (Chi 2 11.26; (P=0.004); 0.05, 0.30; I2 = 82%) and shorter hospital stay (Chi 2 = 455.14; (P=0.00001); CI 0.72, 1.07; I2 = 99%).

Conclusion: Total extraperitoneal repair is significantly better than Trans-abdominal pre-peritoneal repair with regards to operative time, post-op pain at 1 hour and hospital stay. There is no significant difference between the two with regards to post-op pain at 24 hours and seroma formation.

P9.05

Hepatitis B reactivation

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Introduction: The course of disease caused by hepatitis B virus (HBV) depends on the level of viral replication, the host's age and immune response. The administration of immunosuppressive therapy puts infected patients at risk for HBV reactivation. Besides being a severe and potentially fatal complication, it may lead to the interruption and delay of necessary treatment for other conditions.

Methods: Patients diagnosed with HBV infection between 2008-2018 were identified through the Virology Department. Demographic and clinical data was collected. Hepatitis B reactivation was defined as an abrupt increase in HBV replication in patients with inactive or resolved HBV infection with or without Hepatitis B surface antigen (HBsAg) in the serum. In HBsAg positive patients, the criteria for reactivation were defined as de novo detection of HBV DNA in patients with previously undetectable levels, a rise in HBV DNA of at least 1 log IU/mL or a rise in viral load associated with biochemical hepatitis 1.

Results: Four hundred and forty-one patients were noted to suffer from HBV infection. Five percent (n=20) of patients suffered a reactivation during the study period, half of them being males (n=10). The mean patient age was 49 years (range: 24-63 years). All patients were positive for the HBV surface antigen. None had documented Hepatitis C or HIV co-infection, while one (5%) had previous exposure to Hepatitis A. The cause of HBV reactivation was undetermined in the majority of patients (95%), while one case (5%) followed the administration of immunosuppressive therapy for Non-Hodgkin's lymphoma and was on tenofovir prior to the chemotherapy. None suffered from major complications such as liver failure or death.

Conclusion: Although the cause was unknown in most patients, the simple prescription of oral corticosteroids is considered a risk factor for reactivation. Despite being rare, patients at risk of reactivation should be routinely screened for both past exposure and current infection with HBV. Reference: Hoofnagle JH. Reactivation of hepatitis B: definition and terminology. Emerging Trends Conference on HBV Reactivation; Crystal City, VA, USA. 2013. pp. 17-20.

P9.06

Bloating in a large outpatient population: discharge or investigate?

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Introduction: Bloating is a common presenting complaint affecting up to 20% of the population, though objective abdominal distension occurs in half of the cases.

It can have a significant impact on patient's everyday activities. Its evaluation and management may be difficult, necessitating multiple medical appointments and investigations.

Methods: This was a retrospective analysis of patients presenting to a single consultant gastroenterology secondary care out-patients clinic (2013-2015) where one of the symptoms was bloating. The clinical notes and investigations were reviewed.

Results: From an overall cohort of 840 patients, 256 patients with bloating (73.4% females) were identified. The mean age was 42.4 (SD +/- 14.1) years. The mean time of follow-up was 47.5 months (range: 20.5 – 71.3). Other symptoms were: abdominal pain (73.8%), dyspepsia (32%), nausea (14.8%), vomiting (4.7%), bleeding pr (7%), change in bowel habit to diarrhea (29.7%), change to constipation (17.6%) and weight loss (9%). In 9.4% of patients these pathologies were diagnosed: celiac disease ($n=6$), small bowel intussusception ($n=1$); renal cell carcinoma ($n=2$); endometrial carcinoma ($n=1$); hypothyroidism ($n=2$); ulcerative colitis ($n=5$); small bowel Crohn's disease ($n=3$); microscopic colitis ($n=2$); unclassified inflammatory bowel disease ($n=2$). All malignancies occurred in patients above the age of 50 years.

Conclusion: This data demonstrates that bloating contributes to a significant patient load in an out-patient setting as 30.5% of patients had this symptom. Routine blood investigations, faecal calprotectin and abdominal ultrasonography are baseline investigations that should be considered in all such patients as approximately 10% of these patients had significant pathologies diagnosed.

P9.07

A case of Chronic Xanthogranulomatous Osteomyelitis as a possible extra-intestinal manifestation of Crohn's disease

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Introduction: Extra-intestinal manifestations (EIM) are seen in 25-40% of inflammatory bowel disease (IBD) patients. We present a case of chronic xanthogranulomatous osteomyelitis (XO) as a possible EIM of Crohn's disease (CD). XO is an inflammatory process characterized by infiltration of histiocytes and foamy macrophages. Radiologically it can mimic a malignancy. A 20 year old gentleman presented with abdominal pain, loose stools and right pelvic pain. Blood investigations revealed a raised CRP (87mg/l), with the rest of the blood parameters being normal. Colonoscopic and histological findings were consistent with CD. A CT enterography was performed to assess the small bowel and visualize the other organs in view of persistent pelvic pain. A 46mm (diameter) right pubic bone mass was demonstrated, which increased to 61 mm on subsequent imaging. No other involvement was present on Isotope Bone scan and PET-CT. Biopsy was consistent with XO. In view of the patient's colonic CD symptoms, he was started on Infliximab and Azathioprine. This led to clinical and histological remission of his CD as well as to resolution

of the pelvic pain. Subsequent imaging demonstrated an eventual decrease in size of the mass over 3 years.

Conclusion: XO is a very rare disease, with only 8 cases reported. It was never reported in patients with IBD. The development of pelvic pain which set off along with the symptoms due to CD, with symptom resolution and subsequent reduction in mass size upon starting immunosuppressive drugs suggest an association between CD and XO.

P9.08

Descriptive analysis of campylobacteriosis surveillance data in Malta: a retrospective review 2007 - 2017

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Introduction: In recent years, the number of cases of campylobacteriosis have been steadily rising in Malta. We conducted an in-depth epidemiological overview of trends for all cases of campylobacteriosis reported from 2007-2017.

Methods: Ten-year trends (2007-2017) were analysed with poisson regression using a 95% level of confidence. Data was analysed for confirmed cases and all analyses were conducted using STATA 12.0 and Microsoft Excel. Incidence rate ratios were calculated. The notification rates for each year were calculated using the number of confirmed cases per 100 000 inhabitants in the population as of 1 January for each respective year. Population data for each year was extracted from the National Statistics Office in Malta.

Results: Cases of campylobacteriosis showed a statistically significant increasing ten-year trend in Malta from 2007-2017. The highest notification rates were detected in children < 1 and 1-4 years of age. Notification rates slightly decreased in the 1-4 age group for both males and females. *C. Jejuni* and *C. Coli* were the two most commonly reported species and accounted for 89% of all reported species. *Campylobacter* showed clear seasonality, with a noticeable increase of reported cases in the summer, peaking in August. Most cases were domestically acquired with only 0.7% of all cases reported as imported. Most commonly reported suspected sources of infection were household which accounted for 70% of cases with known sources of infection.

Conclusion: Future public health measures for reducing the number of human campylobacteriosis cases should target improving personal hygiene and food safety practices in the home.

P9.09

Descriptive analysis of salmonellosis surveillance data in Malta: a retrospective review 2007-2017

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Introduction: In recent years, the number of cases of salmonellosis have been steadily rising in Malta. We conducted an in-depth epidemiological overview of trends for all cases of salmonellosis reported from 2007-2017.

Methods: Ten-year trends (2007–2017) were analysed with poisson regression using a 95% level of confidence. Data was analysed for confirmed cases and all analyses were conducted using STATA 12.0 and Microsoft Excel. Incidence rate ratios were calculated. The notification rates for each year were calculated using the number of confirmed cases per 100 000 inhabitants in the population as of 1 January for each respective year. Population data for each year was extracted from the National Statistics Office in Malta.

Results: Cases of salmonellosis showed a steady decrease from 2008-2013 followed by a recovery to previous levels up to 2017. The highest notification rates were detected in the age group <1 year and 1-4 year-old children. *S. Typhimurium* and *S. Enteritidis* together accounted for over 56% of all reported serovars. Overall declining trends in *S. Enteritidis* and *S. Typhimurium* were observed. Most salmonellosis cases were domestically acquired and showed clear seasonality with a noticeable increase in summer and early autumn. The most commonly reported suspected source of infection was household.

Conclusion: Future public health measures for reducing the number of human salmonellosis cases should target improving personal hygiene and food safety practices in the home. Declining trends in *S. Enteritidis* and *S. Typhimurium* suggests a positive public health impact due to various EU-level prevention and control measures implicated for both serotypes.

P9.10

Ultrasound imaging of the pancreas: some technical tips revisited

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Introduction: Ultrasound imaging is the primary procedure of choice to evaluate the pancreas, lower end of the common bile duct, for the diagnosis of pancreatic cancer, gallstones, sludge and cholangiocarcinoma. Ultrasound is easily accessible, relatively inexpensive but poses technical challenges such as the patient's body habitus and the presence of bowel gas. The purpose of this technical tip is to revisit the information that can be obtained by a stepwise assessment of the epigastric organs, vessels and ducts using supine, oblique, sitting and standing erect positions with and without gastric filling. Ultrasonography of the pancreas may be optimized by using different approaches to maximise the information obtained from this imaging modality.

Conclusion: The techniques may either obviate the need for MR/CT or enable an improved patient pathway for future diagnostic or therapeutic management.

P9.11

Norovirus outbreak among staff working at a food processing company in Malta, February -March 2017

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Introduction: On 03/03/2017, we were notified about an outbreak of gastroenteritis affecting employees of a local food processing company since 28/03/2017. We aimed to identify the source and implement control measures.

Methods: We inspected the company, identified all employees through Human Resources, and collected data on risk exposures using self-administered questionnaires. We defined cases as company employees with at least two episodes of vomiting or diarrhoea in 24 hours since 28/02/17. We calculated risk ratios (RR) and 95% confidence intervals (95%CI). Stool samples were collected and analysed.

Results: Of 514 employees, 272 (53%) responded; 55 (20%) met the case definition with onset dates from 28/02/2017- 04/03/2017. Five (9%) cases required hospitalisation. Fifty-three (96%) cases ate from the canteen from 27/02/2017 - 02/03/2017. Eating in the canteen was associated with illness (RR: 11; 95% CI: 2.7 - 43). No significant food exposures were identified. Eleven of 26 (42%) stool samples were positive for norovirus. Of these, 3 were food handlers in processing plants; 8 were canteen food handlers, of which 3 (38%) were asymptomatic. Environmental inspections identified deficiencies in food safety practices.

Conclusion: Environmental and epidemiological evidence suggest this point source outbreak occurred due to cross-contamination of canteen food and/or inadequate adherence to food hygiene practices. To prevent further cases, food processing was temporarily suspended, positive food handlers were excluded, the company's premises was disinfected and staff responsibilities revised. This outbreak highlights the potential role of asymptomatic food handlers in norovirus transmission and the importance of reinforcing adherence to personal hygiene and food safety practices.

P9.12

An audit of single surgeon outcomes following laparoscopic nissen fundoplication

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Introduction: Laparoscopic Nissen Fundoplication is a well established treatment option in the management of gastro oesophageal reflux disease (GORD). We have audited the outcome of a single surgeon's practice to assess results after surgical intervention.

Methods: All patients undergoing a laparoscopic Nissen Fundoplication from December 2013 to date was collated and analysed. A telephone interview to assess functional clinical outcome and quality of life after the procedure was conducted and the data analysed.

Results: A total of 26 patients were included in this audit. There was a highly significant improvement in all of the parameters analysed when compared to preoperative findings. Notably, with regards heartburn, reflux, and sleep disturbance, patients reported a complete resolution or marked improvement in their symptoms in 96% overall, (84% and 95% of patients respectively). There was also an 88% improvement in supine reflux. Dysphagia was present in 7/26 (27%) of patients post operatively, however 5 of these patients had also reported significant dysphagia preoperatively. This therefore results in persistent dysphagia purely as a side effect of the operation in 2/26 (7%). 88% of patients reported an improvement in quality of life and 24/26 (92%) of patients said that they would recommend the procedure to a friend.

Conclusion: Laparoscopic fundoplication results in a very significant functional improvement in patient's symptoms and quality of life and can be safely performed laparoscopically on a 24 hour stay basis.

P9.13

A retrospective study of salivary gland fine needle aspiration cytology comparing the new Milan reporting system with traditional reporting methods

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Introduction: Salivary gland fine needle aspiration cytology (SGFNAC) is a useful tool for guiding the clinical management of salivary gland lesions, mostly used in the preoperative assessment of neoplastic disease. A standardised classification system for SGFNAC reporting has not been available to date. This has resulted in use of confusing terminology, unclear management strategies, and difficulty in comparing studies carried out in different centres using different diagnostic categories. The Milan System (MS) for reporting SGFNAC was published in February 2018 with the aim of standardising reporting of SGFNAC and of giving clearer guidelines for clinical management, including risk stratification for malignant potential.

Methods: The Laboratory Information System, Department of Pathology, Mater Dei Hospital was searched for cases of salivary gland fine needle aspiration (SGFNA) carried out between 2014 and 2017. Reports were reviewed and categorised according to the MS, referring to microscopy where necessary. Histology-cytology correlation was carried out for those cases for which a subsequent surgical specimen was available.

Results: Almost 400 SGFNA specimens were received in the laboratory in the time period under study. There was a subsequent surgical specimen in only a small number of cases, presumably because of the use of SGFNAC in stratifying patients for surgery. Reclassification of cytology reports in accordance with the MS resulted in a much clearer risk classification for malignant potential.

Conclusion: The MS for reporting SGFNAC offers a clear advantage over traditional descriptive reporting methods in guiding the management of salivary gland lesions. This system will therefore be implemented locally in the near future.

P9.14

Increased prevalence rates of inflammatory bowel disease in the urbanised regions in the Maltese islands

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Introduction: Hygiene-related factors are thought to be associated with the growing incidence of inflammatory bowel disease (IBD). Literature suggests that decreased microbial exposure in an urban upbringing during childhood may play an important role in the development of IBD. The aim of this study is to determine any variation in the distribution of IBD within different districts in the Maltese Islands

Methods: A population based national IBD registry was used to determine prevalence and location of patients with IBD. A report from the national statistics office in 2017 was used to determine the geographical districts and the population size of each district. Chi square test was used to determine significant variation between districts.

Results: The mean prevalence in each district was 2.7 cases per 1000 persons (SD +/- 0.5). The distribution of IBD was very similar in all the 5 districts within Malta. However, there was a significantly lower prevalence in the Gozo and Comino district with a rate of 1.7 cases per 1000 persons ($p=0.001$)

Conclusion: Despite the small area of the Maltese Islands this study has shown significantly lower prevalence rates in the more rural district of Gozo and Comino. Our research supports the hygiene hypothesis; with urbanisation being a possible important contributor in the development of IBD.

P9.15

The rational design of liver x receptor modulators for the management of pancreatic cancer using the agonist GW3965 and 4-(3-Aryloxyaryl) quinoline sulfone scaffolds as leads

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Introduction: The Liver X Receptors (LXR) are nuclear receptors involved in the modulation of inflammatory and immune responses. LXR agonists inhibit cellular proliferation, and mediate cell cycle arrest in pancreatic cell lines. In vitro studies show that the experimental synthetic molecules GW3965 and 4-(3-Aryloxyaryl) quinoline sulfone are high potency LXR agonists.

Methods: Pdb crystallographic depositions 3KFC and 3IPQ describing the GW3965 and 4-(3-Aryloxyaryl) quinoline sulfone:LXR complexes respectively were identified. The affinity of each molecule for its cognate receptor was computationally quantified, and set as a comparative baseline value. 2D topology maps describing the critical contacts forged between each small molecule and its cognate receptor were generated, and used to model high efficiency seed fragments capable of sustaining de novo growth. 3D LXR ligand binding pocket maps were

modelled. The seed fragments were docked into the maps and allowed parameterised user directed growth within the confined space. The resultant molecules were filtered for Lipinski Rule compliance, grouped according to pharmacophoric similarity, and ranked in order of affinity.

Results: Three seed structures were modelled for each lead molecules. The 3 highest ranked structured from each pharmacophoric family for each lead molecule were structurally analysed. The optimal pharmacophores were consequently identified and proposed as ideal starting points for the development of analog series of molecules

Conclusion: The GW3965 and 4-(3-Aryloxyaryl)quinoline sulfones were successfully modelled into high efficiency molecular fragments which yielded de novo designed Lipinski Rule compliant structures with an LXR binding affinity that exceeded that of the lead molecules. The optimal molecules require computational and *in vitro* validation prior to further optimisation.

P9.16

Saline-immersion therapeutic endoscopy (SITE) for endoscopic submucosal dissection (ESD) with pocket creation method of a large rectal lesion

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Introduction: Since its first description in 2012, underwater endoscopic mucosal resection has become a well-recognised alternative approach to standard submucosal-injection facilitated endoscopic mucosal resection. In 2017, our group first described Saline immersion therapeutic endoscopy (SITE) as an 'evolution of the underwater technique' with several potential advantages. To date, only limited data concerning the use of immersion methods for endoscopic submucosal dissection (ESD) are available. Our aim was to assess the usefulness, effectiveness and safety of SITE-facilitated ESD for resection of a large rectal lesion.

Methods: An 82-year-old woman with a history of ischaemic heart disease, hypertension, atrial fibrillation, type 2 diabetes mellitus and deep vein thrombosis, was referred to our centre for ESD of a 60mm rectal mixed-nodular type laterally spreading tumour (LST-GM) (Paris 0-Is, Kudo pit pattern IIIL/IV), 10cm from the anal verge.

Results: SITE-facilitated ESD was performed under conscious sedation using the pocket creation method (PCM). A gastroscope with incorporated water-jet and zoom functions, short, conical distal attachment and a 2.5mm ball-tip, needle-type, irrigation knife were used. Carbon dioxide (CO₂) insufflation was used during the initial incision and submucosal trimming on the anal side of the lesion. The CO₂ insufflator was then turned off, gas was aspirated from the lumen and the lesion was submerged in physiological saline using the water-jet function. SITE-facilitated ESD was then performed

using zoom mode. Saline-immersion eliminated any fluid-gas interfaces obviating the need for suction. The use of saline-immersion with zoom also facilitated more precise, minimal contact dissection and enhanced pre-emptive visualisation of submucosal vessels, for avoidance of intraprocedural bleeding. Once the submucosa was successfully dissected, the remaining lateral and oral incisions were completed successfully for en-bloc resection; histopathology confirmed R0 resection.

Conclusion: SITE-facilitated ESD appears to be a useful, safe and effective technique. In our experience, it appears to confer several potential advantages which include: improved endoscopic visualisation (with augmented magnification), minimal contact dissection (likely due to the superior electrical conductivity of saline) and also reduced tissue friability (due to the isotonic nature of physiologic saline vis-à-vis water-immersion).

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P9.17

Muscle retraction with convergent neovascularisation: an ominous finding at endoscopic submucosal dissection (ESD)

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Introduction: Colorectal endoscopic submucosal dissection (ESD) is well established in Japan and its use as a minimally invasive alternative to surgery in selected cases is gradually spreading in Western countries. However, when the so-called muscle-retracting (MR) sign is encountered during ESD, complete resection may not be feasible. The pocketcreation method (PCM) was introduced to overcome several technical issues of ESD, including the MR sign. This innovative technique provides effective traction between the protruding nodule and the muscle layer allowing an easier recognition of the submucosal space in the context of fibrosis. To date, both magnifying endoscopy and endoscopic ultrasound may not be able to show invasive cancer, especially for lateral spreading tumor (LST) with a large nodule. Therefore it may be difficult to predict if any MR sign is caused by fibrosis or deep submucosal invasion.

Methods: Our aim was to highlight the characteristics of deep submucosal invasion during ESD when using the PCM. A 74-year-old man underwent routine colonoscopy for investigation of haematochezia at a local hospital where a large granular, mixed-nodular type LST was identified in the proximal rectum. The patient was referred to our institution for endoscopic resection. Endoscopic assessment of the lesion performed at our unit with near focus, indigo carmine dye spray and narrow band imaging (NBI) did not reveal any sign of Kudo type V pit pattern, JNET type III surface findings, or any other definitive

sign of intramucosal or deeply invasive cancer. For this reason we proceeded with saline-immersion therapeutic endoscopy (SITE) facilitated ESD using the PCM.

Results: After dissection of the distal aspect of the lesion, the MR sign was encountered within the submucosal pocket, just beneath the distal aspect of the large nodule. Although we continued to dissect this severely fibrotic submucosal area using the PCM technique, increasing severity of submucosal fibrosis and repeated bleeding from convergent, irregular submucosal neovascularisation around the MR site (with an appearance akin to 'solar flares'), impeded further resection. ESD was therefore discontinued due to high suspicion for submucosal invasion. Histopathological analysis of biopsies taken from the MR area confirmed deep submucosal invasion.

Conclusion: Our findings confirm the suspicion that a flare of neovascularisation convergent onto the MR area represents a pathognomonic endoscopic sign of deep submucosal invasion. ESD should be stopped in this scenario and surgery should be recommended.

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P9.18

A combination of endoscopic techniques for management of buried bumper syndrome

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Introduction: Buried bumper syndrome (BBS) is a rare, long-term complication of percutaneous endoscopic gastrostomy (PEG) placement, occurring in 2-6% of the cases. BBS is thought to occur due to prolonged compression of the tissue between the external and internal fixators, leading to 'burying' of the PEG bumper into the gastric wall. Consequences of BBS include tube obstruction and more rarely bleeding, abscess formation, and perforation. Several endoscopic techniques are described for the management of BBS and these may be complimentary when used in combination.

Methods: A 32-year-old woman with diabetes, chronic kidney disease, a history of hypoglycaemic brain injury and gastroparesis, requiring a venting PEG, presented with abdominal pain. PEG tube obstruction led to the suspicion of BBS and abdominal computerised tomography confirmed this.

Results: At upper gastrointestinal endoscopy under general anaesthesia, the internal bumper was found to be completely buried by granulation and fibrotic tissue. A 2.5mm bald tip needle knife was initially used to partially dissect the overgrown gastric tissue in order to achieve insertion of a biopsy forceps through the external aspect of the PEG tube and through the dissected orifice. This maneuver opened a track in the overgrown tissue for insertion of a sphincterotome mounted on a guide wire through the external PEG tube. The sphincterotome was

then flexed completely and several radial incisions on the overgrown tissue were performed using external traction on the sphincterotome. Finally, a 6mm endoscopic balloon dilator was passed through the scope and pulled into the PEG tube by the biopsy forceps inserted through the external end of the tube. The balloon was then fully inflated within the PEG tube and traction was applied to the balloon and endoscope for release of the buried bumper and PEG tube remnant from the dissected overgrown tissue into the stomach. The dissected orifice was then closed using endoscopic clips. The procedure was performed under antibiotic prophylaxis.

Conclusion: To the best of our knowledge, this is the first use of a complimentary, multimodality endoscopic approach for the effective, minimally invasive, safe management of BBS.

Disclosures: Dr Despott receives research support from Aquilant Medical and Fujifilm. All other Authors disclosed no financial relationships relevant to this publication

P9.19

Induction and maintenance of remission with originator infliximab versus biosimilar in inflammatory bowel disease

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Introduction: Biological therapies have revolutionized the management of refractory inflammatory bowel disease (IBD). Following the expiry of marketing protection for the originator infliximab (Remicade[®]), two biosimilars (Inflectra[®] and Remsima[®]) have been developed by competitor companies at a lower cost. The European Medicines Agency has approved the use of these biosimilars for the treatment of inflammatory bowel disease. Our aim was to compare the rates of induction and maintenance of remission with Remicade[®] versus Inflectra[®] and Remsima[®] in a local population of patients with inflammatory bowel disease.

Methods: This was a retrospective study which included all histologically proven patients with ulcerative colitis (UC) or Crohn's disease (CD) on infliximab under the care of one gastroenterologist at Mater Dei Hospital. The Mayo Clinic Score and Harvey-Bradshaw Index were completed at 3 monthly intervals in the first year of treatment to assess the activity of UC and CD respectively.

Results: In the case of UC, 100% of patients on the originator infliximab had a lower Mayo Clinic Score after one year of treatment; remission was achieved in 60%. 100% of patients on the biosimilar also had a lower Mayo Clinic Score after one year of treatment; remission was achieved in 67%. The mean improvement in score was similar in both groups. In the case of Crohn's disease, 93% and 100% of patients had a lower Harvey-Bradshaw score after one year of starting the originator infliximab and biosimilar respectively. The mean improvement in score was higher in the latter group.

Conclusion: Efficacy following a year of therapy is comparable in both groups. Continued follow-up is necessary to assess long-term efficacy.

P9.20

Does CT enterography safely predict the passage of small bowel capsule endoscopy?

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Introduction: Evaluation of small-bowel patency is desirable prior to small bowel capsule endoscopy (SBCE) so as to minimise the risk of SBCE retention, especially in patients with Crohn's disease (CD) or with possible small bowel (SB) obstruction. The use of patency capsule (PC), when available, is an option. However, in patients with delayed transit without obstruction, this may result in false-positive results thus precluding the use of CE. The aim of this study was to determine if CT enterography (CTE) can safely predict the passage of the SBCE and to analyse the added medical data obtained through its use.

Methods: This was a retrospective analysis of consecutive patients who had a CTE performed prior to SBCE. The clinical data and the results of CTE and SBCE were analysed. The Saurin classification was used to classify the lesions in the SB for bleeding potential.

Results: One hundred and fifty-five patients with a mean age of 58.1 years (SD +/- 18.3) were recruited. 53.1% of patients were males. The main clinical indications for SBCE were: iron deficiency anaemia (IDA) (73.8%), assessment of possible coeliac disease complications (3.2%); assessment of known SB CD (3.9%); suspected CD (7.7%); recurrent abdominal pain and vomiting (5.8%); suspected malabsorption 1.9%; and assessment of possible SB polyps / masses on CTE (3.7%). The only patients with an abnormality on CTE were the latter group. In 10.3% of patients, SBCE was incomplete as the colon was not entered. However, none of the 16 patients actually retained the SBCE. The Saurin classification of the SB findings were: p0 – 29.7%; p1 – 29.7% and p2 – 40.6%. In the latter group, apart from ulcers in the context of CD and angiomata, 3 patients had large polyps; 1 patient had a SB lymphoma and another patient had SB adenocarcinoma. Furthermore, from the patients with a p0 lesion, 13.5% of patients had a gastric pathology accounting for IDA, but none of these patients had a relevant colonic lesion. In 13.8% of patients with a p1 or p2 lesion, concomitant gastric (7.3%) or colonic (6.4%) pathology was reported.

Conclusion: This data demonstrates that CTE can safely predict the passage of SBCE. Thus, CTE can also be used to minimize PC study false-positive results or instead of a PC prior to SBCE. Furthermore, this data also demonstrates the added clinical benefit that can be obtained through the performance of SBCE.

P9.21

Practice patterns in the use of biliary plastic stents for malignant obstructive jaundice

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Introduction: Biliary plastic stents should be changed three monthly at endoscopic retrograde cholangiopancreatography (ERCP). Studies showed that stent replacement “on-demand” is a safe alternative. We studied the need of stent replacement when an “on-demand” approach is applied.

Methods: All patients with malignant obstructive jaundice, diagnosed between July 2015 and August 2017, who had ERCP for stent insertion, were retrospectively included in this study. Biliary plastic stent insertion was performed in all cases where biliary cannulation was achieved. Stent replacement was only performed when stent complications arose (“on-demand”). Data was collected from the medical notes.

Results: Fifty-seven patients with an obstructing tumour underwent ERCP for biliary stent insertion. Biliary cannulation was achieved in 56% (32/57). All those cannulated had successful plastic stent insertion. Failed ERCP had subsequent percutaneous transhepatic cholangiogram (PTC) in 96% (24/25), of whom 87% (21/24) had successful percutaneous stent insertion. From the ones with successful ERCP stenting, 72% (23/32) did not require stent replacement during a mean follow up period of 6 months (1-25 months). 28% (9/32) required stent replacement, with 77% (7/9) needing replacement once. The mean survival time after stent insertion in patients who died was 4.3 months (1-22 months).

Conclusion: The low biliary cannulation rate via ERCP suggests the locally advanced stage of such tumors at presentation. EUS-guided biliary cannulation may improve such rates, avoiding the morbidity of PTC. Given that survival post-stent insertion is around 4 months and that >70% did not require stent replacement at 6 months, the “on-demand” approach to stent replacement seems to be appropriate.

P9.22

An audit of functional outcome and quality of life after laparoscopic heller's cardiomyotomy

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Introduction: To analyse the effect on outcome of symptoms and quality of life following Laparoscopic Heller's Cardiomyotomy on patients suffering from achalasia.

Methods: All patients having undergone Laparoscopic Heller's Cardiomyotomy for achalasia at Mater Dei Hospital in Malta by one surgical firm were audited to assess outcome. Patients were contacted via telephone and asked a series of questions related to physiological function and quality of life after the intervention. Three patients were unreachable and hence excluded from the study.

Results: The 11 patients interviewed, 73% of which were male, all reported improvement in dysphagia score,

after surgery 64% had no dysphagia at all and 36% had only moderate symptoms. Odynophagia improved in all patients. The symptoms of coughing chest pains and regurgitation also improved in most patients. 73% of patients reported weight gain after surgery. When asked generally if their symptoms improved after surgery all claimed that they were better. Furthermore, 82% of patients would do the surgery again, one patient was unsure, and one patient would not. The symptoms of achalasia had varying degree on perceived quality of life as assessed by the 36 item short form survey, in most patients there was a significant improvement. The patients reported that the symptoms of achalasia had the highest effect on quality of life when they attended social events involving food.

Conclusion: All patients interviewed reported an overall improvement of symptoms after surgery, most also experienced an improved quality of life, and with hindsight most patients would do the surgery again.

P9.23

A closed loop audit on antibiotic prophylaxis for laparoscopic cholecystectomy in Malta

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Introduction: Laparoscopic cholecystectomy is the standard treatment for cholelithiasis. However, the role of prophylactic antibiotics during this operation remains controversial. Whilst they may reduce surgical site infections, there is still no level one evidence for their use in uncomplicated procedures. The aim of this closed loop audit was to assess whether local antibiotic guidelines are being adhered to and ultimately help implement change in local practice, achieve better adherence to said guidelines and reduce hospital costs.

Methods: A retrospective review was performed using files of patients who underwent an elective Laparoscopic Cholecystectomy between January and September 2015. The data was analyzed to calculate the local prophylactic antibiotics adherence rates. Posters were prepared to advocate for adherence to the local guidelines, these were hung in the hospital's surgical wards, operating theatres and doctor's quarters. Following a six-month period, the second audit cycle was performed. The results from both cycles of the audit were statistically analysed for any difference in adherence to guidelines using unpaired t-test and chi-squared test.

Results: Seventy-three patient files were included in cycle 1, whilst 101 files were included in cycle two. The overall adherence to antibiotic guidelines in cycle 1 was 24.7% ($n=18$). Despite advocating for changes in practice, the overall adherence in cycle 2 remained 31.7% ($n=32$). No statistical significance was noted between both groups for the primary outcome on antibiotics adherence ($p=0.31$).

Conclusion: Further guidance needs to be implemented in order to improve the local adherence to prophylactic antibiotic guidelines for elective laparoscopic cholecystectomy.

P9.24

The impact of inflammatory bowel disease on patients' level of exercise

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Introduction: IBD can impair the functional capacity of patients who may find it discouraging to maintain their level of fitness after diagnosis. Nevertheless IBD patients perceive exercise and sports as being helpful in managing their psychological health and reducing some of the symptoms and complications of IBD. Our aim was to determine the impact of IBD diagnosis on fitness levels.

Methods: We conducted a prospective multi-centre cross-sectional survey study were patients with a confirmed diagnosis of IBD within the previous 18 months were recruited. Patients who had not been in clinical remission and/or had had treatment changes within the previous 6 months were excluded. Clinical data was collected from medical databases and surveys were administered in order to estimate levels of exercise before and after diagnosis by means of Godin scores. Severe disease was defined as need for surgery and/or anti-TNF-alpha medications

Results: One hundred and fifty-eight patients (100 – Crohn's disease; 58 – Ulcerative colitis) from 7 different European centres were recruited. Mean age was 35.1 years (95% CI ± 2.0) and gender distribution was approximately equal (51.3% male). The Mean Harvey Bradshaw and Simple Clinical Colitis Activity indices were 2.25 (95% CI ± 0.40) and 1.64 (95% CI ± 0.49) respectively. Mean Godin score difference before and after IBD diagnosis was 6.94 (95% CI ± 4.28 , $p=0.002$). Mean pre-morbid Godin scores were significantly higher (ANOVA $p=0.001$) amongst patients who experienced a reduction in activity (39.5, 95% CI ± 6.3) compared to those who experienced either no change (26.9, 95% CI ± 5.3) or even an improvement in their level of exercise (12.1, 95% CI ± 3.8) after diagnosis. Mean BMI was slightly higher after diagnosis however this did not reach statistical significance ($p=0.072$) and was still within the normal range (24.98 kgm⁻²). Patients with UC (41.8%) were more likely than patients with CD (23%) to reduce their level exercise ($\chi^2 p=0.04$). However there was no significant association for the diseases between reduction in exercise and disease severity and/or frequency of relapses.

Conclusion: Patients were significantly less physically active after a diagnosis of IBD and this was more apparent in UC. Furthermore, individuals with a high pre-morbid level of physical activity seem to be affected most. A higher BMI after diagnosis could be attributable to this reduction in exercise levels but also to better disease control. Prompt

identification of risk factors associated with loss of fitness levels would help address the reduced quality of life that may be associated with lack of physical activity.

P9.25

Increase of hepatitis A cases among men who have sex with men in Malta, 2017

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Introduction: Since February 2016, the number of cases of hepatitis A virus (HAV) infection among men who have sex with men (MSM) has been increasing in Europe. In 2017, the Infectious Disease Prevention and Control Unit (IDCU) in Malta detected the first clusters of HAV among MSM. We investigated to identify the likely routes of transmission and implement control measures.

Methods: Confirmed HAV cases are routinely reported to the IDCU. We defined cases as MSM with positive anti-HAV IgM since 01/01/2017 with reported sexual activity 50 days prior to disease onset. We traced close sexual contacts of cases and actively followed them up by offering HAV vaccination and advice on prevention and control measures.

Results: In 2017, 26 confirmed cases were reported in Malta, of which 21 (81%) were males and five (19%) females. Of 21 male cases, 14 (67%) were known to be MSM. Of these, five cases were part of two separate clusters. All MSM reported having multiple sexual partners and were unaware about HAV risk. Contact tracing identified 81 close sexual and/or household contacts. Fifteen (83%) sequenced isolates matched the VRD_521_2016 strain linked to the ongoing European HAV outbreak among MSM.

Conclusion: Sexual transmission of HAV may sustain the outbreak among MSM. This outbreak highlights the need for raising awareness about the risk of sexual transmission of HAV among MSM and promoting HAV vaccination. We recommend conducting cross-sectional studies to identify knowledge and risk behaviours contributing to HAV infection and to estimate HAV vaccination coverage among MSM in Malta.

P9.26

Jejunal diverticulum: a rare cause of life-threatening midgut bleeding successfully treated by double-balloon enteroscopy (DBE)

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Introduction: Small bowel diverticula are a rare cause of gastrointestinal (GI) bleeding. Their pathogenesis is still unclear and can be found in up to 1-2% of the general population. Although these lesions are usually asymptomatic, mid-gut bleeding from diverticula in the jejunum or ileum could lead to a life-threatening situation, warranting emergency invasive therapy and often abdominal surgery.

Methods: Our aim was to demonstrate the usefulness of the double-balloon enteroscopy (DBE) in the setting of an acute, severe small bowel diverticular bleed. A 79-year-old woman with hypertension and type II diabetes mellitus was referred to our institution with melaena and severe anaemia requiring urgent, repeat blood transfusions. Bidirectional conventional endoscopy did not reveal the cause of bleeding. Small bowel capsule endoscopy (SBCE) showed multiple diverticula within the jejunum and ileum. Emergency computed tomography (CT) mesenteric angiography demonstrated a faint 'blush' at one of the jejunal lesions.

Results: Once the patient was haemodynamically stable, emergency anterograde DBE was performed under general anaesthesia (GA) in our main operating theatres. The enteroscope was inserted into the jejunum, approximately 1.5 meters post-pylorus. The culprit cause of the bleeding was identified within a large (5cm orifice) diverticulum, where a large, adherent, pulsating blood clot was seen. In the first instance, peri-lesion, quadrantic injection of a total of 20mls of adrenaline solution (1 in 10,000 dilution) was performed. The clot was then cautiously removed with a long endoclip to reveal the actively bleeding vessel which was then promptly clipped. A total of 3 clips were placed for effective haemostasis and a submucosal tattoo was placed adjacent to the bleeding point for future reference. The patient remained stable after the procedure and did not require any further blood transfusion.

Conclusion: DBE facilitated endotherapy is a precise, safe and minimally invasive approach to the effective management of severe bleeding caused by small bowel diverticula.

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P9.27

A case of revascularisation in a 33 year old gentleman with a chronically occluded aorta and severely disease mesenteric circulation

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Introduction: Abdominal aortic occlusion is very rarely seen in young adults. Chronic mesenteric ischaemia (CMI) has a very low incidence; typically seen in patients over 50 years of age, with a strong female predominance.

Methods: We present the case of a 33 year old gentleman, smoker with a history of illicit drug use but no significant medical history. He presented with very severe weight loss, weighing 37 kg, abdominal pain and very short distance claudication. Only a weak right femoral pulse was palpable. CTA showed occlusion of the infra-renal abdominal aorta and iliac arteries, a 60% stenosis of coeliac origin and near total occlusion of superior mesenteric artery (SMA) origin. The inferior mesenteric artery (IMA) was arising from the occluded aorta. He underwent aorto-caeliac bypass using Dacron graft, aorto bifemoral bypass with re-implantation of the (IMA) onto the graft.

Results: He tolerated oral fluids day 1 post op and by day 2 post op he was having soft diet. He had diarrhea few days post op which resolved and right basal atelectatic changes with a pleural effusion which was drained. His post op recovery was otherwise unremarkable. He gained 5 kg by the time he was discharged on day 28 post op, and 15 kg when he was seen 9 months post op.

Conclusion: Revascularisation is indicated in patients with symptomatic CMI. There is no role for a conservative approach with long-term chronic parenteral nutrition and non-interventional therapy. Excessive delays or use of parenteral nutrition alone have been associated with clinical deterioration, bowel infarction, and risk of sepsis.

P9.28

Bariatric surgery versus lifestyle modification for decreasing glycosylated haemoglobin in obese persons living with type 2 diabetes: a review

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Introduction: Type 2 diabetes mellitus is a chronic disease characterized by high blood sugar levels; it develops due to insulin secretory defects or insulin resistance. Obesity plays a key role in the aetiology of type 2 diabetes; this is being referred to by the term “diabesity”. Treating type 2 diabetes in obese individuals is challenging but a reduction of just 5% body weight is associated with better glycaemic control and a reduced the risk of morbidity and mortality.

Methods: This review sought to answer the following question: Is bariatric surgery more effective than lifestyle modification in reducing HbA1c serum levels to a normal range in obese individuals with type 2 diabetes mellitus? The review included papers published between January 2012 and October 2017. The search was carried out using the keywords type 2 diabetes, metabolic surgery, bariatric surgery and HbA1c in Academic Search Complete via EBSCO, Cumulative Index of Nursing and Allied Health Literature (CINAHL) via EBSCO, and Medline via ProQuest. To be included papers had to focus on adults with type 2 diabetes who had undergone bariatric surgery or lifestyle modification. Eight articles met the criteria and were included. The CASP and AMSTAR critical appraisal tools were used to appraise the studies.

Results: Results revealed that bariatric surgery is more effective than lifestyle modification in achieving reduced HbA1c serum levels to a normal range. Results also revealed that it was not just the weight reduction that contributed to the diabetes control and remission, but also endocrine changes. Of the different bariatric surgeries available, the best result in terms of remission of diabetes was achieved by duodenal switch with biliopancreatic diversion. Individuals with a lesser magnitude of obesity (a BMI that range from 30 to 35 kg/m²), and an early diagnosis of type 2 diabetes, had a greater chance of achieving type 2 diabetes remission following bariatric surgery.

Conclusion: Bariatric surgery is recommended in achieving remission of diabetes in persons who are in the lower obesity range and above, and who have been living with diabetes for less than 8 years. The more complex

duodenal switch with biliopancreatic diversion achieves a higher rate of type 2 diabetes remission. This implies that in view of the growing prevalence of type 2 diabetes and obesity, investment in human and other resources is required to meet the future demand for bariatric surgery.

P10.01

An overview of the state of diabetes education in Gozo

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Introduction: This study sought to analyse the state of diabetes education in Gozo through the use of the internationally validated 24-item Diabetes Knowledge Questionnaire (DKQ).

Methods: Permission from the data protection department at Gozo General Health was obtained as well as Ethics board approval prior to the commencement of this study. The Diabetes Knowledge Questionnaire was back-translated into Maltese. 100 patients ($n=100$) attending a Diabetes Clinic at Gozo General Hospital were randomly selected by the nursing staff and asked to take part in this study on a voluntary basis after their outpatients appointment. The patients were asked to fill in a 24-item validated Diabetes Knowledge Questionnaire. The results of these questionnaires were tabulated, the data analysed and conclusions drawn.

Results: Demographically, the patients were mostly in possession of a primary or secondary school education and of a mean age of 65.97(SD +/- 8.96). Range of correct answers was from 1 to 20 out of a maximum of 24. The average score was 12.31 (SD +/-3.74) on 24. Very few patients answered questions 1, 3, 12 and 17 correctly. The effect of education level, years since diagnosis, treatment given, HbA1c, macro complications and micro complications on the amount of correct answer answered by the patients will be analyzed. Further statistical analysis is currently ongoing and is expected to be complete by October 2018.

Conclusion: There is an evident need of greater diabetes education in Gozo. Increased efforts in this regard may lead to better self-care, reduced complications and a better quality of life in type 2 Diabetics.

P10.02

Haemodialysis catheter related infections in Malta

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Introduction: Infections are still a leading cause of morbidity and mortality in haemodialysis patients. This was a prospective study to analyse the rates and microbiology of haemodialysis related catheter infections in 2017.

Methods: All patients undergoing chronic haemodialysis at the Mater Dei Renal Unit were analysed prospectively. The National Healthcare Safety Network (CDC) guidelines were used to define line infections. Microbiological data was analysed. Data from this cohort was also analysed retrospectively, from 2008 to date.

Results: The prevalent number of patients undergoing haemodialysis during 2017 was 316. There was a male predominance (63%). Mean age was 65.15 years. The incidence of access types was 43% Arterial-Venous (AV) Fistula (43.3%), AV Graft (7.0%), temporary double lumen non-tunnelled haemodialysis catheter (TDLHC) (18.79%) and permanent tunnelled double lumen haemodialysis catheters (PDLHC) (30.9%). During 2017, only 0.9% of patients had a haemodialysis-related line infection, all of them occurring in tunnelled lines (PDLHC). 66% of those infections were *Staphylococcus aureus* and 33% were *Streptococcus mitis*. During the last 10 years, a total of 14 line-related infections were identified, 72% occurring in tunnelled lines. The majority (72%) being caused by *Staphylococcus aureus*.

Conclusion: The number of line related infections at Mater Dei Renal Unit are surprisingly low. This reflects the excellent quality of care provided by the Renal Unit staff, Infection Control Department, and the Nephrology department.

P10.03

A detailed analysis of diabetes and endocrine consults at Mater Dei Hospital

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Introduction: Consultations form a substantial part of the work carried out by endocrine diabetes firms. The aim of this audit is to analyse the consultations done by one firm at Mater Dei Hospital.

Methods: Details related to all endocrine diabetes consultations carried out between the beginning of October 2016 and end July 2018 were inputted in a secure database. The age, gender, reason for consultation and follow up were recorded.

Results: Over the 22-month period, 541 consultations were carried out by a single firm. 52.1% were female and mean age was 61.4 years (+/- 18.2 SD). 73.2% of consultations dealt with problems related to diabetes mellitus. From this subgroup, 24% had Type 1 diabetes, 81.56% had Type 2 diabetes, 11.1% had gestational diabetes with the remaining having other forms of diabetes (e.g. steroid induced). 23.5% of diabetes patients needed commencement of insulin treatment, while 26.3% needed commencement of oral hypoglycaemic agents. 26.7% of the consultations were related to endocrine conditions. Out of these 144 consultations, 13.3% were thyroid related, 5.73% dealt with electrolyte imbalances and 6% dealt with other endocrinological conditions (2% adrenal, 1% pituitary and 3% rarer forms of endocrinological pathologies). Thyroid diseases consisted of thyrotoxicosis (55.88%), hypothyroidism (36.76%) and subclinical hypothyroidism (7.35%). 73.5% of patients had follow up.

Conclusion: This analysis quantified and analysed consults over a 22-month period giving important data on commoner conditions leading to consults while appreciating the requirements of the whole of the specialty.

This data is important for service provision planning, training and specialty development.

P10.04

Hypocalcaemia post total thyroidectomy - analysis of local data

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Introduction: Hypocalcaemia is a common complication after total thyroidectomy. We sought to investigate peri-operative calcium monitoring in this setting.

Methods: We carried out an observational study of total thyroidectomies performed between 2015 and 2016 at Mater Dei Hospital, Malta. Pre-operative vitamin D, calcium (corrected/uncorrected/ionised) sampled pre-operatively, six hours post-op and 24 hours post-op and symptoms and signs of hypocalcaemia were recorded. The AACE/ACE disease state clinical review on post-operative hypoparathyroidism (2015) were used as reference. Hypocalcaemia was defined as corrected calcium < 2.05 mmol/L or ionised calcium < 1.12 mmol/L.

Results: One hundred and seventy-four patients (134 females, 40 males) were studied. Mean (SD) age was 51.3 (15.6) years. Corrected and/or ionised calcium were sampled preoperatively in 101 patients (58.0%) (mean [SD] corrected calcium 2.29 [0.13] mmol/L). Vitamin D was measured in 8 (4.6%) patients pre operatively. Corrected and/or ionised calcium was available for 48 patients (27.6%) at 6 hours and 54 patients (31.0%) at 24 hours. 7 (4%) patients developed hypocalcaemia 6 hours post-op; this rose to 20 (11.5%) by 24 hours. 13 patients (7.4%) reported symptoms while 7 (4.0%) had signs of hypocalcaemia. Treatment consisted of intravenous calcium in 16 (9.2%), oral calcium in 42 (24.1%) and vitamin D in 27 (15.5%). 20 (11.5%) were treated on an uncorrected calcium result. Only 3 patients with hypocalcaemia had their magnesium levels sampled at 6 hours or 24 hours post-op.

Conclusion: Data suggests poor compliance to recommendations for measurement of corrected/ionised calcium, magnesium and vitamin D peri-operatively. Local guidelines are clearly warranted in this regard.

P10.05

The incidence of histology proven glomerular diseases in Malta: analysis of 5-year renal biopsy data

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Introduction: The various histological subtypes of primary and secondary types of glomerular diseases in Malta have not recently been investigated. The aim of this analysis was to look at updated local patterns of biopsy-proven glomerular diseases.

Methods: This was a retrospective analysis of all native kidney biopsy specimens performed in the adult population at Mater Dei Hospital between May 2013 and May 2018.

Results: A total of 281 native biopsies were performed. The median age at biopsy was 52.9 years (Interquartile range [IQR]: 25), 58.7% were males and 93.1% were Maltese. Podocytopathies accounted for 43.1% of biopsies including; diabetic nephropathy (13.5%), focal segmental glomerulosclerosis (12.8%), membranous nephropathy (11.0%) and minimal change disease (5.7%). The vast majority of podocytopathies (83.8%) presented with nephrotic syndrome. Primary glomerulonephritis (GN) accounted for 27.4% of cases including; IgA nephropathy (11.7%), pauci-immune GN (5.7%), lupus nephritis (5.7%), fibrillary GN (1.4%), anti-glomerular basement membrane disease (1.1%), infection related GN (1.1%) and membranoproliferative GN (0.7%). Systemic involvement was present in 65.0% of patients with lupus nephritis. Microscopic polyangiitis was the commonest type of pauci-immune ANCA-positive vasculitis (81.3%). All patients with anti-glomerular basement membrane disease and 41.2% of ANCA vasculitis developed a rapidly progressive glomerulonephritis and became permanently dialysis dependant. Renovascular disease accounted for 13.2%, interstitial nephritis (5.7%), haematological disease related GN (2.1%), thin basement membrane (2.1%) and other glomerular pathologies in 6.4%.

Conclusion: The most common glomerular disease in Malta is diabetic nephropathy, followed by ischaemic glomerulopathy and focal segmental glomerulosclerosis.

P10.06

Audit of renal colic practice trends, outcomes, and follow-up care

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Introduction: Renal colic is one of the most common urologic presenting complaints to the Emergency Department (ED). Management of these cases is naturally diverse due to the variety of presentations observed and depends on myriad factors including patient condition, size and position of renal calculi, and the presence of hydronephrosis or renal obstruction. This audit sought to identify the most common management strategies for this varied cohort in an effort to identify urologic practice trends at Mater Dei Hospital (MDH), Malta.

Methods: We sought to audit renal colic admissions to the urology wards at MDH, focusing particularly on patient demographics, underlying specifics of the presenting pathology, management, and patient follow-up. Patient data was recorded over a period of 3 months from February to April 2018. A total of 48 patients were included in the study.

Results: Demographics: The most common patient age was between 31-40 years (29.2%). Average length of stay was approximately 2 days (1.88 days). Pathology: The most frequently reported presenting complaint was persistent pain (61%) and the investigation of choice for this pain was CT KUB (89.6%). In patients admitted to urology, a renal calculus was confirmed by CT in

93.7% of patients with 79.2% of these stones resulting in some form of hydronephrosis/renal obstruction. When present, the most common stone size was between 5-10 mm (60.4%). Analgesia and Antibiotics: On review at the ED, patients presenting with renal colic who required analgesia were most likely to be administered paracetamol or a "paracetamol plus" treatment (18.8% paracetamol alone or 18.8% paracetamol plus opiate or NSAID). Ward prescribed analgesia consisted predominantly of paracetamol plus an NSAID (31.3%). Patients were most commonly discharged home without any form of analgesia (48.8%). Those who required pain relief on discharge were generally given paracetamol alone (16.7%). Antibiotics were not routinely prescribed (64.6%). Intervention: 37.5% had an emergency intervention during their admission. The primary indication for emergency treatment was persistent pain (29.2%). Medical expulsive therapy (MET) was the most commonly employed management strategy (43.8%), followed by ureteric stenting (31.3%) and then observation alone (20.8%). Follow-Up: 39.6% of patients were discharged with a follow-up intervention planned (e.g. ureteroscopy and stone removal). These procedures were scheduled, on average, 53.6 days following discharge, with a maximum waiting time of 77 days. Average wait time for surgical outpatient (SOP) appointments was 86.4 days. 60.4% of patients had scheduled follow-up imaging planned to coincide with the appointment of which only 4.8% had imaging available prior to their scheduled SOP.

Conclusion: This audit highlights current urologic practice patterns at MDH. In doing so, it is hoped that improvements and alignment with published guidelines and recommendations can be made.

P10.07

An audit of current investigation and management of incidentally discovered adrenal masses

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Introduction: Adrenal incidentalomas are adrenal masses that are discovered incidentally. Widespread use of medical imaging has resulted in the frequent discovery of asymptomatic adrenal masses which should merit radiological characterisation and appropriate workup.

Methods: All adrenal lesions on radiological imaging over a 6-month period between January and July 2014 were retrospectively identified. Of these 182 patients, those with known malignancies, known adrenal nodules and other history of adrenal disease were excluded. This left 117 eligible incidentalomas. Formal imaging characterisation and hormonal profiling were reviewed to determine whether appropriate investigation and follow-up was performed.

Results: 43.6% of eligible patients were male whilst 56.4% were female. The most frequently newly diagnosed adenomas were found on CT-Abdomen and Pelvis (24.8%)

and CT-Thorax (18.8%). Only 16.2% of all incidentalomas had suggested radiological follow-up mentioned in the imaging report, and 12.8% did not have measured size reported. 76.9% had an adenoma of ≥ 1 cm in size, and 13.7% of these had a subsequent follow-up CT Adrenal. All adenomas ≥ 1 cm had some type of hormonal profile performed and 88.9% of these were referred to an endocrine physician. 53.8% of investigated ≥ 1 cm adenomas (n=23) were found to have abnormalities on hormone profiling suggesting possibly active adenomas.

Conclusion: Half of the investigated adrenal incidentalomas were found to have abnormal hormonal profiles and had endocrinology outpatient referrals. This figure emphasises the importance of thorough characterisation of the incidentaloma on the initial imaging report to ensure that none are overlooked.

P10.08

An analysis of all Insulin tolerance tests done at Mater Dei Hospital

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Introduction: The Insulin tolerance test (ITT) is regarded as the gold standard for the assessment of the hypothalamic-pituitary axis. The aim of this audit was to evaluate various dynamics during ITTs.

Methods: This was a retrospective audit of all ITTs performed at MITU Mater Dei Hospital (from March 2008 till June 2018). Relevant data was collected and recorded.

Results: A total of 152 patients had an ITT performed. 48% were males. No significant adverse event occurred in any patient. 92% achieved adequate hypoglycaemia (< 2.2 mmol/l). 14.6% failed to achieve a peak cortisol > 500 nmol/l. 23.2% failed to achieve an adequate growth hormone response (> 3 g/l). Mean lowest blood glucose achieved was 1.4mmol/l (± 0.53 SD) while mean blood glucose drop was 3.6mmol/l (± 1.2 SD). Mean peak cortisol was 670.2nmol/l (± 158.2 SD). Mean cortisol rise in patients who achieved a peak of > 500 nmol/l was 359.1nmol/l (± 159.5 SD) whereas those who did not achieve a peak of > 500 nmol/l had a mean cortisol rise of 181.4nmol/l (± 96.8 SD) ($P < 0.001$). Mean starting cortisol of those who achieved an adequate response was 358.4nmol/l (± 122.2 SD) while those who did not achieve an adequate cortisol response had a mean starting cortisol of 227.0nmol/l (± 78.1 SD) ($P < 0.001$). Peak cortisol achieved at a median time of 90 minutes. Median peak growth hormone was 7.5g/l (IQR 3.6, 12.6) and median growth hormone rise 5.2g/l (IQR 1.4, 9.9). Peak growth hormone was achieved at a median of 60 minutes.

Conclusion: ITT is a safe procedure when done in an experienced endocrine unit. Morning cortisol correlated well with the response of cortisol in the ITT.

P10.09

Predictors of thyroid autoimmunity in Maltese individuals

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Introduction: Autoimmune thyroid disease is a multifactorial disorder, which has been linked to the exposure of particular environmental factors. We aimed to investigate whether thyroid autoimmunity (TAI) is significantly associated with identifiable and potentially modifiable environmental factors in Maltese individuals.

Methods: A case-control observational study was conducted in 2016 among 324 Maltese individuals, who had been screened for TAI within the previous 12 months. 164 cases (positive thyroid peroxidase [TPO-Ab] and/or thyroid stimulating hormone receptor antibodies [TSH-R Ab]) and 160 controls (negative antibodies) were recruited. A questionnaire sought information on drug history, social/reproductive history, stress and iodine intake, while blood specimens were collected to measure glycosylated haemoglobin, thyroid function, TPO-/TSH-R Ab status, 25-hydroxyvitamin D level and hepatitis C antibody status. A stool sample was collected for *Helicobacter pylori*.

Results: Both TPO-Ab and TSH-R Ab positive individuals were exposed to a greater amount of smoking pack years ($p = 0.038$ and 0.037 respectively). On multivariate regression analysis, no significant predictors of TSH-R Ab positivity were identified. The odds for TPO-Ab positivity was decreased by higher intake of iodine rich foods (OR 0.864 [95% CI, 0.761, 0.981]; $p = 0.024$) and birth in winter (OR 0.470 [95% CI, 0.253, 0.871]; $p = 0.017$), while discontinuation of smoking (OR 2.367 [95% CI, 1.213, 4.621]; $p = 0.012$) and female gender (OR 2.815 [95% CI, 1.387, 5.714]; $p = 0.004$) increased the odds for TPO-Ab development.

Conclusion: Though TPO-Ab positivity appears to be affected by environmental factors in Maltese individuals, not all are potentially modifiable.

P10.10

Causes and outcomes of hyponatraemia at Mater Dei Hospital

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Introduction: Hyponatraemia is the most common electrolyte balance disorder in clinical practice, amounting to 15-20% of casualty visits. While there is general agreement that associated mortality rates are high, most studies are uncontrolled. This study was carried out to determine the characteristics, causes and outcome of severe hyponatraemia (< 125 mmol/L) in hospitalised patients and to identify mortality predictors.

Methods: This is a retrospective case-controlled study of all medical admissions in June, November and February 2015, who at any point during the index admission

developed a serum sodium <125 mmol/l. For each case, an age- and gender-matched control was identified.

Results: A total of 5195 medical admissions were reviewed. Of these, 193 patients had a sodium level <125 mmol/l. Twenty-six patients were excluded from the case group leaving a total of 167 cases and 193 controls. Length of hospital stay was more prolonged in the case group (12 vs 8 days, $P < 0.001$). There was a highly significant excess mortality, both during the index admission (25% in cases vs 7% in controls [$P < 0.001$]) as well as till the end of the follow-up period (52% in cases vs 22% in controls [$P < 0.001$]). Mortality was unrelated to severity of hyponatraemia. Patients who developed the lowest serum sodium later on during their admission (ie sodium levels continued falling during the admission or fell de novo), had a higher rate of mortality than patients whose lowest serum sodium was on the day of admission (64.3% vs 45%, $P = 0.019$). A cox regression analysis showed that hyponatraemia ($P < 0.001$), male gender ($P = 0.033$), age ($P = 0.021$), and serum creatinine level ($P = 0.008$) were independent risk factors for mortality.

Conclusion: Data on assessment, investigation and management of hyponatraemia illustrates variability and shortcomings in clinical practice. The question remains whether the relationship between hyponatraemia and increased mortality is causal or associative.

P10.11

Local guidelines on the management of urinary retention

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Introduction: Acute Urinary Retention (AUR) is defined as a painful, palpable or percussable bladder, when the patient is unable to pass any urine. Whilst Chronic Urinary Retention (CUR) is said to occur when there is a non-painful bladder, which remains palpable or percussable after the patient has passed urine. The aim of these local guidelines is to provide a streamlined plan of action for dealing with AUR and CUR in local practice.

Methods: Key clinical issues were identified including how to define and manage AUR and CUR, and how to deal with Post Obstructive Diuresis (POD). A literature search was performed, and key studies identified in this regard. Evidence was evaluated to structure recommendations and care pathways. The drafted guidelines were then reviewed by the urology department staff and relevant stakeholders. Finalised guidelines were then prepared and launched.

Results: Pathways for the management of AUR, CUR and POD were devised. These pathways emphasise the importance of thorough history taking, assessment and appropriate investigations, followed by early intervention or specialist referral as necessary. The management of these conditions also requires long term modification of risk factors, pharmacological management and surgical intervention for some.

Conclusion: Urinary retention constitutes more than half of all lower urinary tract consultations and will be encountered by most physicians whatever their speciality. In view of the lack of international guidelines,

these guidelines provide an easy to follow, evidence-based care pathway for doctors in all fields of local practice, and therefore provide a framework for better standards of care in the management of urinary retention.

P10.12

Thyroid function monitoring in residents at St. Vincent De Paul Residence on thyroid-affecting medication, compared to their monitoring within the community

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Introduction: Thyroid function tests (TFTs) are frequently part of the routine blood screen. In elderly patients on thyroid-affecting medication, sometimes these tests are repeated too frequently or not frequent enough. This audit will assess the percentage of appropriate retesting intervals when compared to guidelines, and analyse which factors effect these retesting.

Methods: All patients at SVPR on thyroxine, carbimazole, lithium and amiodarone were identified from treatment charts, excluding admission ward. Using iSoft, TFTs taken over 4 years both inside and outside SVPR were identified retrospectively. The time intervals in months between tests were calculated, and guidelines used to assess the percentage which fall within recommended frequency of re-testing. The guidelines used where by the American Association of Clinical Endocrinologists and the American Thyroid Association.

Results: 1237 tests were taken from 188 patients in total, showing mostly normal function (40.5%) or subclinical hypothyroidism (29.83%). 86.1% of patients were on levothyroxine. A total of 1050 time intervals between tests were analyzed; 666 outside SVPR, and 384 within SVPR. 33.93% of re-testing intervals outside SVPR conformed to guidelines, compared to 49.74% within SVPR. This difference was statistically significant. ($p < 0.0001$).

Conclusion: The better re-testing interval of thyroid function observed at SVPR may be attributed to better familiarity with the patient. Unfortunately half of tests are still inadequately ordered, with much room for improvement. Factors for increased re-testing frequency included younger patients, patients on higher doses of levothyroxine and alternating doses. Increased awareness of the guidelines, and trend assessment of recent TFTs prior to ordering will ensure re-testing is indicated.

P10.13

The living kidney donor transplantation program in malta: a 34-year experience

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Introduction: Living kidney donor (LKD) transplantation is an integral aspect of renal replacement therapy, especially considering the ever increasing deceased waiting list time. Our main objective was to investigate key performance parameters of the LKD program in Malta.

Methods: This was a retrospective analysis including all patients who donated a kidney transplant during their lifetime between January 1983 and December 2017.

Results: A total of 83 individuals donated their kidney and the majority were Maltese donors (95.2%). The mean age at donation was 42.7 ±11.8 years and 50.8% were males. Of these, 82.1% were genetically related, 57.6% were blood group-O, 20% had full HLA match and 60% had between 3-4 HLA mismatches. LKD transplantation represents 27.1% of all transplants performed in Malta. All patients operated in Malta (87.5%) underwent a classic open nephrectomy (left kidney in 74.2% of cases). The mean hospital length of stay was 10.5 ±0.7 days and 17.9% developed a minor post-operative febrile complication. The mean donor creatinine at 1-year, 5-years and 10-years after donation was 103.5 ±17.7 µmol/L, 89.5 ±6.4 µmol/L and 82.0 ±1.4 µmol/L respectively. Regarding long-term donor complications; 6.2% developed hypertension, 6.2% cardiovascular disease and 4.6% end-stage kidney disease (all performed between 1980 and 1995). Donor mortality at the end of follow-up was 3.1%. The 1 year, 5 years and 10 years death censored graft survival was 95.4%, 90.8% and 86.2% respectively.

Conclusion: LKD transplantation accounts for a quarter of all kidney transplants performed in Malta. The outcomes of LKD in Malta are comparable to other European and American transplant centres.

P10.14

Periodontal health and diabetes awareness among maltese diabetic patients and medical professionals

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Introduction: Periodontal disease (PD) is the sixth most common complication of diabetes. Many studies demonstrate the bidirectional relationship between poor glycaemic control and active PD. This is of great importance in Malta, since both conditions are highly prevalent. The aim of this study is to establish the awareness of this association amongst both diabetic patients and doctors in Malta, which prior to this has never been investigated.

Methods: The research is based on a convenient sample of 100 diabetic patients and 126 doctors, who completed a self-administered questionnaire between July 2017 and January 2018.

Results: 34% of participants were aware of the relationship between PD and blood glucose levels. Only 4% of participants received encouragement for oral care from their doctor and 75% were not advised by dentists to control their diabetes. Referral rates from doctors to dentists were 59.5%.

Conclusion: Patients lack guidance and education from their health care providers. The clinical implication of this, is that health care providers should encourage diabetic patients to attend regularly for dental visits, thus minimising oral and systemic complications. A holistic multidisciplinary approach should be implemented, to address this gap, where all member health care providers jointly share the responsibility and exploit every opportunity to increase

awareness and educate diabetic patients, promoting proper oral and systemic health practices.

P10.15

Outbreak of lymphogranuloma venereum in men who have sex with men in Malta, 2018

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Introduction: Lymphogranuloma venereum (LGV) is a re-emerging sexually transmitted infection (STI) caused by the invasive *Chlamydia trachomatis*. LGV is relatively rare in Malta with just two cases in 2017 and one in 2013 previously reported. In March 2018, the first known cluster of LGV cases in MSM was detected in Malta. We investigated the cluster and overall increase in LGV diagnoses in 2018.

Methods: We conducted a retrospective review of data from 1 January to 30 June 2018 at the Genitourinary Clinic (GUC) at Mater Dei Hospital. All Ct positive rectal swabs from MSM were sent abroad for genotyping. All cases were treated with doxycycline 100 mg twice daily for 21 days. Contact tracing was conducted and sexual contacts and partners were advised to visit the GUC for testing.

Results: Between 1 January and 30 June 2018, 68 Ct positive swabs or samples were detected: rectum (40), urine (25) and throat (3). Of the 40 positive Ct rectum swabs and one urine sample sent abroad for genotyping, 11 (28%) were LGV positive. Of these, six were part of three small group sex and chemsex clusters identified within MSM sexual networks.

Conclusion: This outbreak highlights the need to raise awareness of LGV among clinicians, laboratories and MSM in Malta. Clinicians should maintain a high index of suspicion in MSM with rectal symptoms, particularly HIV-positive or those co-infected with other STIs. For rapid diagnosis and early treatment, the capacity to conduct genotyping to identify genovars in Ct positive samples is essential.

P10.16

Replication of established type 2 diabetes susceptibility loci in the Maltese and Libyan populations.

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Introduction: Type 2 diabetes is a common complex disorder with a high prevalence of the Maltese population. The specific aim for this study was to further explore the genetic interplay between selected genes from metabolic and inflammatory pathways on the likelihood of developing T2DM among selected clinical cohorts with the disease

Methods: 4 T2DM cohorts from previous investigations (Pace, 2013 & Al Ashtar, 2008) were recruited, these are:

group1- 96 heterogenous collection of Maltese T2DM. group 2- 199 heterogenous collection of Libyan T2DM patients. group3- 177 treatment-naïve group used to explore genotype-phenotype association group4- 198 high-morbidity group with end-organ complications. A collection of randomised Maltese (n=200) and Libyan (n=198) neonatal cord blood samples Malta Bio Bank was used as reference control population. Genotyping of 18 known susceptibility loci was carried out in all cohorts

Results: We describe the characteristics of the study cohorts and the relevant genetic findings. A clear association resulted between rs5219 in Kcnj11, rs7607980 in COBLL1 and rs35720761 in THADA and the Maltese high morbidity group, while there was an association between rs3842752 in Insulin and rs35658696 in PAM and the Maltese treatment naïve group. The rs13389219 in GRB14, rs35658696 in PAM and eNOS/VNTR were found to be associated with the Maltese heterogeneous group. An association was found between the rs1260326 in GCKR, rs4607517 in GCK and rs998451 in TMEM163 and the Libyan heterogeneous group.

Conclusion: This study replicates some established associations with type 2 diabetes and related clinical phenotypes

Disclosures: This work was partially supported by the Libyan Government scholarship scheme.

P10.17

Aryl hydrocarbon receptor interacting protein (AIP): Effects of N-domain mutations relevant to pituitary adenomas

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Introduction: Aryl hydrocarbon receptor interacting protein (AIP) is a two-domain, cytoplasmic chaperone and tumour suppressor. It is involved in various biochemical pathways, cyclicAMP signalling, mitochondrial import and apoptosis. Germline mutations in the AIP gene predispose to pituitary tumourigenesis with patients exhibiting an aggressive clinical phenotype. The aim of this research is to obtain structural and functional data on AIP and investigate how clinically relevant N-domain mutations affect the ability of AIP to bind to its client partners, previously presumed to involve only the C-domain.

Methods: Recombinant, full-length human AIP was sub-cloned and four known N-domain mutants were produced. After overexpression in *Escherichia coli*, all proteins were purified to homogeneity. Two AIP binding protein partners, heat shock protein 90 (Hsp90) and phosphodiesterase 4A5 (PDE4A5), were also cloned, expressed and purified. Protein folding and thermal stability were analysed through circular dichroism spectrophotometry and binding studies were performed using both isothermal titration calorimetry and surface plasmon resonance. The interaction of AIP and PDE4A5 was further investigated enzymatically. Structural

information has been obtained using small angle x-ray scattering (SAXS) and crystallography.

Results: N-domain mutations reduce the thermal stability of AIP and the binding affinities for Hsp90 and PDE4A5. The latter correlates with biochemical data obtained through an enzymological assay for PDE activity. SAXS has produced an AIP structure and AIP crystals have diffracted well.

Conclusion: Our results suggest that N-terminal mutations in AIP might predispose pituitary tumours by affecting the stability of protein:protein complexes and/or by altering cellular cAMP levels. Structural analysis is in progress.

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P10.18

An audit of referrals to the nephrology outpatient clinic

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Introduction: Despite the global high prevalence of chronic kidney disease (CKD) not all patients will require nephrology referral. Conversely patients with more severe CKD benefit from early referral to a nephrologist. Basic investigations performed prior to specialist referral facilitate early diagnosis and determine prognosis. Aim: To audit referrals to the nephrology clinic at Mater Dei Hospital.

Methods: A random cohort of 200 referrals were analysed. Data included patient demographics, referral indication and source, CKD stage and investigations performed prior to referral.

Results: The median age was 71 (range 18-93) and 56% (n= 112) were male. 54% (n=108) were from primary care and 46% (n=92) from specialist doctors. The most common documented reasons for referral were CKD (53.5%, n=107) and decline in eGFR (27.5%, n=55%). CKD 3 was the most common stage at referral (65%, n=130). Urinalysis and albumin creatinine ratio were available in 27.5% (n=55) and 19% (n=38) respectively. Blood pressure reading was documented in 28% (n=56) and renal imaging was available in 30.5% (n=61). Where indicated, a repeat eGFR was performed in 52.5% (n=42).

Conclusion: Diagnosis and prognosis of CKD is based on eGFR, its change over time and the presence of proteinuria or an active urine sediment. Only 28% of referrals had a urinalysis performed despite it being a simple non-invasive but vital investigation for CKD diagnosis. A standard nephrology referral should include an eGFR, repeated in two weeks if no previous result is available or if a significant decline is noted; blood pressure documentation, analysis of the urine and imaging if possible.

P10.19

A retrospective analysis of incidence of acute kidney injury after total knee replacement - a pilot study

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Introduction: Acute Kidney Injury (AKI) is a well-known complication after primary total knee replacement, and is associated with greater patient morbidity and mortality in the post-operative period and increases risk for future renal dysfunction. A number of risk factors have been identified, but local data is limited to small studies. This analysis looks at the incidence of AKI after primary elective total knee replacement, in order to establish the incidence of ARE, and find potential risk factors for ARE.

Methods: A sample of patients undergoing elective total knee replacement between May 2017 and January 2018 at Mater Dei Hospital were reviewed retrospectively. Data were obtained from preoperative assessment records, medical records and the laboratory database. Preoperative demographics included age, baseline creatinine, ASA status, BMI, the presence of hypertension and the use of anti-hypertensive agents. Postoperatively, the highest serum creatinine within seven days following surgery was used. The use of diclofenac in the perioperative phase was also noted. The primary outcome was AKI, as defined by an increase of serum creatinine to 1.5 times baseline or more within the previous 7 days, as per KDIGO guidelines. Patients identified as having AKI were further classified according to severity into stages according to KDIGO classification criteria. Secondary outcomes included incidence of patients with doubling of creatinine, and length of stay.

Results: A total of 181 patients were assessed, with a mean age of 66.5 years (SD 6.3). 117 patients were hypertensive (66%). Mean baseline creatinine was 75.2 umol/L (SD 24.6). Postoperatively, the mean creatinine was 99.0 umol/L (SD 58.8), with a mean increase of 23.8 umol/L (SD 54.7). 34 patients (18.2%) of the patients assessed met the definition of AKI, and 15 patients (10.0%) had a doubling of creatinine. The use of diclofenac did not show any effect on the incidence of AKI. Age and hypertension were strong risk factors, especially when multiple regression analysis was performed. For an increase of one year of age, the odds ratio was 1.12 (CI 1.04 - 1.23), and hypertension conferred a 3.8 times risk of developing AKI (24.8% in patients with hypertension, vs 6.5% in non-hypertensives, $p=0.0026$).

Conclusion: This pilot study serves to identify potential risk factors for ARF after TKR. Possible risk factors for a larger prospective study would include age and hypertension.

P10.20

Environmental perchlorate levels and thyroid cancer - establishing the link

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Introduction: The incidence of thyroid cancer is on the increase worldwide. Environmental factors have been implicated as one of the causes for the latter. Whilst some environmental risk factors (eg level of radiation) for thyroid cancer are well established, others remain putative. Locally the pyrotechnic scene is well established. One of the chemicals used in fireworks is perchlorate. This study aimed to investigate a possible link between perchlorate dustfall concentrations in air and thyroid cancer in Malta.

Methods: The levels of perchlorate dustfall concentrations within different localities in Malta and at different time points were already investigated and published by another group. We retrospectively analysed a link between published levels and the incidence of thyroid cancer in the different localities between January 2010 and December 2015. Appropriate statistical analysis was carried out.

Results: Published data regarding the levels of perchlorate in air locally is very limited and difficult to evaluate. This data was plotted against the incidence of thyroid cancer within the respective localities. Localities with higher levels of perchlorate had 20% higher rates of thyroid cancers when compared with those with lower levels of the chemical.

Conclusion: Higher levels of perchlorate may have a role in the increasing incidence of thyroid cancer. Further assessment of this link is recommended.

P10.21

The rational design of novel androgen receptor (AR) inhibitors using the experimental selective androgen receptor modulators (S)-11 and (R)-19 and the bicalutamide scaffolds as lead molecules

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Introduction: Androgen deprivation and androgen receptor (AR) inhibition represent the mainstay of prostate cancer management on the premise that the endogenous androgen-androgen receptor complex drives tumour cell proliferation. AR mutation is responsible for the transition from chemotherapy sensitive to refractory tumours. Literature indicates that the Selective Androgen Receptor Modulators (S)-11 and (R)-19 successfully inhibited the mutant AR *in vivo*.

Methods: pdb crystallographic deposition 1Z95 describing the bound coordinates of the non-steroidal anti-androgen bicalutamide bound to the AR was used as a template. (S)-11 and (R)-19 were modelled in 3D, docked into the bicalutamide circumscribed AR ligand binding pocket (LBP) and conformational analysis performed for each molecule. A query structure was developed for virtual screening. This consensus pharmacophore incorporated

the critical interactions forged by the optimal conformers of (S)-11 and (R)-19, and of the bioactive conformation of bicalutamide with the AR. The ZincPharmer database suite was searched, and hit structures conforming to Lipinski's Rule of 3 requirements for lead molecules were identified as hits. They were docked into a modelled protomol or idealised AR_LBP, and their affinity calculated.

Results: 905 hit structures were identified from the purchasable database of ZincPharmer, implying that these were molecules for which synthetic pathways are known. The hit structures were ranked in order of affinity and grouped according to pharmacophoric similarity.

Conclusion: The consensus pharmacophore that was uniquely generated in this study as a successful query molecule for the identification of small molecules of diverse structure with high AR affinity. Their synthetic pathways are also available, which is advantageous, post-validation, from a design perspective.

P10.22

Mortality risk in high level cervical spinal cord injury – review of a regional spinal cord injury centre

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Introduction: Individuals with high level (C1-C4) cervical cord injuries face significant morbidity and early mortality. Knowledge of the complications and causes of mortality in such patients is invaluable in ensuring optimal care.

Methods: Death certification of all cervical cord injury patients treated at Salisbury District Hospital's Spinal Injury Centre was reviewed. The American Spinal Injury Association (ASIA) scores, injury causality, respiratory status, age at injury, age at death, and cause of death were recorded.

Results: Twenty-one individuals were identified with high cervical cord injury within a UK regional spinal injury centre over four years. Two individuals were excluded due to insufficient data. Of those remaining, 16 (84.2%) were male. Mean injury age was 50 years (range: 18 - 81). The majority (52.6%) were post-trauma, 26.3% were post-surgical complications, and a final 3 were post-transverse myelitis, idiopathic spinal abscess and idiopathic spinal infarct. The commonest level affected was C2 (31.6%). 78% had an ASIA scores of A, with 63.2% being totally ventilator-dependent. The commonest cause of death was secondary to respiratory complications (including infections and respiratory failure, 31.6%), followed closely by renal complications (including urosepsis, acute kidney injury and nephrotic syndrome). The mean survival post-injury was 6.0 years (S.D. 6.4), 5-year survival being 37.5% and 1-year survival of 81.25%. Survival was longest in post-traumatic cases (mean 9.3 years, SD. 7.59).

Conclusion: Life expectancy post-cervical cord injury is considerably reduced, with respiratory and renal complications being the two main burdens. Lifelong

monitoring of these two systems is thus critical for optimal patient care post-spinal cord injury.

P10.23

Quantification of heat shock proteins and their lysine methylation status in the maltese type 2 diabetes mellitus population

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Introduction: Type 2 Diabetes Mellitus (T2DM) is of significant concern in Malta with an incidence of almost 10%. Despite much research, very little advancement has been achieved in our understanding of the molecular mechanisms behind this disorder, especially regarding the role played by post-translational modifications (PTMs) in disease progression, which could be applied to diagnostics. The aim of the study was to determine if a panel of HSPs and their methylation status can be used to detect stress in the body as a result of the progression of T2DM ahead of its current clinical detection through plasma glucose testing.

Methods: Subjects aged 18- 85, of both sexes were divided into three categories based on their fasting glucose and confirmed by HbA1c. Commercially available ELISA kits were used to quantify total HSP27, HSP60, HSP70A1, GRP78 and HSP90AA concentrations, while lysine methylation was quantified using a custom designed ELISA in the collected sera. Protein quantification was used in combination with demographic stratification to construct a probability space for T2DM risk.

Results: When subjects are group together by condition the results show a marked difference in total HSP concentration, while the methylation status shows a trend tending towards significance. Stratification by age (10 year brackets) increased significance but reduced statistical power due to an overall reduction in participant numbers which thus increased variability and error.

Conclusion: Greater internal normalisation in the selected protein panel is required to increase significance and reliability, whilst reducing fa morbidities, strengthening diagnostic and prognostic inferences.

P10.24

Diabetes mellitus awareness and knowledge among University of Malta students

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Introduction: Diabetes is a global epidemic with Malta being no exception. Its debilitating effects on an individual's health can be prevented and managed by early diagnosis and management. This study was aimed at asses the familiarity of University of Malta students with the common presenting features and complications of Diabetes.

Methods: An electronic validated questionnaire was sent to all enrolled University of Malta students (at the time) in the first week of October 2016 through the official eSIMS platform with the assistance of the Registrar.

Results: Of the 252 participants, only 36.90% reported to have had received any formal education regarding diabetes. While 14.70% believed that Diabetes is curable. With regard to symptoms: 50% identified increased appetite, 67.86% identified unintentional weight loss and only 35.32% identified burning sensation in the feet as symptoms of Diabetes. With regards to diabetes complications: 51.22% reported oral/dental disease, 25.40% reported erectile dysfunction and loss of libido, 40.87% reported joint pain and stiffness, while 65.48% reported adverse effects on the kidney as complications. The participants were aware of the association between obesity (94%), decreased physical activity (82.54%) and family history (96.83%) with the development of diabetes.

Conclusion: Participants demonstrated limited knowledge of the presenting features of diabetes and its sequelae. Considering the diabetes burden in Malta, the findings suggest that the educational institutes should consider general diabetes education as part of their curriculum.

P10.25

The Maltese high-risk diabetes characteristics

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Introduction: Type 2 diabetes mellitus (T2DM) is a global epidemic and a declared Malta national disease. The aim of this study was to characterise the high-risk Malta adult diabetic profile that could aid physicians in their patients' care.

Methods: A cross-sectional study was conducted on a randomized sample of the adult population in Malta between 2014 and 2016. Various measurements (medical, drug history, blood pressure and waist circumference) taken were analysed using general linear models to establish independent associations with diabetes mellitus. The significant variables were then further analysed through receiver operating characteristic curves (ROC) to establish the model fitting best with the presence of diabetes among adults in Malta.

Results: A total of 407 adults (10.31% CI 95%: 9.40 – 11.30) were found to be diabetic. The combination of older age (more than 55 years), with a high waist circumference (males >100cm; females >90cm) and being on statin therapy gave the highest predictive risk for having diabetes mellitus (AUC 0.82, CI 95%: 0.79 – 0.85 p=<0.01). Statin therapy could in turn be linked to either a previous diagnosis of cardiovascular disease, or the treatment of elevated lipids or even their routine administration to newly diagnosed Diabetics.

Conclusion: As this study was retrospective, temporal relationships could not be considered and the profile represents all new and known diabetics. Adults having a combination of these characteristics could be considered at highest risk and merit further investigations if the diagnosis of Diabetes is not already established. Further research

through a cohort study could better establish whether these 3 characteristics precede or postdate the diagnosis of Diabetes and establish their clinical significance.

Disclosures: The authors are extremely grateful for the strong support forthcoming from the University of Malta (through the Medical School and Research Innovative Development Trust department) and from the Alfred Mizzi Foundation as major sponsors, as well as that of a host of others, including Atlas Health Insurance (Malta). The in-kind support and encouragement of the Parliamentary Secretariat for Health of the Government of Malta is also gratefully acknowledged.

P10.26

The Malta BioBank investigates mitochondrial disorders through a collaborative BBMRI-LPC project

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Introduction: The Malta BioBank (BBMRI.mt) participated in the Biobanking and BioMolecular resources Research Infrastructure-Large Prospective Cohort (BBMRI-LPC) whole exome sequencing (WES) call, jointly organised by BBMRI-LPC, EuroBioBank, RD-Connect and Centro Nacional de Análisis Genómico (CNAG-CRG). The goal was to sequence 50 exomes from patients with genetically undiagnosed mitochondrial disorders whose samples were banked at the EuroBioBank network.

Methods: The Maltese cohort included 13 probands. WES and data processing were carried out at CNAG-CRG. Phenotypic data were recorded in the RD-Connect PhenoTips instance, and variant filtration and prioritisation was undertaken using the RD-Connect Genome-Phenome Analysis Platform.

Results: A mis-sense mutation c.308C>T (rs749249430) in NDUFAF3 that caused Mitochondrial Complex 1 deficiency (MC1d) was detected in patient A. Patient B was a carrier for a splice donor and two mis-sense variants: c.207+2T>G (rs782792601), c.206A>G (rs781909386) and c.205A>G (rs782503581) in NDUFB11 that affected the exon-splice site and are thought to cause MC1d. Patient C had the mitochondrial m.3243A>G mutation (rs199474657) that caused Mitochondrial myopathy, Encephalopathy, Lactic Acidosis and Stroke-like episodes (MELAS), and another variant m.4336T>C (rs41456348) that caused the splice site and sensorineural deafness and migraine. It was observed that a number of patients were carriers for more than one rare variant but no clear candidates were always present.

Conclusion: Critical analysis of rare nuclear and mitochondrial gene mutations identified from exome sequence data served to establish a genetic diagnosis in 3 of 13 undiagnosed patients with rare disease.

Disclosure: The research work in this publication was partially funded by the Malta Government Scholarship Scheme grant, BBMRI-LPC project BBMRI_03 MITOMUTWES, RD-Connect and EuroBioBank.

P10.27

Post-operative hypocalcaemia in patients undergoing total thyroidectomy: a 24-hour review

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Introduction: Thyroidectomy is a common procedure, carried out for a variety of indications including neoplasia, and hyperthyroidism. One of the most common post-operative complications seen is hypoparathyroidism with hypocalcaemia. Thus, it is standard procedure to keep the patient overnight to monitor serum calcium levels. The aim of this study was to determine the incidence of hypocalcaemic patients within the first 24 hours following total/completion thyroidectomies.

Methods: Data was collected retrospectively and included all hypocalcaemic patients post total/near-total/completion thyroidectomy from January 2016 to October 2017 by a single surgical team at Mater Dei Hospital (MDH). Patients undergoing partial thyroidectomy or concomitant parathyroidectomy were excluded. These were collected using iSoft Clinical Manager and Electronic Case Summary software available at MDH.

Results: A total of 83 patients underwent thyroidectomy with the set requirements mentioned. 45.7% (38/83) were noted to be hypocalcaemic post-operatively (<2.15mmol/L), however only 18% required calcium supplementation to discharge. The frequency of hypocalcaemia was highest on the first day post-operatively (69%). 13% of hypocalcaemic patients were diagnosed with Graves' disease, 18% with confirmed thyroid malignancy on histology and 10% had central and lateral neck dissection. Hypocalcaemia in Graves' disease generally did not require calcium supplementation (4/5) and resolved spontaneously. However, the majority of hypocalcaemia in thyroid malignancy (6/7) required calcium supplementation. All patients who underwent neck dissection required calcium supplementation.

Conclusion: Hypocalcaemia a relatively common occurrence in its transient form and may impinge on quality of life. Further progress in the identification and preservation of parathyroid glands during thyroidectomy is needed in a select group.

P10.28

An indepth analysis of various risk factors in patients with graves' disease in malta

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Introduction: Graves' disease (GD) is an autoimmune condition affecting the thyroid gland with multifactorial predisposing factors. The aim of this study was to evaluate the various risk factors that affect the onset and progression of GD in patients with GD in Malta.

Methods: Patients who were treated for GD at Outpatients Department at Mater Dei Hospital, Malta under one consultant endocrinologist were included in the study. A telephone questionnaire was carried out asking for

demographics, past medical history of other autoimmune conditions, family history, social history (including smoking history, occupation location and any stressful events preceding onset of Graves' disease), pregnancy history and treatment taken for GD.

Results: A total of 104 patients diagnosed with Graves' disease were interviewed, of which 79.8% were females with a mean age of diagnosis of 42.5 ± 13.7 years. Most of the patients were from the harbour area (48.1%). Only 6.7% had a history of other autoimmune diseases while 51.0% had a family history of thyroid disease and other autoimmune diseases. Most of the cohort were non-smokers (59.6%). 60.6% of the patients claimed to have a stressful event prior to the diagnosis of GD, mostly family related (42.9%). 69.9% of the female patients developed GD after pregnancy with 12.1% developed GD within 1 year post-partum. 54% of the patients achieved remission after initial anti-thyroid drug therapy.

Conclusion: Both modifiable and non-modifiable factors play a role in the development of GD. Analysing the pathogenesis and the risk factors can thus help the clinician to improve the prognosis of the disease.

P10.29

A simple method of improving haemodialysis efficiency

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Introduction: The adequacy of haemodialysis can be measured by Kt/V, a mathematically calculated measure of urea clearance by dialysis. Longer treatment time (t) and a higher rate at which blood passes through the dialyser (K) lead to a higher Kt/V which is associated with lower mortality. Changes in dialysis impacting the Kt/V were assessed using real-time Kt/V measurements.

Methods: Two patients having matched characteristics agreed to participate. One patient (study) used to sit in bed, while the control patient preferred lying flat. Their Kt/V changes on haemodiafiltration were monitored in real-time by a continuous readout of single-pool-Kt/V (spKt/V) over the entire therapy duration through continuous measurement of the reduction in the molar concentration of urinary excreted substances in the dialysate drain. The Kt/V monitoring was carried out for twelve dialysis sessions.

Results: The practice of sitting up was noted to result in an increase Kt/V presumably due to an inadvertent increased blood flow through the fistula; changes in posture were reflected in near-instantaneously changes in Kt/V. The sitting up position resulted in a higher Kt/V compared to the lying flat position of the control patient, $p < 0.01$.

Conclusion: Improving Kt/V through changes in posture in patients who are fit and haemodynamically stable enough to undertake dialysis sitting up in bed rather than lying flat is a simple novel method which can be easily adopted without additional costs to healthcare systems or annoyance to patients. This preliminary work warrants further investigation on a larger sample of patients to add to its robustness.

P10.30

An analysis of incidence and characteristics of Cushing's syndrome in Malta: a population based study

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Introduction: There are few reports discussing incidence and characteristics of the whole group of Cushing's syndrome patients in the literature. The aim was to establish the incidence of endogenous Cushing's syndrome with in-depth analysis of their various subtypes in a well-defined population.

Methods: Retrospective cross-sectional analysis of Cushing's syndrome patients diagnosed between 2008 and 2017. A thorough search for patients was carried out in the central hospital registries including outpatients departments, surgical registries, radiological department and specialty clinic databases.

Results: Twenty-six patients were identified as diagnosed with Cushing's syndrome over the 10-year period equating to a standardised incidence rate (SIR) of 4.6/1,000,000/yr with an almost equal SIR among males and females. Analysing the various subtypes of Cushing's syndrome, the majority ($n=13$) were due to an ACTH secreting pituitary adenoma (SIR 2.5/1,000,000/yr). In this subtype males had a SIR of 3.3/1,000,000/yr compared to 1.7/1,000,000/yr in females. ACTH independent Cushing's had a SIR of 1.8/1,000,000/yr with a strong female predominance (9:1) (SIR females: 3.0/1,000,000/yr; males: 0.5/1,000,000/yr). The SIR of ectopic ACTH secreting tumours was 0.4/1,000,000/yr. Interestingly hypokalaemia was present at diagnosis in those patients who harboured malignant causes for their Cushing's syndrome (ectopic ACTH secreting tumours or adrenocortical carcinomas) and had markedly elevated cortisol levels compared to the rest ($P<0.001$). Mean ACTH values for Cushing's disease patients was 110.4 (+/- 77.2 SD) pg/ml while in the ACTH independent group was 5.5 (+/- 4.7 SD) pg/ml ($P<0.001$).

Conclusion: Cushing's syndrome is a rare disease. Although the numbers are small, we could still establish distinct characteristics in the different subtypes.

P10.31

Diabetic patient self-monitoring

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Introduction: The aims are to investigate the perception of patients with type 1 diabetes mellitus (T1DM) regarding self-monitoring of blood glucose (SMBG) and continuous glucose monitoring (CGM) and to identify problems encountered when carrying out BG monitoring.

Methods: A questionnaire on SMBG developed in English and Maltese and validated in a previous study by Cassar (2009) was updated with the inclusion of a section on CGM. The questionnaire is anonymous and completed via semi-structured interview. One hundred T1DM

patients ≥ 18 years are recruited by convenience sampling from 15 community pharmacies.

Results: Preliminary findings from 10 patients (7 female, mean age 50 years, 7 educated to secondary level, 7 with duration of T1DM 5 years) show that SMBG is performed only once daily in 5 patients, more than once daily in 4 patients, and only when experiencing hypoglycaemia symptoms in 1 patient. Most frequent problems encountered with SMBG are painful finger pricking ($n=7$), high cost of buying extra test strips ($n=5$) and lancets ($n=5$), need for frequent testing ($n=5$), and time restrictions in busy schedule ($n=5$). No patients use a CGM device, however 5 patients have heard of CGM. Reasons for not using CGM are need for more awareness ($n=7$) and cost ($n=3$). Seven patients are willing to start using CGM, with 5 patients only willing if the CGM device is made available free-of-charge through the National Health Service.

Conclusion: Improving awareness and access to CGM is warranted to overcome self-monitoring problems identified, such as painful frequent finger pricking. Reference : Cassar J. Diabetic patient management [project]. Msida (Malta): Department of Pharmacy, University of Malta; 2009.



REVIEWS AND CASE REPORTS



P.001

Moving health professionals instead of patients: an evaluation of the overseas visiting consultant program

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Introduction: Since Malta is a small island state with a population of under half a million, specialised expertise in the medical field is often limited, resulting in patients with rare diseases or in need of specialised treatment having to seek treatment abroad. The EU has mainly focused on patient mobility, and even though a model of professional mobility has emerged in the past years, it has received less attention when compared to patient mobility. Malta, with its long standing history of UK links provides the context for this study by exploring the added value of short-term professional mobility for service provision. The study aims to explore the views of the service providers as well as the patients receiving the service, with the aim to identifying the critical pre-requisites and success factors that need to be in place in order to provide a high quality service. This study may yield important considerations and recommendations towards the newly developing European Reference Networks.

Methods: The study utilises a qualitative approach. A total of twenty-five semi-structured interviews were held, ten with visiting specialists from various specialities and fifteen with patients who utilise the service. A grounded theory approach was utilised in view of the limited amount of literature available on the subject which precluded the establishment of a priori theory. Interviews were recorded, transcribed, coded inductively and analysed. A framework was then created for discussion.

Results: The main theme that emerged from the study was the value of the service with three subthemes further being identified. The service showed to have a number of contributors to its value which include; the quality of the service provided, the longevity and durability as well as the expatriate role which is unique to this service. These are then supported by other factors including politics and the visiting consultants' willingness to participate in this service. A number of unexpected manifestations as a result from the service also were elicited from the study. These include how the service is an extension of the current service provided and how it proved to be cost effective for the country. These factors reveal why this service has been functioning well for such a long time. Finally, a number of barriers to the service also surfaced, including the gaps present in infrastructure, communication barriers and the logistical and financial challenges currently present.

Conclusion: This study has contributed to the understanding of cross-border collaborations in small island states with limited resources, workforce and infrastructure. It identified factors that are valuable and necessary for this type of service, making it useful and transferrable to other small island states. This study proposes several important features that need to be in place to increase the chances of longevity, sustainability, quality and cost effectiveness in cross border health care service.

P.002

Physical inactivity among local healthcare and medical undergraduate students

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Introduction: Physical inactivity is the fourth major leading cause of death and is a common risk factor for several non-communicable diseases (NCDs). Healthcare and medical students at the University of Malta represent a group of young-adults, whom their physical activity (PA) levels leads to implications in their future workplace as habits and unhealthy behaviours adopted could be translated in their clinical practice.

Methods: The total population of students registered for undergraduate courses within the Faculty of Health Sciences, Faculty of Medicine & Surgery, and Faculty of Dental Surgery at the University of Malta were invited to participate in this study ($n=1827$) via an email sent by the Office of the Registrar. Three hundred and forty-five participants responded to the study. Physical activity levels were assessed using the long version of the self-administered IPAQ (International Physical Activity Questionnaire), whilst barriers to physical activity participation were assessed using a short questionnaire developed by Daskapan *et al.* (2006).

Results: Results show that the local population under study seemed to be more physically active compared to literature findings. Perceived lack of time was found to be the most cited barrier that prevents students from participating in physical activity.

Conclusion: Results from this study cannot be generalised to the entire population under study. Further research in this area is warranted.

P.003

Phyllodes breast tumour: diagnosis and management in Malta

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Introduction: Phyllodes tumours of the breast are rare, accounting for less than 1% of all breast tumours. The name "*phyllodes*", which is taken from the Greek language and means "leaflike", refers to the fact that the tumour cells grow in a leaflike pattern. Another name for this tumour is cystosarcoma *phyllodes*. Most cases are benign, but they can be borderline or malignant. The aim of this study is to determine the demographics, investigations and management of *Phyllodes* tumour at the Agatha Breast Unit at Mater Dei Hospital.

Methods: Literature review was done using PubMed. Surgical cases of *Phyllodes* tumour diagnosed between 2008 and 2018 at the Agatha Breast Unit, Mater Dei Hospital were retrieved using LIS and a dataset was created.

Results: Twenty-three patients were included in the study. All patients were female. Age range was between 22-63 years with the average age being 45 years. All patients presented to the breast unit symptomatically in view of a palpable breast lump. The majority of lumps lied in the right outer breast quadrants. It was noted that size on imaging

tended to underestimate actual size measured on histology. On histology, 16 cases were benign, 5 were borderline and 1 was malignant. One case was benign *Phyllodes* on biopsy but was reported as fibroadenoma after wide local excision. 19 patients underwent wide local breast excision whilst 4 patients required mastectomy. Six patients required further operations (2 cavity excision, 3 wide local excision and 1 mastectomy). Surgical margin was not clear in 4 patients. Two of these underwent further operation whilst the other two were followed up clinically and with imaging with no recurrence to-date. Four patients had recurrence of *Phyllodes* tumour. The majority of patients were followed up with clinical observation and imaging.

Conclusion: Management of *Phyllodes* tumour at Agatha Breast Unit at Mater Dei Hospital follows international guidelines. More emphasis should be made to follow-up patients in view of a relatively high risk of recurrence of tumour.

P.004

Magnetic resonance imaging of the skin - a novel imaging modality of the skin in Malta

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Introduction: Magnetic resonance imaging (MRI) is a non-invasive, high-resolution imaging technique which has become the gold standard imaging modality for the diagnosis and monitoring of multiple conditions - including the skin. Our aim is to introduce this non-ionizing imaging technique as a tool for the diagnosis (example Eosinophilic fasciitis) and monitoring (example morphea) of dermatological skin conditions locally.

Conclusion: The introduction of MRI Skin protocol has proved effective as a tool for diagnosing and following up dermatological skin conditions.

P.005

The value of serum ferritin measurement on blood donors who marginally fail pre-donation haemoglobin.

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Introduction: Iron deficiency (ID) is a common consequence of whole blood (WB) donation particularly when the donation is given on a regular basis. 4.45% of donors are deferred from donating because of a haemoglobin (Hb) level below the cut-off point with a female to male ratio of 2:1. Early detection and management of Iron deficiency (ID) could avoid iron store depletion in donors and consequent donor loss.

Methods: Whole Blood (WB) donors found to have a marginally low pre-donation Hb (males - Hb 12.5-13.4g/dl; females - Hb 11.5-12.4 g/dl) had serum ferritin measured. According to ferritin results, donors were classified into three categories: Iron Deficient (Ferritin <10ng/ml); At Risk of iron Deficiency (Ferritin 10-30ng/ml); Not Iron Deficient (Ferritin >30ng/ml). Donors were managed according to their ferritin level. A matched group of donors whose ferritin was not measured were

used as controls. They were managed following a standard algorithm currently in place. Donor return rates for both groups will be compared.

Results: Initial results indicate that out of 130 donors found to have a marginally low pre-donation Hb and whose ferritin was measured, 6% were first-timers and 94% were repeat donors. 38% had ferritin <10ng/ml, 38% had Ferritin between 10-30ng/ml and 24% had Ferritin >30ng/ml. Preliminary results also show 26% return rate for donors whose Ferritin is measured and managed accordingly and 19% for the control group.

Conclusion: Serum ferritin measurement enables better management of donors with marginally low Hb and possibly results in a better donor return rate.

P.006

The incidence of pseudoangiomatous stromal hyperplasia in fibroadenomas of the breast with an immunohistochemical analysis

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Introduction: Pseudoangiomatous stromal hyperplasia (PASH) is a benign fibroepithelial lesion of the breast which affects perimenopausal females most commonly. It is largely an incidental histological finding alongside benign tumours such as fibroadenomas and also malignant tumours. Awareness of PASH is highly relevant in consideration of the fact that these lesions can grow to a large extent, which may lead to confusion with other breast masses both clinically and histologically. The main aims of this study were: (1) To determine the incidence of PASH in fibroadenomas from data collected over 2015 and 2016; (2) To determine whether the immunohistochemical staining pattern of PASH in fibroadenomas is similar to PASH in other benign breast entities, including gynaecomastia and hamartomas.

Methods: In this retrospective study, 289 fibroadenomas were considered. The haematoxylin and eosin stained slides of these cases were retrieved from the Cellular Pathology Laboratory Archives at Mater Dei Hospital and analysed for the presence of PASH. Only cases containing PASH were selected. New sections were cut from the formalin-fixed, paraffin-embedded blocks of these cases and stained with the chosen antibody panel for immunohistochemical staining consisting of CD31, CD34, SMA, ER, PR and D240. 26 cases of gynaecomastia and 23 cases of hamartoma containing PASH were also retrieved and sections from these were stained with the same antibody panel. The immunohistochemical staining pattern of these entities was then compared with that of the PASH-containing fibroadenomas using the Chi-squared and Fisher's Exact Test.

Results: The incidence of PASH in fibroadenomas was found to be 16.6% (n=48). Further results regarding the immunohistochemical staining patterns observed will be furnished at a later date.

Conclusion: PASH was found to be a fairly common phenomenon in fibroadenomas. Further conclusions will be made in due course.

Disclosures: This study was funded by the Faculty of Medicine and Surgery, University of Malta.

P.007

Neutrophilic dermatosis of the dorsal hands: a report of four cases and review of the literature

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Introduction: Neutrophilic dermatosis of the dorsal hands (NDDH), is an uncommon localised variant of Sweet syndrome characterised by tender erythematous plaques, pustules and bullae on the dorsae of the hands.

Results: Main observations: We report four cases of NDDH. All patients were aged 60-82 and presented with ulcerated violaceous plaques on the dorsae of the hands. The diagnosis was confirmed histologically in each case. Neutrophil leucocytosis was noted in all cases and three had raised inflammatory markers. None of the cases were associated with inflammatory diseases or malignancy and all resolved with corticosteroids or oral doxycycline. Literature Review: 115 cases of NDDH were reported on PubMed. The mean patient age was 61.8 years and 57.0% were females. 77.3% of cases had reported bilateral involvement and other sites were affected in 27.8%. Underlying disease was found in a significant proportion, notably 14 cases of recent infection, 17 cases of haematological disorders (myeloproliferative disorders, myelodysplasia, or malignancies), 10 cases of active solid organ tumours and 410 patients with inflammatory bowel disease. Systemic and/or topical corticosteroids were employed in the treatment of 85.8% of cases while dapsone and colchicine were the commonest steroid-sparing agents used. All treatment regimens led to improvement which was often rapid and complete.

Conclusion: The fact that four cases of NDDH were encountered locally over six years raises the possibility that the condition might actually be commoner than implied by the number of reported cases and may be misdiagnosed. Awareness of NDDH is important since a correct diagnosis would trigger a search for underlying diseases and proper treatment with corticosteroids and/or steroid-sparing agents.

P.008

The sarcomatous spectrum of metaplastic breast carcinoma

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Introduction: Most breast carcinomas represent variants of adenocarcinoma, however, a rare subset of breast carcinomas show 'metaplastic' differentiation,

adopting a sarcomatoid morphology. Herein are delineated three cases of metaplastic carcinoma, exhibiting different histological morphologies but showing typical aggressive clinical behaviour. The first case, which highlights the aggressive nature of these tumours, is that of a 53 year old female with a fungating breast mass, biopsy of which showed metaplastic breast carcinoma with osteoclast-like giant cells. Despite chemoradiotherapy, she developed lung metastasis and passed away shortly after diagnosis. The second case, which illustrates the propensity for local recurrence, describes a 46 year old female with a right breast lump, removed by wide local excision and diagnosed as metaplastic carcinoma with nodular fasciitis-like features. The tumour recurred within a few months and re-excision showed a metaplastic carcinoma which had adopted an angiosarcomatoid appearance. Despite mastectomy, the tumour has since recurred in the scar. The final case, which describes a unique histomorphology, is that of an 80 year old female with a left breast lump, histology of which showed a mixed invasive ductal carcinoma, mucinous carcinoma and metaplastic carcinoma with nodular fasciitis-like features and chondroid differentiation. She is being treated with adjuvant radiotherapy.

Conclusion: Metaplastic carcinomas are triple negative tumours which represent less than 1% of all breast cancers. They carry a high rate of local recurrence and have an erratic metastatic pattern, involving both lymph nodes and distant sites. Treatment usually involves non-targeted cytotoxic agents and local radiotherapy, despite which, the prognosis remains poor.

P.009

An evaluation of oral health related quality of life in orthodontic patients treated with fixed & twin blocks appliances

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Introduction: To study the impact of orthodontic treatment on the quality of life in two patient groups, one treated with the twin block appliance and the other with fixed appliances.

Methods: Ninety-eight patients, aged between 10 and 16 years, were recruited in the fixed (20 males and 29 females) or functional (29 males and 20 females) treatment groups. The oral health-related quality of life (OHRQoL) was measured before treatment and followed up at the end of the treatment. The instrument used to measure OHRQoL was a modified self-administered short version of the English Oral Health Impact Profile (OHIP-16[E]) questionnaire.

Results: OHRQoL worsened at the initial stages of the treatment. The overall score of OHRQoL reduced significantly at the end of the treatment in both groups. Both groups showed comparable improvements in OHRQoL as the treatment progressed (analysis of variance test $p = 0.05$).

Conclusion: All patients reported an improvement in their QoL at the end of treatment and no statistically significant differences were found between the two groups. These results can be incorporated into the informed

consent, which may increase patient's compliance since they and their parents, become better aware of the whole treatment process. OHRQoL improved significantly with both fixed and functional appliances at the end of the treatment.

P.010

An evaluation of the knowledge of expectant mothers on the impact of sugars on deciduous teeth and early childhood caries

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Introduction: Early Childhood Caries (ECC) is defined as the presence of one or more decayed (cavitated or non-cavitated lesions), missing (due to caries), or filled tooth surfaces in any primary tooth in a preschool-aged child between birth and 71 months of age. There is uncertainty as to how well-informed and knowledgeable expectant mothers are with respect to children's oral health, caries, the importance of good oral hygiene and practices, and a healthy diet in the prevention of dental disease. A major risk factor for ECC is prolonged and frequent bottle/breast feeding.

Methods: This study was carried out through a convenient sample of 140 pregnant women who attended prenatal classes from January-April 2018 at Mater Dei Hospital. A self-administered questionnaire was given to them with the aim of gathering information with regards to knowledge and attitudes towards children's dental health.

Results: There is a generalised lack of knowledge with respect to eruption ages, general prevention, feeding and dietary practices. This is a major contributory factor to the initiation and progression of ECC. 13.6% and 4.3% understood the harm of frequent and prolonged night-time bottle and breast feeding, and only 32.9% of participants understood that restoration of primary teeth is important.

Conclusion: The lack of knowledge of expectant mothers is reflected in the fact that only 53% of 5-year-old children in the Maltese Islands are caries-free. More work needs to be done to increase knowledge and raise awareness through an early onset life-course approach in order to get children on a good oral health trajectory as early as possible.

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P.011

Analysis of delayed patient discharge in a general hospital

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Introduction: A delayed discharge refers to a situation where a patient is deemed medically fit for discharge but is unable to leave hospital. This results in bed blocking which decreases bed availability for acute patients. This audit aimed to analyse the different causes of inappropriate delays experienced by patients in surgical wards within a general hospital and any significant associated comorbidities.

Methods: Patients residing in 1 of the 10 surgical wards (general, orthopaedics and urology wards) during one week in April 2018 were identified. The reasons for their

admission, duration of stay, reasons for delay and major comorbidities were recorded.

Results: 381 patients were identified and assessed, 29 patients (7.6%) experienced delayed discharge; 16 were male and 13 female, with a average age of 73 years. 21 patients were awaiting rehab or long term care availability. The other patients were delayed due to healthcare or family associated issues. 48.3% of patients suffered from diabetes, 37.9% from hypertension and 34.5% suffered from heart disease.

Conclusion: The 7.6% delayed patient discharge observed in this study exceeds the NHS level (currently at 5.2%). Inappropriate delays to patient discharge are expensive and present a huge burden to the patient and the healthcare system. The causes of these delays should be addressed in aim to promote fast and efficient discharges thus minimizing delays.

P.012

A prospective analysis of inappropriate delays to surgical patient discharge in a teaching general hospital

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Introduction: Delayed discharge is an inpatient stay in hospital beyond the ready for discharge date; were the patient is deemed clinically fit for discharge by the healthcare team. In 2016 this cost NHS UK an estimated £820 million, due to 2.7 million older patients in hospital who no longer required acute treatment. This audit aims to analyse the length, causes and cost of inappropriate delays experienced by surgical patients in a teaching general hospital.

Methods: Inpatients who were resident in one of the three main surgical wards during one week in August 2017 were identified and followed up until discharge. Patients who died were excluded. The reasons for their admission, duration of inpatient stay, the time when they were medically fit for discharge, and the reasons for delayed discharge were recorded prospectively. The costs of these delays were calculated.

Results: One hundred and sixty-three patients were identified. 15 patients (9.2%) experienced inappropriate delayed discharge, with a total of 137 delayed discharge days. These patients, 9 of whom were male, had a median age of 67 years. The reasons for delayed discharge of 12 patients were due to social care issues, in particular due to delays in transfer home because of the lack of a package of care or to a community hospital due to a lack of beds. The costs of the delayed discharges in this patient group is estimated at £60554

Conclusion: Inappropriate delays to patient discharge are expensive. The causes of these delays should be addressed appropriately in order to enable safe and well-planned discharges.

P.013

An analysis of skin cancer in nonagenarian population

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Introduction: To analyse cases of skin cancer in nonagenarians and improve clinical practice by reviewing characteristics and treatment options in this age group.

Methods: A list of all the skin cancers excised or biopsied by Department of Plastic Surgery in the year 2016 at a University Teaching Hospital in the nonagenarian population were obtained from the histopathology department. This was anonymised and patient demographics, lesion characteristics and management were analysed.

Results: From a total of 44 patients and 56 cancers, 48% were males and 52% were females. 77% of lesions involved the head and neck, 14% the lower limb, 5% the upper limb, and 4% the trunk. 54% were BCCs, 43% were SCCs, 3% were malignant melanomas. There were 3 incision biopsies and 53 excision biopsies of which 4 were incomplete. 3 of these were not re-excised. 1 was re-excised incompletely once again. It was not re-excised thereafter.

Conclusion: There are various treatment options for skin cancer. In nonagenarians, a limited life expectancy has to be taken into account in addition to careful pre operative assessment before opting for surgical management. Surgical resection can be safe and effective and associated with an improved quality of life.

P.014

Observing the role of hospital pharmacists in cancer care using a qualitative shadowing method

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Introduction: Medications are crucial in the treatment plan of cancer making the pharmacist' role an integral part of the multidisciplinary cancer care team. Pharmacists are actively engaged in all aspects of cancer care: from chemotherapy dose preparation and safety checks to educating patients about adverse effects. The role of the pharmacist in the healthcare systems has changed significantly over the years shifting the focus on the clinical aspects of direct patient care. The aim of the project was to obtain first-hand experience of the role of the hospital oncology pharmacist.

Methods: An expression of interest for a pharmacist within the Pharmacy Department at Mater Dei Hospital and Sir Anthony Mamo Oncology Centre was issued on 20th June 2016 to undergo shadowing experience at Leeds Teaching Hospital NHS Trust (Circular No: MDH/193/2016). The pharmacist was selected by an interview with the Selection Board. The shadower was assigned daily with a particular oncology and/or haematology pharmacist working within the Medicines Management and Pharmacy Services at St James's University Hospital for a week between 18th and 22nd July 2016. Qualitative data collected during

the shadowing period was compiled in a report using a narrative approach. This was then presented to Pharmacy Department management.

Results: During the shadowing experience, exposure to various pharmacy services was provided. These include ward pharmacy, ambulatory care, in-patients and outpatient pharmacy services, consultant, pharmacist and nurse-led clinics, aseptic pharmacy services, radiopharmacy and clinical trials. Procedures observed at St James's University Hospital were discussed in the report for consideration in the possible adoption into our local hospital system. These include: introduction of electronic system for the clinical notes and electronic prescribing; setting up of ambulatory care and ward pharmacy services; active participation of the pharmacy technicians and pharmacists in direct patient care up to ward level; and introduction of the concept of medicines reconciliation and medicines use reviews.

Conclusion: The shadowing experience has offered a unique opportunity to strengthen the understanding of the various aspects of the pharmacist's role involved in the care of cancer patients. This has exhibited different work procedures which may be introduced into the local scenario to improve the current service provided to the patients.

P.015

The occurrence of cutaneous malignancies in patients who received phototherapy at Sir Paul Boffa Hospital in 2008 and 2009 within a follow-up period of 9 to 10 years

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Introduction: Phototherapy is an established treatment modality with various applications in dermatology. However in theory it could predispose recipients to cutaneous malignancies. Our aim was to document the occurrence of cutaneous malignancies in patients who received narrow-band ultraviolet B (NB-UVB) and psoralen with ultraviolet A (PUVA) phototherapy at the Phototherapy Unit at Sir Paul Boffa Hospital (SPBH) in 2008 and 2009 within a follow-up period of 10 and 9 years respectively.

Methods: Data concerning patients attending the Phototherapy unit at SPBH in 2008 and 2009 was gathered and cross-referenced with their histopathology records accessed on the iSOFT clinical manager. Cutaneous histopathology reports were collected for the follow-up period commencing from after the patients had started phototherapy up till July 2018.

Results: A total of 249 individual patients attended for phototherapy in 2008 and 2009. There were 159 patients who attended only in 2008 and another 90 patients who attended only in 2009, with 68 patients who attended in both years. For the patients who attended phototherapy in 2008, 28 individual cutaneous histopathology reports were recorded in the follow-up period. These included a single report of melanoma in situ and a dysplastic nevus (in the same patient) as well as a single report each of basal cell carcinoma (BCC) and squamous cell carcinoma

(SCC) in different patients. For the patients who attended for phototherapy only in 2009, 40 individual cutaneous histopathology reports were recorded in the follow-up period. These included 2 reports of BCC, 2 reports of SCC, 2 cases of actinic keratosis and a report of adenosquamous carcinoma. These lesions were found in a total of 3 patients, with each of these patients having more than one lesion.

Conclusion: Only 6 patients out of a cohort of 249 patients had histopathology reports of cutaneous dysplasia and malignancy during the time period examined. This occurrence compares well to the general population after the multiple confounding factors, including patient age, skin phototype and cumulative sunlight exposure prior to and after phototherapy, are accounted for. The single melanoma in situ found in this patient cohort was reported in 2009, almost within a year of the individual patient starting PUVA and hence its occurrence is probably coincidental.

P.016

Primary thymic neoplasms; a radiological overview

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Introduction: Primary neoplasms of the thymus are a common type of anterior mediastinal mass. Various types and forms exist, most of which are relatively rare and are often incidental findings seen on imaging. The aim of this study was to explore the local cohort of patients diagnosed with primary thymic neoplasms and to evaluate their respective radiological findings.

Methods: A retrospective study was carried out involving a total of 38 local patients. All patients underwent previous partial or total thymectomies in view of primary thymic neoplasms which were subsequently histologically confirmed. All imaging related to these patients was reviewed, with specific attention being paid to the anterior mediastinal structures.

Results: Fifteen patients (42%) were found to have detectable plain film findings (chest radiography). Thirty-two patients (89%) went on to have cross-sectional imaging (CT) for further assessment. Nineteen patients (53%) underwent image-guided biopsy to assess the lesion histologically. A total of 36 patients (from 38) were found to have primary thymic neoplasms and therefore met the required inclusion criteria. Twenty-seven patients (75%) were confirmed to have histologically benign thymic masses (thymomas), 8 patients (22%) had malignant thymic neoplasms (including invasive thymomas and thymic carcinomas) and 1 patient (3%) had a mixed benign-malignant thymic mass.

Conclusion: Primary thymic neoplasms can be evaluated radiologically in many ways. Plain films, CT, PET-CT and MRI are all established tools used for the detection and characterisation of these masses which will help with the subsequent management and treatment of these patients.

P.017

Sensitivity of RecombiPlasTin 2G to various coagulation factors and its implications

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Introduction: Different coagulation reagents exhibit different properties and it is essential that such properties are investigated in order to determine the effects on blood test results and patient management. The coagulation laboratory at Mater Dei Hospital switched to RecombiPlasTin 2G (R2G) (Instrumentation Laboratories) for the determination of the Prothrombin time (PT) and utilising the CLSI recommendations we investigated the sensitivity of this reagent to different factors which might impact the results.

Methods: Normal values were determined for the local population and utilising different factor deficient plasmas/lupus controls with calibrators, a serial dilution was performed in order to obtain factor/lupus concentrations ranging from less than 1% up to 100%. Finally 16 plasma samples from FVII deficiency cases were utilised and the PT was compared with another commercially available reagent.

Results: The normal values for the PT ranged from 9.2-11.8 seconds and the latter was taken as the highest cut-off. The sensitivities of R2G (ie the Factor level threshold when the test becomes abnormal) to factor deficiencies are FII 50-60%, FV 70-80%, and FVII 60-70%. This reagent is also sensitive to minor Lupus concentrations in which our results show an increased PT with just 10% of the positive Lupus control. The FVII deficient patient plasmas demonstrated increased sensitivity to mildly decreased FVII levels when compared to the other PT reagent, Innovin (Siemens).

Conclusion: The sensitivity of R2G is within CLSI guidelines for FII but outside consensus for FV and FVII deficiency. This reagent is also highly sensitive to Lupus anticoagulant which might make it inappropriate for use to measure Warfarin anticoagulation in LA positive patients.

P.018

Refining a biomarker signature predicting sensitivity to FTY720 in triple negative breast cancer

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Introduction: Triple negative breast cancer (TNBC) is a heterogeneous breast cancer subtype which lacks expression of receptors usually targeted in breast cancer therapy. Thus, treatment options rely only on generalised chemotherapy, which carries cytotoxic consequences. Studies have shown that the tumour suppressor, protein phosphatase 2A (PP2A) was found to be deregulated in approximately 60% of TNBCs. Two novel biomarkers; Aurora kinase A (AURKA) and Kinesin Family Member 2C (KIF2C) can identify therapeutic groups sensitive to PP2A activation within this subtype.

Methods: Protein expression of AURKA and KIF2C was investigated in 160 TNBC cases by immunohistochemistry and 23 normal breast epithelium. Overexpression of these biomarkers was correlated with RNA profiles (40-gene panel, established in previous studies) assessed using a branched DNA assay to identify potential complimentary biomarkers related to AURKA and KIF2C expression. Protein expression of these biomarkers (CIP2A and PPME-1), was assessed on TNBC cell line ($n=6$) models treated with PP2A activator, FTY720 and TNBC patients ($n=160$).

Results: Sixty-five percent of TNBC patients overexpressed AURKA while 40% overexpressed KIF2C at a protein level. PPME-1 and CIP2A were found to be positively correlated with AURKA and KIF2C RNA and protein expression. Protein expression of these 4 biomarkers can predict FTY720 sensitivity in TNBC cell lines, which can be translated to a novel therapeutic group within TNBC patients.

Conclusion: Expression of these protein markers provides a biomarker signature signalling the deregulation of PP2A in TNBCs, hence classifying patients into a potential therapeutic group sensitive to PP2A reactivation.

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P.019

Profiling and characterisation of the p53 family as biomarkers for breast cancer

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Introduction: The p53 family of protein is comprised of p53, p63 and p73. p53 is traditionally known as a tumour suppressor and described as the guardian of the genome due to its role in preventing genome mutations. Mutations of the p53 gene increase the susceptibility to cancer. Over 50% of human cancers involve p53 loss of function. This study will focus on analysing p53 mutations in breast cancer. One of the results of a mutated p53 gene is the formation of amyloids. Amyloids are protein aggregates which form due to the distortion of the secondary structure of proteins.

Methods: Multiplexing assays will be used to profile the different mutations and combinations of isoforms from multiple breast cancer cell lines. Following the identification of mutations, protein aggregates within the cell lines will be studied. Subsequently, cloning of the observed isoforms and site-directed mutagenesis will be performed and studied in relation to protein expression. Properties of these proteins such as their predisposition to aggregate and form amyloids, the degree at which different combination of p53/p63/p73 proteins aggregate, and the rate at which this occurs will be studied.

Results: Recombinant human wild-type p53 together with isoforms and some mutants have been sub-cloned and purified from *Escherichia coli*.

Conclusion: Multiple types of breast cancers exist and characterisation of the isoforms and mutations of the p53 family may enable the development of a biomarker system for such tumours since each individual breast cancer type arises from a particular mutation which results in the gain of function of the oncogene activity.

P.020

Determining the genotype of the RH blood group system in the Maltese population

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Introduction: The Rh blood group system has a vital role in transfusion medicine therefore, by DNA typing important medical issues can be resolved when serological techniques are inconclusive. The main aim of this research was to determine the frequency of RHD and RHCE in the Maltese population so that in the future DNA typing can be employed to complement the routine serology techniques.

Methods: 400 blood donor samples and 397 neonatal blood samples were enrolled in this study. An allele-specific polymerase chain reaction (AS-PCR) method was used to determine the presence of RHD, RHCE*E and RHCE*e, while multiplex PCR was used to test for RHCE*C/c. 81 from these 400 blood donor samples were tested by serology for the RhD, C,c,E and e antigens, and the results were used for comparison with the results obtained by genotyping.

Results: Out of 797 samples, the most common allele was RHCE*e (98%), followed by RHD (91%). The lowest percentage was obtained for RHCE*E (23%). The most common haplotype in the study was DCe (49.7%). This is also expressed in the fact that DCce and DCCee were the most common genotypes with a percentage of 38.27 and 24.46 respectively. In RHD negative samples, dccee was the most frequent (6.9%).

Conclusion: Like in previous studies, this research also concludes that the distribution of the RH genotype varies in different geographical areas. The molecular techniques used, offer a fast in-house testing system to obtain the RHD and RHCE genotype status. However this may merit further development to be used in a clinical setting.

P.021

Surgical ventricular restoration: A local experience.

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Introduction: Heart failure carries a high mortality, despite best medical therapy. Surgical ventricular restoration (SVR) is a technique whereby an attempt is made to restore the left ventricle's (LV) shape, size and function. The role of SVR in the treatment of heart failure has not yet been fully established, especially since there is no standardised procedure. Nonetheless studies have shown that with careful patient selection, SVR may be effective. This study retrospectively analyses data collected from patients who underwent SVR at Mater Dei Hospital, Malta over a 5 year period. An appropriately sized endoventricular mannequin was used as a template during surgery for all the patients.

Conclusion: While the number of patients who underwent this procedure was limited, our results mirror those from larger studies, showing that re-establishment of the LV size and geometry was related to a positive outcome.

Mean reduction in EDV of 42.65% and mean reduction in ESV of 46.57% was achieved in line with recommendation of at least 30%.

P.022

Internal rib structure can be predicted using mathematical models: an anatomic study comparing the chest to a dome

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Introduction: The human rib cage resembles a masonry dome in shape. Masonry domes have a particular construction that mimics stress distribution. Rib cortical thickness and bone density were analyzed to determine whether the morphology of the rib cage is sufficiently similar to a shell dome for internal rib structure to be predicted mathematically.

Methods: A finite element analysis (FEA) simulation was used to measure stresses on the internal and external surfaces of a chest-shaped dome. Inner and outer rib cortical thickness and bone density were measured in the mid-axillary lines of seven cadaveric rib cages using computerized tomography scanning. Paired t-tests and Pearson correlation were used to relate cortical thickness and bone density to stress.

Results: FEA modeling showed that the stress was 82% higher on the internal than the external surface, with a gradual decrease in internal and external wall stresses from the base to the apex. The inner cortex was more radio-dense, $P < 0.001$, and thicker, $P < 0.001$, than the outer cortex. Inner cortical thickness was related to internal stress, $r = 0.94$, $P < 0.001$, inner cortical bone density to internal stress, $r = 0.87$, $P = 0.003$, and outer cortical thickness to external stress, $r = 0.65$, $P = 0.035$. Mathematical models were developed relating internal and external cortical thicknesses and bone densities to rib level.

Conclusion: The internal anatomical features of ribs, including the inner and outer cortical thicknesses and bone densities, are similar to the stress distribution in dome-shaped structures modeled using FEA computer simulations of a thick-walled dome pressure vessel. Fixation of rib fractures should include the stronger internal cortex.

P.023

Mathematical modelling of the external anatomic morphological features of ribs: an anatomical study with application to understanding fractures and intercostal muscle function.

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Introduction: As ribs adapt to stress like all bones, and the chest behaves as a pressure vessel, the effect of stress on the ribs can be determined by measuring rib height and cortical thickness.

Methods: Rib height and thickness (depth) were measured using CT scans of seven rib cages from anonymised cadavers. A Finite Element Analysis (FEA) model of a rib cage was constructed using a validated approach and used to calculate intramuscular forces as the vectors of both circumferential and axial chest wall forces at right angles to the ribs. Nonlinear quadratic models were used to relate rib height and rib thickness to rib level, and intercostal muscle force to vector stress. Intercostal muscle force was also related to vector stress using Pearson correlation. For comparison, rib height and thickness were measured on CT scans of children.

Results: Rib height increased with rib level, increasing by 13% between the 3rd and 7th rib levels, where the 7th/8th rib was the widest part or “equator” of the rib cage, $P < 0.001$ (t-test). Rib thickness showed a statistically significant 23% increase between the 3rd and 7th ribs, $P = 0.004$ (t-test). Intercostal muscle force was significantly related to vector stress, Pearson correlation $r = 0.944$, $P = 0.005$. The three nonlinear quadratic models developed all had statistically significant parameter estimates with $P < 0.03$.

Conclusion: External rib morphology, in particular rib height and thickness, can be predicted using statistical mathematical models. Rib height is significantly related to the calculated intercostal muscle force, showing that environmental factors affect external rib morphology.

P.024

Non-Newtonian computational fluid dynamics simulations of aortic stenosis

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Introduction: Computational fluid dynamics (CFD) permits computer simulation of flow characteristics in the aorta. The aim of this project was to compare conventional

Newtonian to more-realistic non-Newtonian blood flow models and assess wall shear stress (WSS) in the aorta to determine possible aortic incision sites in the context of aortic valve stenosis.

Methods: Blood was modelled as a non-homogeneous, shear-thinning, non-Newtonian fluid in a simplified rigid aortic wall without aortic wall elastic dilation, similar to calcified aortas present in elderly patients. A three-dimensional model of the aorta was developed from a high-resolution computerised tomography (CT) scan and meshed with a very fine mesh (>4 million tetrahedral mesh elements). CFD was performed using ANSYS-FLUENT 15.0 software following haemodynamic behaviour validation and grid-independence studies.

Results: Unsteady flow patterns were observed in the ascending aorta and aortic arch where there was helical flow motion; this was especially evident at the aortic arch level, but stabilised in the descending aorta. This stabilisation was better characterised in the non-Newtonian model. The non-Newtonian simulations also better visualised the high levels of WSS in the medial and superior portions of the ascending aorta.

Conclusion: This CFD model is noteworthy in that it used a higher number of meshes than previously published aortic CFD models as well as more complex but more realistic non-Newtonian modelling. The very high ascending aortic WSS explains the development of post-stenotic aortic aneurysms. The antero-lateral part of the ascending aorta has less WSS and may be a more suitable surgical incision site.

P.025

Ultrasound doppler evaluation of recurrence after varicose vein surgery in Malta

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Introduction: Lower limb superficial venous incompetence is a common condition that is associated with a significant impact on quality of life and which can lead to venous ulceration and superficial vein thrombosis. Recurrence remains a common, complex and costly problem after open venous surgery which although superseded by minimally invasive techniques in the national health service is still commonly practised in the private sector. Ultrasound Doppler is the investigation of reference on patients presenting with recurrent varicose veins. The aim of this audit was to report the most frequent patterns of recurrent varicose veins presenting to the vascular unit at Mater Dei Hospital.

Methods: Patients with a history of recurrent varicose veins after previous surgery presenting to the Vascular Unit at Mater Dei Hospital between January 2015 and January 2018 were recruited to the study. Data regarding the source and route of venous incompetence was collected through ultrasound Doppler evaluation. Quantitative analysis of the data was performed.

Results: The saphenofemoral junction was the most common source of incompetency, with a residual great saphenous vein stump. Neovascularisation and non-saphenous incompetence mostly due to pelvic incompetence were the second most common cause of recurrence.

Conclusion: Technical errors (ie, an inadequate procedure) and tactical mistakes (ie, an inadequate choice of procedure) were the most frequent patterns of recurrent varicose veins after surgery. The high proportion of these types of recurrences emphasises the importance of meticulous preoperative assessment using Doppler ultrasound, and the need of a standardised protocol for the initial treatment of varicose veins with the aim of reducing the need for re-treatment and reducing the high levels of morbidity associated with chronic venous disease.

P.026

First report of a combined resection technique using a novel non-thermal, automated mechanical resection system of a giant, fibrotic, circumferential lesion involving the whole duodenal bulb (with video)

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Introduction: Incidental duodenal non-ampullary lesions are found at upper gastrointestinal (GI) endoscopy in 1-5% of cases. Endoscopic resection of duodenal lesions carries a higher risk of bleeding due to the rich vascularity and exposure to bile and pancreatic enzymes. The risk of perforation is also intrinsically increased due to thin nature of the duodenal wall. In addition, endoscopic resection of fibrotic duodenal lesions can be extremely challenging (even in expert hands) and carries high failure and complication rates, often warranting extensive surgical management. To date, there is no widely accepted optimal management strategy for duodenal lesions and conservative management with endoscopic surveillance is frequently adopted. Although at diagnosis, duodenal adenomas are most often benign, they retain an intrinsic risk of malignant transformation.

Methods: Our aim was to use a novel, combined endoscopic approach for the management of an otherwise unresectable giant, fibrotic, circumferential lesion involving the whole duodenal bulb. A 72-year-old woman with hypertension presented with anaemia and melaena. An upper GI endoscopy revealed a 7cm circumferential lesion (Paris 0-IIa, 0-IIb) laterally spreading tumour (LST) involving the entire duodenal bulb. Histopathological analysis of biopsies taken at another institution, were in keeping with a tubulovillous adenoma with low grade dysplasia. Invasion of the muscularis propria was excluded by endoscopic ultrasound sonography (EUS).

Results: A first resection attempt through a combination of wide-field endoscopic mucosal resection (EMR) and saline immersion therapeutic endoscopy (SITE) hybrid-EMR techniques allowed only resection of less than 10% of the lesion, due to severe fibrosis. Delayed bleeding 24 hours post-resection was successfully treated endoscopically. Six weeks later, a planned second attempt at endoscopic

resection was performed under general anaesthesia. The lesion was initially injected with adrenaline solution (1 in 10,000 dilution). A combination of the use of a novel, non-thermal, automated-mechanical-suction-resection system with cold snaring allowed us to achieve 50% resection of the lesion in less than 2 hours. Mild, self-limiting, intra-procedural oozing did not require further endotherapy and no major immediate or delayed adverse events occurred. Completion of the resection using the same technique is planned to be performed shortly.

Conclusion: To the best of our knowledge, this is the first report of a resection technique using a novel non-thermal, automated-mechanical-suction-resection system for a giant duodenal adenoma. In our opinion, this novel salvage endoscopic technique appears to be a safe and effective, minimally invasive alternative to major surgery and warrants further study.

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P.027

Assessment of referrals for knee radiography from the Emergency Department with reference to the Ottawa knee rules

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Introduction: Requests for radiological examinations are on the increase, putting ever-more pressure on hospital radiology services. The aim of this audit was to evaluate the appropriateness of knee X-ray referrals, in acute knee injury, as per the standards set out in the Ottawa Knee Rules.

Methods: The Ottawa Knee Rules state that all knee x-ray referrals should meet at least one of the below: age 55 or older, focal tenderness over head of fibula, isolated patellar tenderness, inability to flex knee more than 90°, inability to weight bear, immediately as well as in the Emergency Department (ED), for 4 steps. Local compliance was assessed by auditing knee radiograph referrals from the ED over a three-week period.

Results: From a total of 65 cases collected, 43 (66%) presented a valid history for justification of the X-ray, with a resulting amount of 9 patients having a fracture on X-ray. The most common justification for plain radiographs was age. Of the 22 (34%) cases where a radiograph was not justified, 14 of the X-rays were normal, 2 patients had a fracture, one, a suspected fracture and 5 had other pathology. A total of 54 cases (83%) had no relevant information to the Ottawa rule documented in the request. Justification could only be obtained from the patient's age.

Conclusion: The Ottawa Knee Rules have been shown to be highly sensitive in identifying patients who require an x-ray examination to exclude fracture. Increased compliance to such clinical decision guidelines avoids unnecessary healthcare costs and minimise exposure to ionizing radiation.

P.028

Haemangiomas: point-of-care sonography and incidentalomas.

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Introduction: Haemangiomas are the commonest focal liver lesions (FLLs). Typical cavernous ones measure less than 3cm and are invariably asymptomatic "Incidentalomas".

Methods: Case Study: A 24-year-old woman presented with recurrent urinary tract infections, altered bowel habits, nausea and weight loss. Point-of-care sonography (POCUS) was done at a "same-day clinic" surgical outpatient department appointment. It detected four FLLs: three were typical haemangiomas; and the fourth was complex and measured 3.5cm. International guidelines recommend further characterization in cases of multiple or complex FLLs greater than 3cm. Contrast enhanced Sonography (CEUS) is the first line investigation recommended for differentiation of FLLs. In this case, magnetic resonance imaging diagnosed multiple haemangiomas.

Conclusion: The aim of this case report is to evaluate the role of diagnostic medical sonography in the management of a patient with incidentalomas. The clinical presentation, sonographic findings, and differential diagnosis in a case of haemangiomas, and the benefits and challenges of introducing POCUS into clinical practice, are discussed.

P.029

The use of intravenous paracetamol in the Emergency department: An unnecessary cost?

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Introduction: Paracetamol is one of the most widely used medication in the Emergency department (ED) in view of its analgesic and antipyretic properties. It is commonly used in both oral and intravenous (IV) forms in the ED however intravenous use is on the rise in spite of it being very expensive. The aim of the audit was to establish whether the intravenous form is over or incorrectly prescribed in the ED and how the department can easily cut costs by utilising the oral form.

Methods: The audit was carried out retrospectively between October 2016 and April 2017 and involved sampling 200 patients at random who were seen in the ED and who were administered paracetamol either in the oral or intravenous form. The indication for the drug was established and medical records analysed to see if dosage form administered was according to WHO guidelines.

Results: Out of the 200 patients only 4.5% of patients had documentation stating that they were not tolerating oral intake. 95.5% of patients should have been prescribed paracetamol in the oral form but 81% of patient cohort was administered intravenous paracetamol. Only 19%

were prescribed the oral form. If the correct dosage form is prescribed for patients the ED could save around €1258.98 per 1000 patients per month.

Conclusion: Intravenous Paracetamol is being incorrectly prescribed in the ED when patients are tolerating oral intake creating unnecessary costs. Stricter guidelines and protocols need to be implemented and the use of oral paracetamol should be recommended.

P.030

Management of daratumamab interference in pre-transfusion testing at the Mater Dei Hospital blood bank.

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Introduction: Daratumamab (DARA) is a monoclonal antibody recently introduced in Malta to treat patients with Multiple myeloma (MM). DARA binds to CD38 proteins which are present in high numbers on MM cells. However, it also binds to those cells that carry the CD 38 protein in smaller amounts, including red blood cells (RBCs). This results in the sensitisation of RBC reagents used in immunohematology, consequently interfering with pre-transfusion testing. To resolve this panreactivity, red cells are treated with dithiothreitol (DTT) prior to testing. This treatment denatures the CD38 protein on RBCs, inhibiting the sensitisation.

Methods: An EDTA sample is sent the Hospital Blood Bank prior to commencement of treatment with DARA so that baseline tests are performed. These include; The ABO and RhD blood type; antibody screening, red cell phenotyping and Direct Antiglobulin Test (DAT). Upon initiation of DARA treatment, discrepancies in routine blood bank testing are resolved by DTT-treatment of red cell reagents and of donor's red cells. DTT treatment involves the washing of red cells for four times with physiological saline, after which the RBCs are incubated with 0.2M DTT at 37 C for 45 minutes. These are then washed again for four times and resuspended to a 2-5% RBC suspension in a Low Ionic Strength Solution (LISS) prior to testing.

Results: The experience at the Hospital Blood Bank, to date, totals 6 DARA-treated patients. Prior to treatment, only 2 patients had a positive Direct Coombs Test. Post-treatment and upon laboratory DTT-treatment of red cells, 5 patients had a negative antibody screen and 1 patient had a positive screen due to the presence of a cold reacting auto-antibody. Two patients have been transfused with phenotype-matched RBCs for which compatibility testing has been carried out using DTT treated cells. No adverse events related to transfusion were reported.

Conclusion: In-house laboratory treatment of reagent RBCs with DTT is a robust method to negate the interference caused by DARA, thus enabling the safe provision of blood to DARA-treated patients.

Disclosures: We would like to thank all the staff at the Hospital Blood Bank for their co-operation.

P.031

Horizontal violence in the Emergency Department: A reality within our shores?

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Introduction: Bullying and discrimination, of any kind, have no place in any aspect of Emergency medicine. The aim of the study is to see whether bullying, discrimination and harassment (BDH) under the umbrella of Horizontal violence (HV) is also prevalent within the Emergency department in Malta amongst all physicians who work there.

Methods: A online, anonymised, randomised questionnaire (via GoogleForms) modelled around the one utilised by the Australasian College for Emergency Medicine (ACEM) titled the Discrimination, Bullying and Sexual Harassment (DBSH) project in was distributed amongst doctors (n=68) working in the Emergency Department. asking about the experience of bullying, discrimination and harassment incurred within the ED.

Results: 66% of Emergency Physicians (EP) working in the ED completed the questionnaire. An overwhelming 84% of responders stated that they experienced Discrimination, Harassment or bullying in the ED. 35.6% said they experience this often with 11% stating that they never experienced bullying. 90% of the Maltese ED cohort felt they were discriminated against when they were not allowed to perform, or at least assist in practical procedures within the ED. 43.9% stated that these negative experiences affected their work/life situation badly with most of the responders stating that it affected their emotional wellbeing, increased stress, affected their confidence and made their work experience a bitter one.

Conclusion: Horizontal violence in our Maltese ED is a stark reality and this will not only impact the victims but also jeopardize patient safety. A zero tolerance policy must be implemented and the victims, encouraged to speak out and report.

Disclosures: UREC approval granted.

P.032

Hot water bottle: a hazardous companion of comfort

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Introduction: Hot water bottle is a cheap and widely used source of heat. We analysed data of admissions to our burns facility, secondary to the usage of hot water bottles, and explored trends with the aim of decreasing such burn injuries.

Methods: Data from in-patient record of admissions was reviewed over 7 years and included acute admissions as well as those secondary to complications.

Results: 11 patients were admitted and the commonest day and month of presentation were Monday and February respectively. Most patients presented after nightfall. The

commonest age group was from 40-59 years with a male: female ratio of 6:5. 2 of the females were using the bottle in the early postpartum period after Caesarean section. The total body surface area involved was less than 2% in all the patients with the most common affected area being the perineum. The commonest reason of admission was surgery (55%). 7 patients were treated with tangential excision and the rest were treated conservatively. Total days of follow up from admission till discharge varied from 11 to 80 days.

Conclusion: Public health campaigns should address the proper use of these commonly used devices that are perceived as innocuous by the general population.

Disclosures: This audit was accepted as a poster at the British Burns Association Conference in April 2018, in the Association of Surgeons in Training Conference in April 2018, in the European Burns Association course to be held in September 2018 and the Abstract was

P.033

An audit on the management of croup in primary care

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Introduction: New guidelines on the management of croup were introduced in 2014 and a copy was provided to all health centres, with the aim of standardising care. This audit was carried out to compare current practices against these new guidelines.

Methods: This retrospective audit looked at 35 cases of croup. Cases were recruited by going through case sheets of treatment rooms at Paola and Mosta Health Centres between February and April 2018. Data was collected from the case notes and included: Assessment of severity, Treatment given, Referrals made to A&E. This data was inputted to a spreadsheet and compared to the recommended clinical standards.

Results: This audit found that the majority of cases (89%) were mild, with only 1 life-threatening case. The commonest presenting complaint was tachypnoea. Guidelines were only followed in life-threatening cases, with most (74%) mild cases being treated with nebulised budesonide. 11% of cases were referred to Mater Dei Hospital.

Conclusion: This audit shows that symptomatic treatment was valued above adherence to guidelines. Awareness of these guidelines may prevent unnecessary referrals to Mater Dei Hospital. This can be assessed by carrying out a second cycle audit in 12 months.

P.034

The use of hycosy imaging in gynaecology

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Introduction: The assessment of the fallopian tubes as well as the uterine cavity was always important to give further information for possible causes of infertility, pain and as well prior to uterine surgical interventions such as hysteroscopic resection surgery. HyCoSy is an ultrasound

based technique which uses a contrast agent which is instilled into the uterine cavity to demonstrate patency and spill from the fallopian tubes, aiding uterine cavity views and determination of intrauterine pathology.

Methods: A systematic search of all HyCoSy related publications between 1990 to May 2018 was done to identify publications of HyCoSy technique, clinical studies, application, cost and comparison with gold standards. Retrieved full-text articles were examined. From the publications retrieved, year of publication of included studies, technique description, contrast usage, prospective/retrospective studies, comparison with laparoscopy or X-ray hysterosalpingogram, cost, safety, pathology evaluation, pain/tolerance to the test and 3D/4D usage data were extracted and analysed and presented in table form using MsExcel 2015.

Results: A total of 102 publications were retrieved. Six papers were excluded. Paper publication years ranged from 1990 to April 2018, with most publications in 2017. Out of 96 publications, 73 publications discussed HyCoSy Technique, 60 discussed contrast agents, 51 discussed fallopian tube evaluation, 29 uterine cavity evaluation and 33 publications discussed pathologies of the uterine cavity and fallopian tubes. 26 publications compared HyCoSy to HSG whilst 25 compared HyCoSy to laparoscopy (Gold Standard). 20 publications discussed 3D/4D application in HyCoSy. 29 publications compared cost of HyCoSy compared to laparoscopy and/or HSG, whilst 29 publications described safety in HyCoSy compared to laparoscopy and/or HSG. 15 publications discussed pain tolerability and post-procedural pain when comparing HyCoSy to laparoscopy/HSG.

Conclusion: In a more cost and patient satisfaction conscientious medical world, HyCoSy is continuously proving itself to be the first line method of investigation by most clinicians. This modality is being preferred first line over X-ray hysterosalpingogram due to contrast allergy and ionizing radiation exposure as well as over diagnostic laparoscopy in view of its cost and it being an invasive procedure. It is a simple and well tolerated outpatient procedure that could be effectively adopted during the diagnostic work-up of the infertile woman.

P.035

Ovarian granulosa cell tumor: a clinicopathological series

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Introduction: Ovarian granulosa cell tumours (GCTs) are uncommon sex-cord stromal neoplasms characterized by their variable clinical manifestations, indolent behaviour and favourable prognosis. Approximately 65% of patients are postmenopausal at the time of diagnosis and, in these patients, the morphology of the tumour typically conforms to an adult-type GCT. A minority of tumours, however, present at a younger age, and typically exhibit a juvenile-type GCT morphology. Juvenile-type GCTs feature similar gross morphological features to their adult counterparts

but typically exhibit a higher mitotic rate and lack the nuclear grooves seen in adult-type tumours.

Methods: This case series includes all cases of ovarian GCTs diagnosed at Mater Dei Hospital, Malta, between 2008 and 2016. Eight cases were retrospectively identified through hospital histopathological records. Further details concerning demographics, presenting features, investigations performed as well as surgical and oncological management were obtained from the patient medical notes.

Results: In the nine years under study there were a total of eight ovarian GCT cases. Two sixteen year old patients were diagnosed with juvenile-type GCT while six other patients had adult-type GCT. Of the latter, four patients were menopausal. Females of reproductive age typically presented with cycle irregularities, notably amenorrhea, and clinical or ultrasonographic findings of an adnexal cyst. On the other hand, a significant proportion of menopausal patients presented with postmenopausal bleeding.

Conclusion: This case series showcases the variable natural history and presenting features of juvenile-type and adult-type ovarian granulosa cell tumors, whilst emphasising the need for diligent endometrial assessment and long-term follow up protocols.

P.036

Endometrial cancer and the quality of life after treatment

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Introduction: Endometrial Cancer is the commonest gynaecological cancer in the developed world. The Objective is to assess the quality of life after treatment, and the co-morbidities arising from the treatment.

Methods: Women who have been treated for endometrial cancer and are still alive after 5 years of diagnoses, were contacted. These were provided with a questionnaire ("Ferrans and Powers Quality of Life Index Cancer Version – III") which included their perspective on how the diagnosis and treatment effected their life, if there were any undocumented co-morbidities or complications, and also assess their quality of life. The recall bias at this stage may be a problem for the study.

Results: Results show that chemotherapy had a decrease in the health related quality of life of patients with endometrial cancer, when compared to those who had undergone radiotherapy. Patients that had undergone surgery alone had the best outcome. It was also found that in the adjuvant therapy group, both the radiotherapy and the chemotherapy group, the latter particularly so, the patients suffered more from complications such as lymphoedema, muscular pain, tingling or numbness sensations, hair loss, change in taste, and also a diminished body image. These all effected the patients in their quality of life.

Conclusion: The best outcome for patients was noted to be in the group with the least interventions. These had the best prognosis. If they are detected early, a higher percentage of patients would have only surgery and no post operative treatment and therefore have a better quality of life.

P.037

Endometrial cancer and its response to treatment

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Introduction: Endometrial Cancer is the commonest gynaecological cancer in the developed world. The Objective of this study is to compare the overall survival and disease-free interval for the different treatment modalities used for Endometrial Cancer in Malta.

Methods: Women who had Dilation and Curettage and/or hysteroscopy and endometrial biopsy, including pipelle for post-menopausal bleeding or irregular menses were collected over a period of one year, in retrospect of the previous five years. The percentage of the 5 year survival rate for each type of treatment is assessed together with the percentages of recurrences.

Results: A total of 53 women were diagnosed of endometrial cancer in 2010. 50 women out of the 53, survived past the 1 year mark. 48 women were still alive after 3 years of diagnosis of endometrial cancer, 46 women survived up to 5 years post diagnosis. A total of 45 women out of the 53 women, who were diagnosed in 2010 with endometrial cancer, survived past 5 years after diagnosis (1 women died few days just before the 5 years). 38% of the women had no post-operative treatment offered, 13% had radiotherapy, 2% had chemotherapy, and 47% had no written information in their hospital notes regarding any post-operative treatment (whether it was offered or not).

Conclusion: The best prognosis was seen in patients who underwent surgery only and had no post-operative adjuvant treatment. Endometrial Cancer has a very good prognosis if found early and treated early.

P.038

Sentinel lymph node biopsy in the management of vulvar carcinoma: An evidence-based insight.

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Introduction: Lymph node metastasis has been shown to represent the most significant prognostic factor in vulvar carcinoma. Because only 25% to 35% of patients with early stage disease have lymph node metastases, a significant 65% to 75% possibly do not benefit from elective inguinofemoral lymphadenectomy considering the related morbidities of wound infection, breakdown, and lower limb lymphedema. This review article aims to present and summarize the evidence available with regard to sentinel lymph node (SLN)-guided management of vulvar carcinoma.

Methods: A literature search was performed in MEDLINE resources using the subject headings "vulvar neoplasms," "sentinel lymph node," "sentinel lymph node biopsy," and "lymphatic metastasis." This search returned 886 articles that were published through January 2017. Prospective studies investigating sentinel node identification techniques and their impact on vulvar cancer management and prognosis were considered. Case reports were excluded from the review.

Results: Technetium-99-m-labeled nanocolloid with or without blue dye and more recently indocyanine green fluorescence have been the main techniques used for SLN identification in vulvar carcinoma. Radioisotope and near-infrared techniques have been shown to be superior to blue dye particularly with midline lesions that drain bilaterally or that drain directly to a deep pelvic node. Patients with a small unifocal primary tumor (<4 cm) and no obvious preoperative metastasis have been shown to have low groin recurrence rates and excellent disease-specific survival rates with minimal treatment-related morbidity when undergoing SLN biopsy-guided management.

Conclusion: Sentinel lymph node biopsy-guided management seems to be safe when restricted to International Federation of Gynecology and Obstetrics IB to II cases where tumors are unifocal, less than 4 cm in size, and when there is no evidence of lymph node metastasis on clinical/radiological assessment. This reduces operative morbidity in this cohort of patients.

P.039

Gynaecological care of women at risk of poverty

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Introduction: As Gynaecologists we have to look after poor and not so poor women throughout their life course, from adolescence to child bearing age, through menopause into old age. Women from the migrant communities, unemployed single parent families, women with mental health problems, drug abuse, or domestic violence are at risk of developing health problems and have increased risk of getting below the poverty line.

Methods: In our community in St Paul's Bay we see women who cannot afford certain basic needs of life such as food, heating in winter, medicines and clothing. The factors which effect this risk include employment, access to housing, environment, education and health. As holistic healthcarers, gynaecologists are aware that women who are at risk of poverty have higher co-morbidities, such as obesity, smoking, ischaemic heart disease and cancer.

Results: There is also an increased association with anxiety, depression and substance abuse. In these women this seems to be related to perinatal mental health. Bad obstetric outcomes are indicated by higher miscarriages, prematurity, intrauterine growth restriction and placental abruption. These women are also at risk of domestic abuse. Their children are also at risk of neglect and abuse. We have to allow for more flexible timing for appointments. longer appointment time is needed for discussion due to likelihood of multiple comorbidities. Referral to social care and community voluntary organisations will offer continuing support.

Conclusion: As Gynaecologists working in the community together with other health and social carers we can try to provide individualised health care, thereby help to reduce poverty.

P.040

Standardising training in obstetrics and gynaecology across Europe: applying EBCOG-PACT to the Maltese training programme

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Introduction: The European Board and College of Obstetrics and Gynaecology (EBCOG) has been working towards standardising the training of this speciality across Europe. During this years' annual meeting in Paris, the EBCOG-PACT was presented. PACT stands for "Project for Achieving Consensus in Training". This is a document which defines the standards for postgraduate training curriculum in Obstetrics and Gynaecology in Europe. The training programme in Obstetrics and Gynaecology here in Malta has long been involved with EBCOG, even gaining accreditation as a recognised training centre in 2013. We have had many trainees successfully sitting for the recently established European Fellowship of Obstetrics and Gynaecology exam and have consistently tried to improve the methods of training our trainees. Last year, the local Obstetrics and Gynaecology Postgraduate Training Committee worked hard to establish the use of the e-portfolio and a training matrix that all trainees could adhere to, amongst other things that continue to be improved.

Conclusion: The EBCOG-PACT curriculum is an important tool used to bring the Maltese curriculum to European standards allowing our trainees to be trained according the best possible European practice. We want to show how the EBCOG-PACT curriculum is organised and how the Maltese postgraduate training curriculum has reached the same standards through its training programme.

Disclosures: Dr. Martina Schembri - I am part of the Post Graduate Training Committee in Obstetrics and Gynaecology, Mater Dei Hospital ; I have been involved in EBCOG since starting training - I was the Malta trainee representative for ENTOG (European Training Group)

P.041

The recurrent miscarriage clinic audit report (2016-2018)

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Introduction: Referral to the specialised recurrent miscarriage clinic at Mater Dei Hospital occurs after two consecutive pregnancy losses. An audit was performed to compare investigations performed locally to current recommended guidance from the European Society of Human Reproduction and Embryology. The results of 115 females attending the local miscarriage clinic over a year and a half were assessed. The delivery rate in Malta is roughly 4000 babies per year. Of the 115 women seen at the miscarriage clinic, 40 had successful pregnancies due to a known treatable cause. Treatment regimes were also assessed.

Methods: A retrospective audit was performed as part of the study.

Conclusion: The miscarriage clinic at Mater Dei Hospital compares well to international standards. Our incidence of antiphospholipid syndrome is similar to international statistics. However, we have noted there to be a high incidence of thyroid problems, particularly hypothyroidism and positive thyroid peroxidase antibodies.

P.042

Management of miscarriages at Mater Dei Hospital

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Introduction: The aim of the audit was to assess the commonest presentation of miscarriage and assess how many patients were offered observation, medical or surgical and to compare with the NICE Guidelines.

Methods: Files from the Admission Room and Obstetric Ward 2 were reviewed. Data collected included gestational age, performance of ultrasound, management including medical or surgical, whether mifepristone was used and the dose given.

Results: A total of 56 patients were included in the study. The mean gestational age at diagnosis was 10 weeks. Sixty percent of patients had a transvaginal ultrasound. Of the 37 patients who were admitted, 42% had an ERPC while 58% had medical management. The commonest regime of misoprostol used was 800ug followed by 600ug. Twenty percent of patients received the correct dose of misoprostol as indicated by the guidelines. Fourteen percent of patients received an incorrect dose of misoprostol prior to ERPC.

Conclusion: The NICE guidelines advocate that expectant management should be offered for the first 7-14 days. Medical management should be offered in cases of missed or incomplete miscarriages and surgical management should be offered either when medical management has failed or when deemed to be clinically appropriate. The FIGO guidelines indicates that 800ug misoprostol PV are given every 3 hours to a maximum of 2 in cases of missed miscarriage.

P.043

Execution of the functional movement screening test in the Maltese women football national team

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Introduction: The Functional Movement Screening (FMS) is an instrument to identify weaknesses and muscular imbalance in the athlete. The aim of our study is to perform the FMS on the Maltese Women National Football Team in order to evaluate the movement patterns of a group of elite players and to show how corrective exercise can lead to a positive result.

Methods: The group of our study was composed of 18 footballers of the Maltese women national team, aged between 17 and 28 years. The FMS test with its original tools was used and applied at the start of the football season and repeated after 8 weeks.

Results: A score of <14 was obtained in one third of the study group, whilst two thirds of the study group scored >14.

Regarding the symmetry in the execution of the movements, there was a variety as following: 7 had a perfect symmetry of execution between the two sides of the body, 6 had a slight asymmetry, whereas 5 had a moderate or marked asymmetry. This asymmetry shows a deficit in one or more movements, or one or more body districts

Conclusion: It has been proven that using the FMS it is possible to identify the weaknesses and the muscular unbalances of the athlete in order to develop a personalised training program. This can improve the partial and total score of the FMS, which results in the improvement of neuromotor control and athletic performance.

P.044

The importance of early vampirism in patients following hip surgery

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Introduction: Fractured hips are a very common referral to Orthopaedic departments worldwide. These fractures lead to a significant drop in haemoglobin levels and thus increased morbidity in this patient group. In this study, we audited whether patients with a fractured hip had a haemoglobin check in the first 24 hours after surgery and how many of them needed a transfusion.

Methods: In this retrospective study, we reviewed the notes of all the admissions with a hip fracture over a one month period in September 2017 at the University Hospitals of Leicester in the United Kingdom. The timing of their first post-operative blood sample and whether they needed a transfusion or not was recorded.

Results: There were 73 patients that had hip surgery. Seventy seven percent of patients (n=56) had their bloods taken within the first 24 hours after surgery and 23% of patients (n=17) did not. All of the patients had instructions for post-operative blood sampling documented in the post-op notes. Eighteen percent of the patients (n=13) required a blood transfusion, 8% (n=1) of which did not have a post-operative blood sample within the first 24 hours.

Conclusion: This audit highlights the importance of checking the post-operative haemoglobin level within the first 24 hours following hip surgery because these patients have several co-morbidities which when added to a low haemoglobin level lead to significant morbidity and mortality. Post-operative morbidity impedes patients from getting out of bed early in the postoperative period, prevents them from having adequate physiotherapy and thus results in a decline in their functional outcome.

P.045

Bone densitometry as an adjunct to total knee replacement at Gozo General Hospital

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Introduction: Gozo General Hospital caters for the needs of the Gozitan population which numbered 31,446 individuals in 2015. Out of this population, 8,512 individuals; 27% of the population were aged 60 or greater. As would be expected, an elderly population such as the one in discussion

would suffer from a degree of osteoporosis as well as osteoarthritis, and a number of its constituents would benefit from joint replacement. A study was carried out to determine whether patients are being tested for osteoporosis via bone densitometry prior to total knee replacement surgery.

Methods: All patients having a total knee replacement at Gozo General Hospital from January 2016 up until April 2018 were included in this study. One hundred and seventy six patients (n=176) were identified. The patients' files were obtained, the data charted and results analysed.

Results: Out of 176 patients, 47 patients (26.7%) had undergone a dual-energy X-ray absorptiometry (DXA) scan prior to their surgery. However, only 24 patients (13.6%) had undergone a DXA scan in the 12 months preceding their total knee replacement surgery.

Conclusion: A concerted effort needs to be made to implement DXA scans in a timely fashion prior to total knee replacement. It is recommended that the patient's osteoporosis status be assessed via bone densitometry once the patient has been identified as a candidate for joint replacement surgery and is over 65 years of age. Patients which have risk factors for osteoporosis and are potential candidates for joint replacement surgery should be tested for osteoporosis irrespective of their age. Furthermore, it is suggested that DXA scan results be uploaded online onto CPAS (Central Imaging Processing and Archiving System) so as to improve accessibility and aid with the treatment of osteoporosis.

P.046

Microvascular decompression for trigeminal neuralgia in Malta

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Introduction: Trigeminal neuralgia (TN) is characterized by severe recurrent unilateral brief shock-like pains, affecting the divisions of the trigeminal nerve. Oral medications are often effective in controlling symptoms. Surgical management in intolerant/unresponsive patients includes ablative therapies or microvascular decompression (MVD). Our aim was to audit the outcome of MVD for TN, a service recently introduced locally.

Methods: All patients who underwent MVD at Mater Dei Hospital were recruited retrospectively through the Surgical Register. Data collected included demographics, percutaneous procedures prior to MVD, pre-MVD and post-MVD medication use and surgical complications. Patients were also contacted and symptoms recorded on the Likert scale. Microsoft Excel and Data-Analysis Tool Pack were used for analysis.

Results: A total of 10 patients (6male) underwent MVD from January 2016 to July 2018. Mean (SD) age at time of intervention was 66.1 years (± 12.7). Duration of symptoms prior to surgery was 11.4 years (± 8.8). Symptoms were left-sided in 5, right in 4, and bilateral in 1 patient. Five patients underwent percutaneous procedures before MVD. At mean follow up of 12.8 months (range 3-31) after MVD, 8 patients were pain free, including one patient who underwent bilateral staged MVD. One patient estimated 70% improvement in symptoms. One patient did not respond. Reduction in the

number of medications was statistically significant ($p=0.02$). Seven out of 10 patients were not treated for TN post-operatively. Highly significant improvement in the Likert symptom scale was noted ($p<0.001$). There were no surgical complications.

Conclusion: Despite relatively short follow-up, this audit demonstrates the safe and successful implementation of this new service locally. These results compare well to those reported in previous publications.

P.047

Hypocalcaemia complicating parathyroid surgery at Mater Dei Hospital (MDH) - an analysis of local data

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Introduction: Transient hypocalcaemia is a complication of parathyroid surgery.

Methods: We carried out a retrospective review of patients who underwent parathyroidectomy +/- thyroidectomy at MDH between 2016 and 2018. Data included preoperative calcium, intraoperative parathyroid hormone (IOPTH) and postoperative calcium sampled at 6 and 24 hours. Blood samples for parathyroid hormone (PTH) were drawn at pre-incision, pre-excision, 5, 10 and 20 minutes after gland excision. A drop of >50% in IOPTH was considered adequate. True hypocalcaemia was defined as a corrected calcium <2.05mmol/L or an ionised calcium <1.12 mmol/L at 6 or 24 hours post-operatively.

Results: Seventy four patients (51 females, 23 males; mean [SD] age 60.8 years [± 11.4]) were studied. 70 (95%) were diagnosed with primary whilst 4 (5%) had renal hyperparathyroidism. Pre-operative calcium levels ranged between 2.38mmol/L and 3.16mmol/L. Sixty four (86%) underwent unilateral whilst 10 (14%) had bilateral neck exploration. Sixty two (84%) had an IOPTH >50% at 5 minutes whilst 68 (92%) had an IOPTH >50% at 10 minutes. Of the 6 patients whose IOPTH had not dropped by 10 minutes, 3 had a >50% drop at 20 minutes. Fifteen (20.3%) patients had a corrected or ionised calcium result 6 hours post-operatively; 4 (5.4%) patients did not have their calcium sampled at this point. Twenty five (33.8%) patients had a corrected and/or ionised calcium result at 24 hours. The majority of patients were managed on an uncorrected calcium. Only 4 (5.4%) patients required treatment with calcium and/or vitamin D at discharge.

Conclusion: Post-operative hypocalcaemia rates are low but most patients are managed on an uncorrected calcium.

P.048

A retrospective analysis of adrenal surgery in Malta; 2010 – 2016

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Introduction: Adrenal surgery was introduced locally in 2010. Along the years, the numbers of adrenalectomies have increased together with further improvement of surgical techniques. Our aim was to retrospectively analyse the diagnostic pathway and indications of surgery of patients undergoing adrenalectomies performed locally.

Methods: Patients who underwent adrenalectomy locally between 2010-2016 were recruited from the surgical register. Ethical approval was obtained. Data collected included patient demographics, date of operation, investigations done pre-operatively, inpatient hospital details, histological diagnosis and complications post-operatively. Data analysis was done using Microsoft Excel and Data Analysis Tool Pack.

Results: A total of 52 patients satisfied the criteria, 60% were male ($n=21$) with a mean age 54.4 ± 11.5 years. Thirty one adrenal lesions were found on the left side, 14 on the right and 7 were bilateral. The majority of adrenal lesions were incidentalomas: 69% ($n=36$). The mean size of adrenal lesions on imaging was found to be 68.6 ± 136 mm, whilst that measured from the gross histological specimen was 66 ± 29 mm ($p=0.45$). Thirst one percent of patients required ITU stay post-operatively with an average stay of 3.4 days. The total in-hospital stay of our cohort averaged to 7.4 (± 8.5) days. A total of 59 adrenal specimen were retrospectively analysed, amongst which 29 were reported as adrenal adenomas, 6 pheochromocytomas and 3 had normal histological diagnosis. Other histological findings included hyperplasia, myolipomatous changes, primary and secondary malignancies and vascular abnormalities.

Conclusion: This study focuses on the varied pathology that is encountered in adrenal surgery, shedding a light on the needs of clinicians when considering adrenal surgery.

P.049

Audit on short and long-term outcomes following radical nephrectomy for renal cell carcinoma with venous tumour thrombus

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Introduction: This analysis looks into cases of renal cell carcinoma with tumour thrombus of the renal vein or inferior vena cava and makes observations in terms of oncological outcomes.

Methods: The cases included were radical nephrectomies, with or without vascular reconstruction, performed between 18/08/2009 and 09/04/2018. The study cohort consisted of 49 patients; 36 male and 13 female, with an average age of 63.3 years.

Results: The commonest presenting symptom was gross haematuria. Tumour involvement of the renal vein was present in 36 patients. Inferior vena cava (IVC) below the

liver was involved in 7 patients and behind the liver in 2 patients. One patient had tumour thrombus up to the right atrium. Twenty one patients had metastases at presentation and underwent cytoreductive nephrectomy. Six patients underwent nephrectomy with IVC exploration and 1 required hepatic mobilisation. The remaining patients received radical nephrectomy only. The average length of stay (LOS) was 9.7 days, whilst average intensive therapy unit (ITU) stay was 1.15 days. Histology was clear cell carcinoma in 96% of cases. Forty six percent of tumours were graded as Fuhrman II. Pathological staging was T3aN0M0 in 51% of cases. Resection was complete in 36 patients. Average decrease in eGFR was -23%, with no patients necessitated dialysis. Average follow-up duration was 506 days. Fifty one percent of patients were alive at time of analysis. Cancer-specific death was recorded in 19 patients. For 13 patients who developed local recurrence, average local recurrence-free survival was 338 days. Thirty one patients were recorded as having metastatic disease, of which only 10 were *de novo* metastases after surgery. Average metastasis-free survival in these patients was 231 days.

Conclusion: The above are interim results pending complete data analysis.

P.050

Functional analysis of aryl hydrocarbon receptor polymorphisms in pituitary adenomas in the presence of 2,3,7,8-Tetrachlorodibenzo-p-dioxin

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Introduction: The molecular pathogenesis of the most prevalent intracranial neoplasm, pituitary adenomas (PA) is largely unknown. The aryl hydrocarbon receptor (AHR) is a ligand-activated transcription factor that regulates expression of various genes that mediate cellular response to xenobiotics. The exact functional role of two *AHR* single nucleotide polymorphisms (SNPs); Arginine554Lysine (Arg554Lys) and Valine570Isoleucine (Val570Ile) has not yet been established. However, studies suggest that these variants might increase risk of developing PA.

Methods: Using site-directed mutagenesis, *AHR*-expressing vectors containing both SNPs were generated. The rat somatotroph cell-line GH3 was transfected with the wildtype *AHR* (wtAHR) and the *AHR* variants using magnetofaction and treated with the activating ligand 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD). The luciferase reporter assays and real-time PCR were used to quantify the *AHR*-transcriptional activity. Genotyping of the Arg554Lys was performed on PA patients and neonatal controls using allele-specific PCR.

Results: Over-expression of wtAHR and *AHR* variants with or without TCDD did not affect GH3 cell proliferation. Luciferase reporter analysis showed that there was a significant difference between the treated and untreated wtAHR. However, this difference was not observed between the treated

and untreated *AHR* mutants. Statistically significant difference in *Cyp1a1* gene expression analysis was detected between the treated and untreated wtAHR, Arg554Lys and Val570Ile. Genotyping of the *AHR* Arg554Lys in PA patients gave a minor allele frequency of 5% vs 3% in neonatal controls.

Conclusion: Gene expression and quantification analyses of *AHR*-target genes suggests that these *AHR* mutants might interfere with *AHR* target gene expression.

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P.051

Post-thyroidectomy hypocalcaemia: What are the risk factors?

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Introduction: Thyroid surgery is the gold standard treatment for thyroid malignancy and a variety of benign diseases of the thyroid gland. Hypocalcaemia after thyroid surgery is not an uncommon complication that increases patient morbidity and can prolong the length of hospital stay. This study aimed to find out whether there are specific risk factors for post-thyroidectomy hypocalcaemia.

Methods: Ethical approval was granted by the University of Malta Ethics Committee. All patients who underwent thyroid surgery without neck dissection between January 2015 and December 2015 at Mater Dei hospital were enrolled. The data collected included age, gender, type of surgery, pre-operative corrected serum calcium levels, diagnosis, speciality performing the operation, parathyroid removal at surgery and corrected serum calcium levels at day 1, week 1 and 6 months post-operatively. The number of patients who developed temporary and permanent post-operative hypocalcaemia was determined. Univariate and multivariate statistical analysis was carried out.

Results: One hundred and seventy patients were eligible. From these, 58 were enrolled in the study. One hundred and twelve patients were excluded due to incomplete data. On univariate analysis age, gender, parathyroid on histology and type of surgery reached statistical significance. However, when multivariate logistic regression was used to eliminate confounding factors, only the type of operation remained significant. Performing a total thyroidectomy carried a significant higher risk to develop temporary and permanent post-operative hypocalcaemia as opposed to hemithyroidectomy.

Conclusion: The only risk factor for both temporary and permanent hypocalcaemia after thyroid surgery was performing total thyroidectomy.

P.052

Leiomyosarcoma of small bowel: an extremely rare form of gastrointestinal malignancy

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Introduction: Only 5% of all gastrointestinal tumours occur in the small bowel. Of these, the majority are adenocarcinomata and carcinoid tumours. Sarcomata are the fifth histological type (approximately 1.2%), leiomyosarcoma being the commonest subtype. Histologically it is characterised by spindle cells arranged in fascicles with cigar-shaped nuclei and brisk mitotic activity. The main differential diagnosis is gastrointestinal stromal tumour (GIST). Immunohistochemistry plays an important role in making the correct diagnosis. Clinical signs are nonspecific and usually the condition comes to medical attention late. We are describing a case of an 89-year-old male who presented with features of small bowel obstruction. This was confirmed by radiology. Laparotomy was performed and a small bowel tumour, which measured 28mm, was resected. Histopathology showed a leiomyosarcoma. To our knowledge, less than thirty cases of small bowel leiomyosarcoma have been described in the world literature.

Methods: Representative sections from the tumour were taken and examined with haematoxylin and eosin (H&E) and with immunohistochemistry (vimentin, smooth muscle actin, desmin, cytokeratin, DOG-1, CD117, S100 and CD34). All sections were examined using a light microscope.

Results: The pathological diagnosis was leiomyosarcoma of small bowel.

Conclusion: Leiomyosarcoma of small bowel is an extremely rare finding. The small bowel is relatively inaccessible to both upper and lower endoscopic studies and, therefore, diagnosis relies predominantly on imaging studies. Surgery is the predominant therapeutic approach. The use of immunohistochemistry is crucial in differentiating leiomyosarcoma from other more common pathologies.

P.053

Primary malignant melanoma in urethra of an elderly female: a case report

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Introduction: Primary malignant melanoma of the urogenital tract is very rare and accounts for less than 1% of all cases of melanoma. Only 0.2% of all malignant melanoma cases occur in the female urethra and the average age at presentation is 68 years. The commonest clinical presentations include bleeding per urethra, discharge, voiding dysfunction and the presence of tumour mass. We are describing a case of a 70-year-old female who presented with gross haematuria and on examination was found to have a pigmented nodule protruding out of the external urethral orifice into the vagina. Histology showed malignant melanoma. Staging using magnetic resonance imaging (MRI) was done and showed that the pathology was confined to the distal urethra. A positron emission tomography (PET) scan showed no distant metastasis. A transvaginal total urethrectomy with bladder neck closure was performed.

Methods: Representative sections from the tumour were taken and examined with haematoxylin and eosin (H&E) and with immunohistochemistry (Melan A, CK7, CK20, CD31, CD34, GATA-3). All sections were examined using a light microscope.

Results: The pathological diagnosis was primary urethral malignant melanoma. Both the proximal resection margin (urinary bladder neck) and the distal resection margin (vagina) were positive for melanoma *in situ*.

Conclusion: Primary malignant melanoma of the urethra is uncommon. The use of immunohistochemistry is important for correct diagnosis and staging. In our case, melanoma *in situ* in both proximal and distal surgical margins meant additional major surgery in the form of total cystectomy and vaginectomy.

P.054

A case of a primary squamous cell carcinoma of the endometrium; an unexpected presentation

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Introduction: Primary endometrial squamous cell carcinoma (PESCC) is a rare tumour, with less than a 100 case reports in the current literature. Most cases of PESCC are related to cervical stenosis, pyometra, chronic inflammation, nulliparity and ichthyosis uteri. We present the case of a 54-year-old lady who presented with a recurrent postmenopausal bleeding and thickened endometrium on MRI. The curettage showed fragments of atypical squamous epithelium suggestive of CIN2 and CIN3. However, the cervical loop excision showed postmenopausal cervical atrophy and no evidence of dysplasia. A hysterectomy was subsequently done, revealing a primary endometrial squamous cell carcinoma arising on a background of high grade squamous dysplasia and squamous metaplasia of the endometrium.

Conclusion: A comprehensive literature review was carried out to outline the rarity of this tumour and potential difficulties in its diagnosis.

P.055

A case of immune thrombocytopenic purpura in pregnancy: lessons learnt at the hospital Blood Bank laboratory

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Introduction: Primary immune thrombocytopenic purpura (ITP) is a relatively uncommon autoimmune condition characterised by accelerated destruction of platelets. Adult chronic ITP occurs mainly in women of childbearing age and it can thus be a possible complication during pregnancy. Where haemostatic impairment occurs, management strategies with the aim of raising platelet counts include platelet transfusions, corticosteroids, administration of IV IgG or IV anti-D.

Conclusion: The antenatal screen of a 30-year-old woman at 25 weeks of gestation gave a positive antibody screen and a group O RhD Positive blood type. The antibody identification gave a non-specific pattern of positive reactions in both IAT

and enzyme techniques. Enhanced reaction strength in enzyme treated cells was observed with RhD positive panel cells leading to suspecting the presence of an auto-antibody with Anti-D specificity. However, none of the clinically significant antibodies could be excluded due to pan-reactivity with all panel red cells. Warm allo-adsorptions were performed with the aim of adsorbing the auto-antibody that could be masking other clinically significant antibodies. Anti-D was identified on the adsorbed plasma. Meanwhile, the clinicians informed the laboratory that the patient, a known case of chronic ITP in her second pregnancy, was being administered IV anti-D. Therefore, it was concluded that the reactions observed were primarily due to the patient's own panreactive auto-antibody as well as the additional reactions due to the presence of administered anti-D antibodies. All other clinically significant antibodies were excluded on the adsorbed plasma. When a crossmatch was requested for this patient, suitable O RhD negative units were issued. Clinical information regarding the administration of prophylactic anti-D is critical in immunohaematology. This is essential to distinguish between immune and passive anti-D as this differentiation would not be possible by conventional serological tests. This is important in the context of pregnancy where the risk of Haemolytic Disease of the Foetus/Newborn (HDFN) has to be evaluated.

P.056

A rare case of hepatic angiosarcoma in a patient with eosinophilic granulomatosis with polyangiitis (Churg-Strauss Syndrome)

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Introduction: Hepatic angiosarcoma is a rare malignancy of the liver and accounts for less than 1% of all sarcomas. It is a very aggressive type of soft tissue sarcoma with overall median survival of <4 years. Several risk factors have been described; environmental toxins such as vinyl chloride, exposure to radiotherapy, and immunosuppression. We shall describe the case of a 55-year-old gentleman with eosinophilic granulomatosis with polyangiitis on long term immunosuppressive agents who developed locally aggressive hepatic angiosarcoma. He was treated with paclitaxel with a poor survival of 4 months.

Methods: We present the case of a 55-year-old gentleman with locally aggressive hepatic angiosarcoma. He had previously been diagnosed with Churg-Strauss syndrome (eosinophilic granulomatosis with polyangiitis) in 2008 with asthma and prominent peripheral blood eosinophilia. He had been many years on cyclophosphamide and prednisolone. He also had a high grade urothelial dysplasia treated with intravesical doxorubicin and resection of the tumour in 2013. He then presented in 2016 with a complaint of right upper quadrant pain and weight loss, and eventually developed an icteric tinge. A CT thorax abdomen pelvis showed the liver almost entirely replaced with heterogenous enhancing lesions. An ultrasound guided biopsy was taken which showed highly mitotically active angiosarcoma. It was CD31 positive, with CK and LCA not expressed. On diagnosis he did not have any metastasis, his Child-Pugh score was A and his ECOG performance status was 1. He was treated with weekly paclitaxel 80mg/m² given on day 1, day 8 and day 15 in a 28

day cycle. After 4 months of treatment he had progression of disease to lymph nodes and passed away with profound hyponatraemia.

Conclusion: According to our research, there are no reported cases in the literature of patients with HAS on a background of Churg-Strauss Syndrome, making this case unique. Furthermore, there are very few cases of HAS in patients on longstanding cyclophosphamide. This case is also unique in terms of diagnosis of both primary transitional cell carcinoma and primary HAS in the absence of occupational exposure.

P.057

Desmoplastic small round cell tumour in a 22-year-old male

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Introduction: Desmoplastic small round cell tumours (DSRCTs) are soft tissue sarcomas of mesenchymal cell origin that usually present with multiple intra-abdominal tumours and exhibit a multi-phenotypic picture of immunohistochemical staining. It quite a recently described tumour and diagnosis is made by identification EWS-WT1 translocation and fusion protein by biopsy of any one of the lesions. This tumour carries a poor prognosis with a 5 year overall survival of around 15-30% and requires a multidisciplinary approach including aggressive surgery in cases where this is indicated. In this case study, a 22-year-old gentleman presented to the surgical team for an elective hernia repair. However, on examination of the abdomen a hard irregular intraabdominal mass was palpated. The patient was then referred for further imaging and biopsy which was suggestive of a desmoplastic small round cell tumour. After diagnosis and staging the patient was found to have widespread abdominal spread of disease with ascites. He was unwell with weight loss, lethargy and abdominal pain. Hence, he was immediately started on chemotherapy with a good clinical and radiological response to therapies. He was then switched to maintenance chemotherapy and currently awaiting further response until he is a candidate for surgery.

Conclusion: This case highlights diagnosis and treatment of the rare desmoplastic small round cell tumours and the follow-up of such patients

P.058

A rare case of PEComa of the liver

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Introduction: A 69-year-old Caucasian male underwent a CT IVU for the investigation of gross haematuria. CT showed a 4.5x3.3cm hypodense solid mass in segment VI of the liver. An MR liver demonstrated a lesion, hyperintense on T2, hypointense on T1 and exhibiting peripheral continuous enhancement on the arterial phase but no contrast uptake in the venous and hepatobiliary phases. MRI demonstrated

no intralesional fat on chemical shift imaging. Differential diagnoses for such lesion include a hepatocellular carcinoma and cholangiocarcinoma. The lesion was biopsied and histology demonstrated a clear cell neoplasm with immunostaining suggesting a perivascular epithelioid cell tumour. The patient was assessed for other malignancies with endoscopy and PET-CT. In view of the histology and malignant features on imaging, the lesion was resected. Histology was consistent with a hepatic angiomyolipoma (HAML), the neoplastic elements being positive for HMB-45 and Melan-A. Angiomyolipomas are more frequently found in kidney. HAMLs occur mostly in females and are asymptomatic. They are classified as perivascular epithelioid cells tumours (PEC), these being cells with multiple differentiation potentials capable of differentiating into the vascular smooth muscle and epithelial cell. They express the melanoma cell marker HMB-45. This is only positive in HAML and hepatoblastoma.

Conclusion: HAML histological compositions vary among patients, making it difficult to distinguish from other liver tumours. HAMLs are sometimes seen in tuberous sclerosis. Correct pre-operative diagnosis of HAML is reported to be less than 25%. Because of its malignant potential, risk of bleeding, and possibility of tumour rupture, surgical resection is the treatment of choice.

P.059

Fibrolamellar hepatocellular carcinoma

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Introduction: Fibrolamellar hepatocellular carcinoma (FLHCC) is a rare malignant primary liver neoplasm with distinct clinical, histologic and prognostic features different from conventional hepatocellular carcinoma (HCC). It typically arises in young patients lacking a background of chronic liver disease and other risk factors for hepatocellular carcinoma. Pathological characteristics of FLHCC include the presence of tumour cells with a deeply eosinophilic cytoplasm and macronucleoli surrounded by abundant fibrous bands. A *DNAJB1-PRKACA* gene fusion is now recognised as the signature genetic event of FLHCC.

Methods: We describe the case of a 21-year-old female who presented to the emergency department with a 2-week history of abdominal pain and episodes of nausea and vomiting. A large right upper-quadrant mass was palpable on clinical examination. CT scan reported a large heterogenous, partially necrotic mass occupying a large portion of the right liver lobe which enhanced avidly in the arterial phase and had a central scar containing multiple calcifications with multiple satellite lesions in both lobes of the liver and bilateral pulmonary nodules suggestive of pulmonary metastasis. Imaging findings were most suggestive of fibrolamellar hepatocellular carcinoma with pulmonary metastases. An ultrasound-guided biopsy was performed and the cytomorphological and

immunophenotypic findings were compatible with FLHCC. The patient was treated with chemotherapy and transarterial embolization with a favourable response.

Conclusion: Because of the low incidence of FHCC, research on targeted therapy is difficult and has not yet been successful. National and international collaborations are required to achieve this objective.

P.060

Fenestrated pedicle screws – an innovative instrumentation technique for improved bone purchase

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Introduction: Pedicle screws are key in the surgical stabilisation of the spinal column in the treatment of multiple conditions. A well-recognised complication in the use of pedicle screws is mechanical failure. This is due to screw loosening and pull-out. This complication is accelerated in cases where the bone into which the screw is inserted, is weakened such as in osteoporotic bone or a tumour. Several techniques and screw designs have been used to try and prevent this complication, such as vertebroplasty prior to screw placement; expandable screws; and fenestrated screws. Fenestrated screws are a modification of standard screws. However, these are cannulated and have a number of fenestrations towards the tip. This allows high viscosity cement to be pushed through the screw, out of the fenestrations and into the trabeculae of the vertebral body, thus increasing purchase and pull-out strength. We present the case of a 79-year-old female who presented with thoracic spinal metastases from a breast carcinoma resulting in collapse of the vertebral bodies. This resulted in spinal cord compression and insidious paraplegia. She underwent fixation from T6 to T10. Pre-Operative MRI showed metastatic involvement of the vertebrae adjacent to collapse. The patient was also known to have established osteoporosis. Given this, fenestrated pedicle screws were used.

Conclusion: This was the first time such a technique was employed in Malta. There were no intra- or post-operative complications related to this technique. The patient has continued to improve and regained mobility and there has been no displacement of the fixation.

P.061

Spinal surgery for Pott's disease – a case study and review

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Introduction: Pott's Disease is a form of extrapulmonary tuberculosis (TB) affecting the spinal column. It is a rare disease, accounting for less than 10% of extrapulmonary TB cases. Malta is a low incidence country with a TB incidence of 7.6 per 100,000 population, of these only 1% will have spinal disease. Most cases seen locally with TB are non-Malta born.

Results: We present a case of a 59-year-old missionary worker who presented with thoracic Pott's disease affecting T9-T11, with vertebral body and intervertebral disc collapse resulting in severe pain, gibbous (kyphosis) formation and progressive paraplegia rendering her non-mobile at time of admission. The patient underwent multidrug therapy in-keeping with current guidelines. Also, in view of her presentation and continuing deterioration, she eventually underwent surgery, which involved anterior body reconstruction using vertebral body cage with antibiotic impregnated cement as well as posterior decompression and stabilisation. This was done as a two-staged procedure under the same anaesthesia, with the anterior reconstruction done via a left sided thoracotomy, followed by posterior pedicle screw stabilisation from T8-T12. The patient was transferred to ITU post-operatively and continued to recover well, both from her infective and neurological status and now is completely functional with mild thoracic pain and mobilises with no walking aids.

Conclusion: Surgery for Pott's disease is nowadays relatively rare and this was the first of its kind done locally. The surgical principles and instrumentation are the same as those used when reconstructing the spine for pathological fracture collapse due to tumours or trauma, the difference in this case being the infective nature of the disease and the long term ongoing medical treatment she required.

P.062

The short term effects of balance exercises on the stability of athletes

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Introduction: The purpose of this study is to see whether a balance-training programme can have positive immediate effects on the stability of athletes, thus reducing the risk of an injury.

Methods: This study consisted of three groups; two groups were highly active while the other group consisted of sedentary individuals. This study was done to discover the effects of balance exercises on these groups, and to learn more about the predisposing factors that might lead to a reduced stability. These factors include the relationship with body mass index (BMI), the presence of scoliosis and the difference, if any, between sedentary and active individuals. A total of 27 participants underwent a physical examination and quantitative testing procedure to evaluate differences in stability before and after the balance exercises were performed.

Results: Participants who performed no sport had an increase in speed between the first and second test, which can be translated into a less stable centre of pressure. On the other hand, the athletics group showed a reduction in speed, hence less deviation in centre of pressure thus an increase in stability. This could indicate that individuals who perform physical activity may be better equipped for balance changes, while sedentary individuals may be losing the ability to balance, or may require more time to react to balance changes. Both active groups were more stable overall before the procedure was performed when compared to the sedentary group. This could be due to sport-

specific exercises which the basketball and athletics players perform often, thus having more stability and balance when compared to participants who have a more sedentary lifestyle. Individuals with scoliosis were less stable after the full procedure was performed, while the participants who did not have scoliosis showed an improvement in their stability. The increase in instability in participants with AIS may be due to fatigue after performing the procedure. When comparing BMI, the normal and underweight group produced similar results, which showed an improvement in stability after the procedure was performed, while the overweight group had poorer balance control and stability. This may be due to overweight participants having reduced proprioception input as overweight people are more likely to have a sedentary lifestyle in conjunction with unhealthy eating habits.

Conclusion: The key findings in this study have highlighted that a balance exercise programme has the potential of improving stability immediately after it has been carried out. The study also gives an indication to strategies which may be directed at preventing injuries. This can aid in creating a balance exercise programme for professional, recreational and also for individuals recovering from injury.

P.063

Bowel preparation in colorectal surgery: a literature review

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Introduction: Mechanical bowel preparation (MBP) is the use of an oral preparation pre-operatively to clear faecal matter from the bowel lumen in patients undergoing elective colorectal surgery or colonoscopy. MBP is necessary to reduce surgical site infection (SSI) by decreasing anastomosis leakage rates and gross spillage of faeces. Additionally, by decreasing faecal load, MBP increases the delivery of oral antibiotics to the colonic mucosa. Conflicting evidence regarding the use of pre-operative bowel preparation has emerged as MBP may cause electrolyte imbalance with dehydration, prolonged ileus and abdominal pain. The aim is to critically appraise and systematically evaluate the available evidence on the role of adding oral antibiotics to mechanical bowel preparation in reducing surgical site infections (SSI) in elective colorectal surgery.

Methods: Four electronic databases (CINAHL, MEDLINE, Embase and Cochrane Library) were searched. Articles from the reference list that met the inclusion criteria were also manually searched. Limitations were set for English language and publications from 2012 in order to obtain contemporaneous evidence.

Results: Two hundred and eleven articles were initially retrieved, with 4 studies being in accordance to the PICO framework covering 51,606 patients. PRISMA guidelines were followed. All studies utilised a cohort study design with Level II evidence. These show that combined mechanical and oral antibiotic bowel preparation results in a low incidence of SSI compared to patients having

mechanical bowel preparations alone significant at $p < 0.05$. Some studies showed that combined preparation offers benefits beyond SSI by decreasing the incidence of other systemic complications with patients having a better overall outcome.

Conclusion: All studies support the use of combined mechanical and oral antibiotic bowel preparation prior to elective colorectal resection to decrease SSI risk. Given the limitations of the observational studies, prospective RCTs are required prior to the change in the current practice.

Disclosures: This study has been funded by Endeavour Scholarship scheme.

P.064

The efficacy of intraoperative wound irrigation and surgical site infection: a literature review

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Introduction: Surgical site infection (SSI) is an infection which occurs within 30 days of surgery at or near site of incision but may extend into deeper adjacent structures. Despite major advances in infection control practices, SSI remain the most common hospital acquired infection. Intraoperative wound irrigation (IOWI) may decrease SSI risk, mitigate bacterial resistance avoiding the need for aggressive SSI treatment hence, decreasing the overall health care costs. Despite this, no general consensus has been reached with its use suggested by WHO but discouraged by NICE guidelines. The aim of this literature review is to critically appraise, systematically evaluate and compare intraoperative wound irrigation with saline or povidone iodine (PVP-I) to no irrigation on SSI in patients undergoing abdominal surgery.

Methods: Five electronic databases (MEDLINE, Embase, CINAHL, Cochrane Library, Scopus) were searched. Limitations were set for English language and articles published since 2012. Only quantitative studies investigating the use of antiseptic solutions/saline used as IOWI on SSI risk in abdominal surgery were included.

Results: Two hundred and seventeen articles were retrieved in all, with 6 articles being suitable for analysis (three systematic reviews, two RCTs, one cohort study) reaching level I or level II evidence. Low certainty evidence suggests that irrigation with any solution type has no effect on the incidence of SSIs, especially in women undergoing caesarian section (RR=0.87; 95% CI [0.68-1.11]). High quality studies demonstrate that IOWI with PVP-I or saline cause a reduction in SSI in abdominal surgery with this reaching statistical significance in patients undergoing colorectal surgery (OR=0.51, 95 % CI [0.37; 0.72], $p=0.0001$).

Conclusion: Irrigation with saline or PVP-I is a simple and economical approach with a potential to decrease postoperative SSI following abdominal surgery. Given the limitations, additional research is needed to help inform practice.

Disclosures: This study has been partially funded by Endeavour Scholarship scheme.

P.065

A meta-analysis of survival factors in rhino-orbital-cerebral mucormycosis – has anything changed in the past 20 years?

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Introduction: Rhino-Orbital-Cerebral Mucormycosis (ROCM) is an uncommon yet potentially lethal fungal infection. Although most cases originate from developing countries, an aging population and increased prevalence of chronic illness may mean some clinicians practicing in developed countries will encounter ROCM cases in their careers. Yohai *et al* published a systematic review of 145 case reports from 1970 to 1993 assessing prognostic factors for patients presenting with this disease. We present an updated review of the literature and assess whether survival outcomes have changed.

Methods: An extensive Medline literature search was performed for case reports published between 1994 and 2015. All results were compared to the survival outcomes reported by Yohai *et al*.

Results: In total, 210 published cases were identified, of which 175 from 140 papers were included in this review. Fifty-five were female, with an overall mean age of 43 years. Overall survival rate was 59.5%, which was not significantly better than the previous series (60%) by Yohai *et al*. Survival rates in patients with chronic renal disease had improved, from 19% to 52%, and in patients with leukaemia (from 13% to 50%). Facial necrosis and hemiplegia remained poor prognostic indicators (33% and 39% survival rates respectively). Early commencement of medical treatment related to better survival outcomes (61% if commenced within first 12 days of presentation, compared to 33% if after 13 days). Timing of surgery had less of an effect, however, in 28 cases that did not receive any surgical treatment, only 21% survived.

Conclusion: Although overall survival rates have not improved, survival rates in patients with renal disease were better, potentially due to the introduction of liposomal amphotericin B which is less nephrotoxic. Prompt diagnosis and treatment remain of utmost importance in this disease.

P.066

The eraser challenge – a child with self-inflicted friction injuries

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Introduction: Recent years have witnessed increasing numbers of potentially harmful activities, promoted as “challenges” among school-age children. These activities, spread by word-of-mouth and social networks, and may disseminate widely and rapidly.

Methods: We report a case of friction burn injuries to the non-dominant hand and wrist, in a 12 year-old child, who had performed the “Eraser Challenge”. The boy reported that the challenge required him to rub an eraser on his skin, rapidly, 100 times.

Results: At the time of examination, it was a two week-old injury and the patient attended hospital for an unrelated reason. On examination, there were multiple small linear burns of mixed depths. The patient was managed with dressings. His school and Community Public Health Nursing team were informed that this activity was taking place.

Conclusion: It became apparent that many local schools are currently dealing with several different, essentially self-harming behaviours, popularised as “challenges” among school pupils and that injuries from these activities may not result in presentation to healthcare facilities. The popularity of this particular challenge was spread by word of mouth. Therefore, monitoring of internet and social media use may not have highlighted it. Awareness is required among healthcare providers, schools and parents, in order to address the problem directly and to prevent possible local escalation to more destructive practises.

P.067

A literature review of the role of PAI-1 in the investigation of patients with recurrent pregnancy loss and infertility

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Introduction: Plasminogen activators (PAs) and plasminogen activator inhibitors (PAIs) play an important role in many proteolytic and antiproteolytic reactions of the fibrinolytic system including haemostasis, tissue remodelling and tumour invasion. PAI-1 is an arginine-specific serine-protease inhibitor and is responsible for about 60% of the PA inhibitory activity in plasma. The hypercoagulable state present in normal pregnancies is mainly thought to be associated with an increased concentration of PAI-1. PAI-1 is expressed in both extravillous interstitial trophoblasts as well as vascular trophoblasts of human placenta and it plays a role in both implantation and placentation by inhibiting extra cellular matrix (ECM) degradation and thus inhibiting trophoblast invasion.

Conclusion: In normal pregnancies, extracellular matrix remodelling and the coagulation cascade are very strictly controlled in order to ensure adequate invasion of the uterus by the trophoblast. On the other hand, intravenous thrombi as well as increased fibrin deposition in the intervillous spaces are common findings in spontaneous miscarriages, which therefore suggests a dysfunction of haemostasis. In fact, higher concentrations of PAI-1 have been associated with various reproductive diseases including recurrent pregnancy loss (RPL), pre-eclampsia, fetal growth retardation, polycystic ovarian syndrome and infertility. This literature review looks at the role of PAI-1 in RPL and infertility.

P.068

Trans-oral endoscopic thyroidectomy: a systematic review of the practice so far

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Introduction: Thyroid disease largely affects young females, even though the incidence is also increasing among males. In an effort to avoid the scar in the neck synonymous with conventional thyroidectomy, endoscopic techniques have been developed over the years. The trans-oral endoscopic approach is the latest of these innovations that promises a scarless surgery. This review evaluates whether this technique is safe and feasible in live patients and outlines the outcomes in published literature so far.

Methods: Pubmed, Medline, BioMed Central, Cochrane Library, OVID and Web of Science were systematically searched using a MESH optimized search strategy. The selection of papers followed the PRISMA guidelines after setting strict inclusion and exclusion criteria. Seventeen studies were included in the final analysis.

Results: This systematic review presents a total of 785 patients. Fifteen of the studies used a completely vestibular approach with the remaining two using the floor of mouth for the primary access. Conversion to open surgery took place in 1.3%. In total, 4.3% of patients experienced transient whilst 0.1% developed permanent recurrent laryngeal nerve palsy. Transient hypocalcaemia occurred in 7.4% of cases with no recorded permanent hypocalcaemia. Carbon dioxide embolism occurred in 0.6% of cases whilst another 0.6% had a deep-seated neck infection.

Conclusion: The complication rates found in this review were deemed acceptable and the overall technique feasible. A prospective randomized controlled trial was proposed to compare this technique with conventional thyroidectomy.

Disclosures: This research was partly funded by Endeavour scholarship scheme Malta

P.069

Detection of perfluoroalkyl substances in breast milk and formula milk - persistent pollutants

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Introduction: Perfluoroalkyl substances (PFAS) are persistent organic pollutants and may be related to carcinogenesis in certain cases. They have become ubiquitous in many parts of the environment and have been found locally in multiple water sources. They are derived from industry, as well as non-stick coatings in cookware. Following previous local research by the chemistry department, we analysed local breast milk samples together with formula milk for levels of these persistent pollutants.

Methods: Breast samples (about 2 ml) were collected from the breast feeding clinic by the breast feeding assisting midwife. Samples were then returned to the

chemistry department and extracted with organic solvents following established previously published protocols. After extraction, the samples were then analysed with HPLC compared to standards of known PFAS. Similarly formula milk was also tested.

Results: The results of these studies will be presented.

Conclusion: Whilst breast milk showed very low levels of this potential carcinogen, formula milk showed slightly higher levels.

Disclosures: Internal departmental funding

P.070

Symptomatic extra-macular traumatic pigment epitheliopathy

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Introduction: To describe the evolution and diagnosis of post-traumatic pigment epitheliopathy (TPE) in a young male following blunt trauma to the globe as well as discuss the histopathological features of TPE.

Methods: Case Report

Results: A 17-year-old male presented to the ophthalmic emergency walk-in clinic after sustaining blunt trauma to the right globe by a soccer ball. The patient was diagnosed with having commotion retinae involving the area centralis (including the macular field). Mixed hypo- and hyper-pigmentary changes were noted superior to the macula during the subsequent visits associated with a paracentral scotoma which was confirmed on 24-2 Humphrey automated perimetry. Fundal autofluorescence photography revealed a significant area of hypo-autofluorescence superior to the macula. The aforementioned findings were suggestive of TPE.

Conclusion: This case highlights the importance of extended follow-up in cases of high-velocity blunt trauma. The management of TPE is mostly supportive and further research aimed towards the reversal or limitation of the pathophysiological process of TPE is required.

P.071

Two cases of torpedo maculopathy

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Introduction: Torpedo maculopathy is a distinctive congenital lesion of the macula. It is a rare finding and represents a defect in the retinal pigment epithelium.

Methods: Two cases of torpedo maculopathy found incidentally are being briefly presented, together with a literature review.

Results: Case 1: A 5-year-old boy, with no relevant medical history, was referred with left amblyopia. His Snellen visual acuity (VA) was 6/9 in the right eye and 6/18- in the left eye. Fundoscopy of the right eye revealed a well-demarcated, horizontally-elongated, oval, flat macular lesion temporal to the fovea. It was uniformly light orange in the nasal half, and with irregular hyperpigmentation interspersed by lighter areas in the temporal aspect. In the centre of the lesion a whitish spot could be observed. Left fundoscopy was normal. The right fundal lesion was

diagnosed as torpedo maculopathy from its characteristic appearance and location. Case 2: A 31-year-old female was seen for a routine optometrist review. Her vision was normal but fundoscopy revealed three lesions in the left macula which could represent atypical multipartite torpedo maculopathy.

Conclusion: The diagnosis of torpedo maculopathy is based on its appearance on examination. Unless the clinician is aware of this condition, torpedo maculopathy may lead to diagnostic uncertainty. Both cases presented here were asymptomatic. It is usually inconsequential but, since the long-term natural course of this lesion is unclear, continued follow-up is warranted. Multimodal imaging may be used to characterize this lesion in more detail.

P.072

SIADH complicating pre-eclampsia – a case report

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Introduction: Hyponatremia is a rare complication of pre-eclampsia. We report a case of syndrome of inappropriate ADH secretion (SIADH) in the setting of pre-eclampsia.

Methods: A 40 year old lady known to suffer from type 1 diabetes on insulin pump therapy was diagnosed with hypertension at 32 weeks gestation during her third pregnancy. Labetalol 100mg bd was started but she was admitted at 34 weeks due to uncontrolled hypertension. Sodium levels were 134mmol/L (135-145mmol/L). Labetalol was increased to 200mg tds. She was discharged within four days with a sodium level of 129mmol/L but represented after one week with pre-eclampsia. Her sodium had rapidly dropped to 125mmol/L.

Results: Blood and urine investigations were consistent of SIADH (serum osmolality 296mOsmol/kg; urine osmolality 267mOsmol/kg, urine sodium 38mmol/L in the setting of euvoalaemia and euthyroidism). An emergency caesarean section was performed due to pre-eclampsia, low sodium and foetal distress. A female infant was delivered with an Apgar score of 9 and sodium level of 127mmol/L. The mother's oral fluid intake was restricted to 1.25 litres/day on the first day post delivery and then to 2 litres/day. Her sodium levels improved from 125mmol/L to 134mmol/L within 48 hours of delivery.

Conclusion: Pre-eclampsia is associated with reduced intravascular volumewhich may stimulate ADH release resulting in SIADH. Foetal sodium rapidly equilibrates with maternal sodium and this can cause foetal jaundice, tachypnoea and seizures if serum sodium is <130mmol/L. Hyponatremia further increases risk of maternal seizures in pre-eclampsia. Management includes fluid restriction and delivery.

P.073

The role of ultrasound in management of urolithiasis. A case report

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Introduction: This is a case report of a 53- year- old man with a long history of bilateral renal stones, who underwent various imaging and treatment procedures over the years

Methods: At the time of the ultrasound imaging he was asymptomatic. He underwent an abdominal ultrasound with renal focus, as follow-up of his previous renal problems.

Results: Left-sided renal stones were seen. The twinkle artefact was elicited. Renal cysts were also present. In such cases where multiple imaging examinations (including ultrasound, plain x-rays, computed tomography [CT] scans, scintigraphy) are needed over time; ultrasound assessment is a very useful modality for follow-up as it allows for reasonable diagnostic accuracy whilst not involving exposure to radiation.

Conclusion: Although the sensitivity of ultrasound in detecting urolithiasis is less than that of CT, it is still a valid diagnostic modality and good at detecting larger calcified stones, as in this case. Ultrasound also allows assessment of any hydronephrosis. Smaller stones or those which do not cast an acoustic shadow can often alternatively be revealed through the twinkle artefact. Stone-specific ("s-mode") machine settings can be utilized to optimize stone visualization and to elicit the twinkle and comet-tail artefacts (as seen in the ultrasound images of this case report).

P.074

A case of untypeable unencapsulated H. Influenzae in pregnancy – an eye opener

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Introduction: A 30 year old female, presented at 13+4 weeks gestation complaining of nausea, vomiting and vaginal bleeding. On examination she was clinically dehydrated, tender suprapubically and speculum examination revealed a closed cervix with no active bleeding. Ultrasound confirmed the presence of a fetal heart. Her white cell count (especially neutrophils) and C-reactive protein were elevated.

Methods: Six hours after admission, the patient noticed a gush of foul-smelling liquor and rupture of membranes was confirmed. She spiked a temperature of 38.9°C and thereupon she passed the fetus and underwent an ERPC in view of a retained placenta. She was started on broad-spectrum antibiotics and discharged after a week. Unencapsulated Haemophilus influenzae (H. Influenzae) was grown in blood cultures and this case was notified to the Public Health Department.

Results: Unencapsulated H. Influenzae is a gram negative coccobacillus, known to cause invasive disease in

the elderly and in pregnant women. This contrasts with the reduced severity of symptoms in the paediatric population. Pregnant women are at a significantly higher risk of infection from unencapsulated H.Influenzae disease. In our case, the patient states that few days before, her child had gastroenteritis. Vaccination against H.influenzae type B has decreased the rate of infection drastically. However, infections caused by unencapsulated H.Influenzae are on the increase. Infection during pregnancy may lead to septic miscarriage, pre term birth and stillbirth. Infection in the neonate can also lead to invasive lethal disease.

Conclusion: This case should act as an eye-opener to clinicians who come in contact with pregnant women. Although the rate of lethal H Influenzae B is declining, we are facing an uprise in unencapsulated H Influenzae infection rates. In most cases the latter bacterium goes undetected due to the lack of invasiveness, however, might cause invasive and devastating consequences in the pregnant host.

P.075

Cesarean scar ectopic pregnancies

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Introduction: A cesarean scar ectopic occurs when the conceptus implants in the scar of a previous cesarean scar through a microscopic dehiscence tract. It constitutes about 6.1% of all ectopic pregnancies in women who had a previous cesarean and has an incidence of 1:1800.

Methods: The first case was a quintagravida who was diagnosed with a silent miscarriage. Medical termination with misoprostol was attempted followed by surgical evacuation, during which severe bleeding ensued and a defect in the anterior uterine wall was detected. In the second case the patient, who was also a quintagravida, was diagnosed with a silent miscarriage. She had three doses of misoprostol after which she had an evacuation of products during which severe bleeding developed. Ultrasound done during the procedure showed an increasing clot and swelling around the lower segment. On laparotomy products of conception which were found in the cesarean scar were removed.

Results: In both cases a laparotomy was done to remove any remaining products of conception from the scar and the defect that was left in the uterine wall was repaired to achieve hemostasis.

Conclusion: Consensus on the best management has not been reached yet and to date different treatment modalities have been successful. In both these cases diagnosis was made during evacuation of products and laparotomy needed to be done to control the bleeding that ensued. It is worth noting that the incidence of such ectopic pregnancies is on the rise and could be due to the increasing trend towards delivery by cesarean section.

P.076

Diagnosis and management of cornual ectopic pregnancies

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Introduction: A cornual ectopic pregnancy occurs when the conceptus implants in the interstitial part of the fallopian tube. It is one of the rarest forms of ectopic pregnancies, accounting for about 1.1 to 6.3% of all ectopic pregnancies and is associated with a higher rate of morbidity.

Methods: In this case series we present two such cases. The first involves a patient who had had an ectopic pregnancy the previous year, which was treated with a right salpingectomy, who presented with a history suggestive of an ectopic pregnancy. Given her findings a decision was taken to do laparoscopy, upon which the diagnosis of a right cornual pregnancy was made. In the second case, the patient also had had a left salpingectomy for an ectopic pregnancy previously. She presented at 5 weeks gestation with a positive pregnancy test and on ultrasound findings were suspicious of a cornual ectopic. This was confirmed on surgery to be in the right fallopian tube.

Results: In one of the cases the diagnosis was made at laparoscopy whilst in the other it was made preoperatively by ultrasound. In both cases the ectopic pregnancy was successfully excised and hemostasis was secured during laparotomy.

Conclusion: Cornual ectopic pregnancies are one of the rarest forms of ectopic pregnancies and as such are difficult to diagnose. Unlike tubal pregnancies, such ectopic pregnancies are more likely to rupture early in the gestation, as happened in these two cases. Surgical management is ideal when the patient is unstable as it gives the best chance at survival.

P.077

Cardiac arrest during caesarean section: a rare cause.

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Introduction: Cardiac arrest in the course of Caesarean delivery is indeed a rare event. Such cases require a rapid differential diagnosis and prompt delivery of the foetus and resuscitation of the mother.

Methods: Case summary : A woman in her first pregnancy underwent induction of labour due to past dates. She has a high BMI and a baseline heart rate of around 90-95 beats per minute. She required Ventouse delivery for failure to progress in the second stage. This was unsuccessful and the team proceeded to perform an emergency Caesarean section.

Results: After delivery of the foetus, brisk blood loss occurred due to uterine atony following a prolonged first stage of labour. The standard approach to postpartum management was initiated with use of oxytocin bolus, higher dose oxytocin infusion and intramuscular Syntometrine. The next line of management employed

was intra-myometrial Misoprostol. It was at this point that tachycardia followed by Takotsubo Reaction (Broken-heart Syndrome) occurred. Resuscitation was instituted whilst the surgery was completed. The patient was stabilised and transferred to intensive care. She had a good outcome and was discharged well after a few days. The differential diagnosis in this case was Amniotic fluid Embolism, Air embolism, anaphylactic reaction to Misoprostol or accidental intravascular absorption of the drug during the intra-myometrial administration together with Pulmonary embolism. Investigation suggested that the most likely diagnosis in this case was a reaction to injection of intra-myometrial Misoprostol. This is an off-licence but widely used mode of administration because of its fast onset of action.

Conclusion: Learning points in this case are multiple. It highlights the role of emergency skills training, the importance of a functional team approach. It also delineates the care that needs to be taken in choosing and administering drugs especially in emergency scenarios which are non-routine making errors more likely to happen. Finally, debriefing of the couple, other family members and staff alike was important in this case.

P.078

A case of puerperium complicated by iliopsoas abscess

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Introduction: Iliopsoas abscess is a rare phenomenon with an incidence of 0.4 in 100,000 per year in the general population. It is three times commoner in males. Patients who are immunosuppressed, diabetic or have renal failure are at increased risk. Psoas abscesses can be either primary through haematogenous spread or secondary through infection or inflammation in the surrounding areas.

Methods: A 38-year-old primigravida reported persistent pelvic pain postpartum after normal vaginal delivery. She was reviewed by the orthopaedics team and was discharged home four days post-partum after being advised on pelvic support, exercises and given anti-inflammatories for sacroiliitis.

Results: Two weeks post-discharge patient was readmitted in view of deterioration in general condition and fever. She was found septic and was transferred to intensive care. A septic screen was performed. An MRI of the pelvis showed multifocal pyomyositis affecting the right lower psoas and ipsilateral iliacus muscle, right multifidus and erector spinae musculature, ipsilateral piriformis and the gluteus maximus muscle. This was associated with septic arthritis of the sacroiliac joints. The patient was stabilised and started on Gentamicin, Meropenem and Clindamycin antibiotics. Incision and drainage was performed with pus cultures being positive for *Escherichia coli* and *Streptococcus gallolyticus*. Despite treatment, patient was still febrile and a repeat MRI showed persistent abscess formation in the iliacus together with septic arthritis. A CT guided drain insertion was performed. On microbiologist's advice, antibiotics were

switched to Ciprofloxacin and Ceftriaxone to which she responded well.

Conclusion: Patient was discharged after 16 days with outpatients follow up and rehabilitation. She is now full functional in her activities of daily living after continuation of antibiotic treatment in the community and lengthy physiotherapy rehabilitation.

P.079

Case report - cystic degeneration of a large fibroid during pregnancy

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Introduction: A case of a uterine fibroid identified in early pregnancy, which proceeded to undergo cystic degeneration as the pregnancy progressed.

Methods: The degeneration caused the woman much pain. Recurrent admissions to hospital for conservative management with analgesics were required.

Results: The ultrasound appearance of the mass was of a large unilocular cystic structure and the differential diagnosis was from an adnexal cyst. Magnetic resonance imaging just prior to delivery also suggested an adnexal cyst. She was delivered by c-section at 37 weeks gestation. The fibroid had caused some distortion of the normal uterine position. Over one litre of greenish fluid was removed from within the fibroid at the time of c-section.

Conclusion: Cystic degeneration of fibroids can mimic adnexal cysts and potentially give rise to diagnostic problems.

P.080

A case report of probable catastrophic antiphospholipid syndrome in the postpartum period

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Introduction: A 31-year-old lady, Gravida 3 Para 0+2 presented at 28+5 weeks gestation complaining of epigastric pain, worsening limb oedema, and blurred vision.

Results: Physical examination and blood investigations confirmed severe pre-eclampsia and the baby was delivered via an emergency caesarean section at 28+6 weeks gestation and transferred to NPICU. Postpartum, the mother deteriorated. Her visual acuity was severely reduced and bilateral retinal detachment was detected. Further imaging revealed acalculous cholecystitis, bilateral pyelonephritis, bilateral bibasal consolidations, and suspected liver abscesses. In addition, she developed acute kidney injury and was noted to have prolonged bleeding time and high temperatures. Broad spectrum antibiotics were started and the mother was transferred to intensive care for closer monitoring. A transthoracic cardiogram revealed poor left ventricular ejection fraction and pericardial effusion. This was confirmed by MR Heart.

In view of the persistent headaches, MR Brain was carried out and multiple ischaemic foci in brain were also detected. Despite 7 days of broad spectrum antibiotics, the patient developed high temperature spikes again and left sided pleuritic chest pain. No infectious source was identified and further imaging revealed left lower lobar pulmonary embolism and intrasplenic vessel thrombosis. In addition, the mother was found to have positive anticardiolipin antibodies, positive anti B2 glycoprotein antibodies and positive lupus anticoagulant and the diagnosis of Probable Catastrophic Antiphospholipid Syndrome was made.

Conclusion: The patient was started on steroids, low molecular weight heparin and aspirin and immediate improvement was noted. The patient was then initiated on long-term Warfarin and was strongly advised against further pregnancies.

P.081

A rare cause of abdominal pain in the third trimester of pregnancy

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Introduction: Abdominal pain during pregnancy is common and accounts for a large number of admissions. Ovarian vein thrombosis only occurs in 0.05% of pregnancies that result in live birth and hence is often not suspected as a cause of an acute abdomen during this time. Classically it occurs after delivery but can rarely present before. Several theories have been proposed to explain the increased risk of ovarian vein thrombosis including venous stasis or damage, endometritis, and increased circulation of clotting factors. The case we present is of a 28 year old lady in her second pregnancy who presented at 33 weeks gestation with severe abdominal pain, radiating down both legs and which did not improve with simple analgesia. Earlier sonography had revealed a major placenta praevia and although she denied any bleeding this made the case more complicated. Multiple investigations were carried out; blood tests, sonography of abdomen and uterus and multiple reviews failed to discover the cause of the pain. The patient had undergone an appendectomy and a cholecystectomy some years before and so these causes for pain could be ruled out. Finally after a few days of investigations an MRI was carried out which revealed bilateral ovarian vein thrombosis.

Conclusion: There is no consensus over treatment of ovarian vein thrombosis in pregnancy. In this case the decision of whether to anticoagulate was even more difficult given that the patient was at high risk of bleeding. The pregnancy is still ongoing and outcome will be reported at the conference.

P.082

Scar ectopic: a one-off rarity or an increasing trend?

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Introduction: Ectopic pregnancy by definition is a pregnancy which implants outside of the normal uterine cavity. According to NICE guidelines, the rate of ectopic pregnancy is 11 per 1000 pregnancies and has a mortality of 0.2 per 1000 estimated ectopic pregnancies. The rarest form is Scar Ectopic, when the gestation implants in the thinner and weaker part of the uterus or even in the space between the uterine scar and the bladder.

Methods: Case Study: A 40 year old in her 4th pregnancy presented to the emergency early obstetric service with painless bleeding at 7 weeks gestation. She had 3 previous live children all delivered by Caesarean section. The initial ultrasound suggested a missed miscarriage showing an "empty sac". The patient agreed to initial Expectant management. A repeat ultrasound confirmed the miscarriage with an empty sac that was "low down in the cavity". The patient was counselled regarding the treatment options. She preferred surgical management. In view of the previous surgical history, the possibility of a Scar ectopic was discussed including the chances of needing laparotomy and eventual Hysterectomy. The Evacuation of Remaining Products of Conception was performed by a senior member of the obstetric team under ultrasound guidance. It was evident during the procedure that this was a case of scar ectopic. Laparotomy was performed. The ectopic pregnancy was found embedded in the scar limited by thin peritoneum. This was removed and the uterus was over sutured. The patient was discharged well.

Conclusion: Scar Ectopics remain the rarest form of ectopic. They are usually related to repeat Caesarean Section and Dilation and Curettage procedures. It is expected that more scar ectopics will occur with the increasing number of Caesarean deliveries. There were 2 scar ectopics documented in Mater Dei Hospital in the last 10 years when the Caesarean rate is around 30%. These cases carry a higher morbidity and mortality rate than tubal ectopics. An increased awareness is needed amongst all health care providers especially if the history is indicative of this pathology.

P.083

Postpartum multi organ failure: a case report

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Introduction: Postpartum multi organ failure is rare. We present a 26 year old lady, G1P1 who presented A&E 3 days post LSCS complaining of increasing lethargy and severe back pain.

Methods: Initial investigations revealed two main concerns: Sepsis and an acute kidney injury (AKI), both of which were of an unknown origin. In addition, the combination of the AKI and the massive 3rd space fluid shifts which occur physiologically postpartum resulted in multiorgan failure- acute congestive heart failure (high NT- ProBNP), pulmonary oedema (on chest XRAY) and haemodynamic instability developed. The patient was started on broad spectrum antibiotics and meanwhile, a thorough work-up of what had caused her multiorgan failure was initiated.

Results: The source of sepsis was identified: a typical pneumonia which responded well to broad spectrum antibiotics. No source for her AKI apart from regular NSAID use post LSCS was identified. This was questionable however all viral, glomerular and rheumatological screens were negative and an ultrasound kidneys was normal. A diagnosis of AKI secondary to the combination of sepsis and the massive volume fluid shifts which occur postpartum (prerenal) and NSAIDs (renal) was made.

Conclusion: The patient was transferred to the Intensive Therapy Unit for invasive monitoring of her haemodynamic status, regular and strict measurement of volume input & output, and aggressive antibiotic treatment. She gradually recovered. Parturients are young healthy women with good outcomes in general. However, this case increases the awareness of obstetric physiology including fluid shifts and highlights the judicious use of NSAIDS in such women.

P.084

Case report: a cystic hygroma detected at dating scan

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Introduction: Cystic hygromas are lymphatic malformations most commonly seen in the nuchal area and detected ultrasonically. They occur in around 0.3-3% of pregnancies usually between 9 and 16weeks. They may occur in isolation or as part of a syndrome.

Methods: A 31-year old in her second pregnancy was diagnosed with Cystic Hygroma at dating scan. After counselling, the couple declined both karyotyping and Cell Free Fetal DNA testing. An ultrasound at 15weeks 4 days confirmed a Cystic Hygroma which was large and septated, both features being poor prognostic indicators for karyotypic anomalies and outcome. The couple opted to await spontaneous events. A diagnosis of Mid-trimester miscarriage with Spalding sign was made at 21 weeks. This was managed successfully by medical management.

Results: Pathological assessment confirmed a Cystic Hygroma with extensive Pleural Effusions, anasarca and a karyotype of Turner's Syndrome - X0. The couple managed to have a successful healthy pregnancy since then.

Conclusion: Cystic Hygroma has multiple possible aetiologies the commonest of which being trisomies and Monosomy X (Turner's syndrome). The role of ultrasound

is not only to reach the diagnosis but also to find other associated anomalies. Management includes involving the couple in the decisions taken. Oftentimes, the diagnosis is not complete prior to delivery or miscarriage as happened in this case.

P.085

Unilateral isolated limb reduction deformity: case report

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Introduction: This case report regards a 25-year-old lady in her first pregnancy, whose foetus was found to have an isolated short right femur at her 20 week anomaly scan. The femoral lengths were sequentially checked at 4-week intervals by ultrasound scan. The discrepancy was confirmed by sequential scanning. Isolated short femur length detected on ultrasound provides anxiety to expectant parents due to its relation to Down syndrome and Skeletal Dysplasia syndromes. Management includes a multidisciplinary approach.

Conclusion: A thorough fetal anatomy examination to exclude other anomalies can help to guide the diagnosis. The association of skeletal dysplasia and Down syndrome are a worry to expectant parents; in spite of this the association is rare. Most fetuses with an isolated short femur length are normal or constitutionally small. The calculation of the Femur length / Abdominal Circumference ratio can help to understand the severity of the condition. It is important to calculate and record the discrepancy and ensure follow-up. Appropriate images should be taken and stored for comparison and future reference. Despite detailed sonographic evaluation, some of the syndromes cannot be ruled out and postnatal clinical genetic evaluation of fetuses or newborns should be considered.

P.086

A late presentation of congenital diaphragmatic hernia: case report

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Introduction: This case report regards a 30-year-old primagravida, whose fetus was found to have a congenital diaphragmatic hernia at her 33 week growth scan. Her 20 week anomaly scan was normal. The images were reviewed and this was confirmed to be a late presentation of Congenital Diaphragmatic Hernia (CDH). CDH is associated with significant mortality and morbidity. This case report outlines the diagnosis, the multidisciplinary management and treatment of this condition.

Conclusion: This case highlights the increased morbidity and mortality associated with congenital diaphragmatic hernia. A multidisciplinary team approach is important in order to ensure adequate management and improve outcomes in complex cases. In view of this we have consulted with specialists abroad and used algorithms such as the "The Lung area to head circumference Ratio (LHR)" and "The Quantitative Lung Index (QLI)". By using

these two references we were able to predict outcomes and plan delivery accordingly. Specialized clinics and a named consultant to deal with fast tracking fetal anomalies improves patient satisfaction. Information leaflets should be developed in order to help parents understand the abnormality and what to expect at delivery and post-delivery care.

P.087

Ultrasound diagnosis of situs inversus in utero

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Introduction: Congenital heart disease is a problem that occurs with the baby's heart while the baby is still developing. It is seen in approximately 1% of babies and is the most common form of birth defect. The finding of a heart defect in the fetus has significant implications for pregnancy management, delivery planning, and diagnosis of abnormalities in other organs. Congenital heart defects range from mild to very severe. The frequency of congenital heart disease (CHD) is approximately 6 to 8 per 1000 newborns, and the recurrence risk is 8%. In 25% of cases, the etiology can be related to familial, chromosomal, or environmental causes. The overall survival rate of fetuses with CHD remains poor (17% to 24%). Examination of the heart involves five main views: -The 4-chamber view of the heart The left outflow tract The right outflow tract Three-vessel view and trachea view Colour flow doppler Demonstration of a four-chamber view will detect 40–50% of congenital heart disease in a low risk population at a routine anomaly scan. By including imaging of the pulmonary and aortic outflow tracts in the anomaly scan, detection rates increase to 65–70%. Normal situs should be ensured by orientating the fetus and ensuring the stomach and heart lie on the left side.

Conclusion: We present a complex case of a 27 week fetus with suspected dextrocardia and situs inversus. The fetal echo showed dextrocardia with complete situs inversus. Atrioventricular discordance and ventricular septal defect were also present. Some require surgical repair in the newborn period and some may resolve on their own with time. Congenital heart defects require counseling and a multidisciplinary team approach. It also required a plan for delivery at a specialized centre.

P.088

Two cases of pregnancy associated transient osteoporosis of the hip

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Introduction: Transient osteoporosis is a rare condition of unknown aetiology, which is seen mainly in middle-aged men but can also present in the third trimester of pregnancy with hip pain. It is usually self-limiting and resolves gradually within 6-12months. However, it can pose an increased risk to complications such as fractures and reduced quality of life.

Methods: In this report we describe two cases of patients who presented with unilateral hip pain that started in the third trimester of pregnancy. Patients presented with an antalgic gait and severe pain in all range of movement. Laboratory investigations were within normal limits in both cases. Diagnosis of transient osteoporosis of the hip was made using Magnetic Resonance Imaging (MRI) which in one case showed avascular necrosis of the hip and in the second case showed transient osteoporosis with an associated subarticular fracture.

Results: Multidisciplinary management involved treatment with analgesia, bed rest and mobilisation with a walking aid to avoid weight bearing due to increased risk of hip fracture. Thromboprophylaxis with Enoxaparin was initiated. Follow up at antenatal clinic and orthopaedic outpatients was ensured on a regular basis. An elective LSCS was carried out at 39 weeks gestation. Following delivery patients were allowed to gradually increase weight-bearing and regular physiotherapy was continued. Orthopaedic follow up was continued for 24 months postpartum and hip imaging was repeated to ensure resolution.

Conclusion: Meticulous evaluation is essential for the differential diagnosis of severe and progressive hip pain in pregnant patients as this allows early diagnosis and multidisciplinary management of the condition. MRI is a safe and effective mode of investigating TOP, and is characterised by diffuse bone marrow oedema. Avoiding vaginal delivery and instituting non-weight bearing measures are necessary in order to prevent complications such as hip fractures related to transient osteoporosis of pregnancy.

P.089

Renal transplant: obstetric point of care sonography and hydronephrosis

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Introduction: A 34-year old lady who survived meningococcal septicaemia was admitted with high blood pressure at 34 weeks. This pregnancy was deemed high-risk, as she had received a renal transplant following renal failure. During the admission, she presented for a renal sonography at 36 weeks and 4 days. During this scan, both B mode and Doppler sonography were used to assess her transplanted kidney which demonstrated mild hydronephrosis. The native kidneys were atrophic and the fetus was viable. This case highlights the importance of assessing renal transplants with sonography and was a useful educational tool for sonographers and clinicians.

Conclusion: This case report was an excellent example of best practice for the role of sonography in the evaluation of a pregnant patient with a renal transplant. It discusses the common sonographic findings in the third trimester of pregnancy and also the reasons for these findings. Pregnancy is a particularly high risk time for renal transplant patients and more studies are required to design evidence based guidelines for the management of these

women. At present there seems to be a lack of guidelines about the management of pregnancies in renal transplant patients and future practice should focus on standardising the management of such high risk patients. Transplantation medicine is a rapidly evolving field and it is probable that the number of pregnancies in renal transplant patients will increase in the coming years. This together with advances in sonography makes this an interesting field to study in the coming years.

P.090

A case of haematoperitoneum (and a not so benign fibroid)

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Introduction: Haematoperitoneum, spontaneous intraleiomyoma hemorrhage and perforation, are very rare but life-threatening complications of uterine fibroids.

Methods: We report a case of a 55-year old perimenopausal lady, known case of multiple fibroids, who was brought by ambulance to A&E in shock sudden onset epigastric pain. She was haemodynamically unstable on arrival but was responding to fluid resuscitation. An initial bedside scan showed a large bleed within the abdomen. She had no history of trauma.

Results: A CT scan was arranged which confirmed a large haematoperitoneum. A CT angiogram showed no active bleeding but postulated that the fibroid was the most likely source of the bleeding. The patient was transfused in A&E and transferred to theatre for emergency laparotomy under the gynaecology team. General and vascular surgery input was also available. Adequate access to the abdominal cavity was obtained by means of midline incision. This allowed for the delivery of a large multifibroid uterus, with the largest subserosal fibroid about 12-15cm in size. A single vein draining the aforementioned fibroid was immediately noted to be actively bleeding. There was no evidence of fibroid rupture or torsion. No further sources of bleeding were identified in the abdomen. A subtotal hysterectomy was performed. The patient experienced an uneventful recovery and was discharged home.

Conclusion: Our case illustrates the value of CT scan in the management of the acute abdomen and identifying the cause for haemorrhagic shock. Tearing of the overstretched, enlarged veins coursing over the surface of fibroids can indeed be cause of massive haematoperitoneum and hypovolemic shock. This case is unusual as spontaneous bleeding related to fibroids is seen in the scenario where trauma and avulsion of the fibroid has occurred.

P.091

Brenner tumour: the rare malignant variant

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Introduction: The incidence of ovarian cancer is 11.7 per 100,000 women per year. Ovarian Brenner tumours represent a rare epithelial ovarian neoplasm accounting for approximately 1–2% of all ovarian tumours. Malignant Brenner tumours are extremely rare, comprising less than 5% of all Brenner tumours.

Methods: A 70-year old lady was referred by her family doctor with a large abdominal mass associated with weight loss and constipation. General examination revealed a large hard mass, extending up to the umbilicus. An ultrasound scan showed a pelvic mass, probably of ovarian origin. Her risk of malignancy index (RMI) score added up to 1580. This was followed by CT trunk, which revealed a large inhomogeneous mass measuring 16cm by 14cm by 17cm, originating from the pelvic cavity. MR imaging further characterised the mass to be arising from the left ovary. Multiple peritoneal metastases and ascites were also seen. The liver was biopsied and the immunohistochemical findings revealed metastatic carcinoma of urothelial nature. Total abdominal hysterectomy with bilateral salpingo-oophorectomy and omentectomy were performed via a midline laparotomy. Intra-operatively, an 18 cm-left ovarian tumour was removed.

Results: The histological result confirmed a malignant Brenner tumour limited to the ovary - pT1c3NxM1b, FIGO IVB. The case was discussed at the Gynaecology MDT meeting and the patient was referred for further oncological care and adjuvant chemotherapy.

Conclusion: The prognosis of such malignancies is relatively poor in view of late presentation and rarity of the disease. Ca125 can be used to monitor response to treatment and degree of disease burden, however, its use as a screening marker in Brenner tumours remains unclear.

P.092

Case report: rare pyometra presenting with common vaginal discharge

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Introduction: Pyometra is a rare condition but it is relatively commoner in the elderly and more likely to be associated with serious pathology including malignancy.

Methods: An 83-year old woman was referred for ultrasound, complaining of persistent green vaginal discharge resistant to usual topical treatment. Ultrasound showed a large hypo-echoic area within the uterine cavity suggestive of a fluid collection typical of Pyometra or Haematometra. This diagnosis was corroborated by CT scan that also showed diverticulitis.

Results: Diagnostic Hysteroscopy confirmed Pyometra caused by Senile Cervicitis. Histology excluded uterine malignancy. Unfortunately, the patient became septic requiring intensive care and subsequently died of cardiac complications.

Conclusion: The prognosis of Pyometra depends on its causative factors, the presence of perforation and other patient co-morbidities. Ultrasound is the mainstay modality of diagnosis for this pathology. Vaginal discharge in the elderly is common but must not be overlooked if it is persistent or resistant to treatment. It may be indicative of a more serious condition as this case demonstrates.

P.093

Xanthogranulomatous salpingitis and its association with endometriosis: a case report

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Introduction: A case of xanthogranulomatous salpingitis is presented in a 36-year old woman with a longstanding history of chronic pelvic pain on a background of endometriosis. The presentation of endometriosis in this case is that of haemorrhagic ascites which is a rare occurrence. Xanthogranulomatous salpingitis is a rare form of chronic inflammation involving the fallopian tube, it is characterised by the presence of lipid-laden macrophages and other chronic inflammatory cells within the wall of the fallopian tube.

Conclusion: There are only a few cases of xanthogranulomatous inflammation affecting the female genital tract which are reported in the medical literature.

P.094

Torsion of ovarian fibroid: case report

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Introduction: Ovarian fibromas are benign tumors of the ovary, which although can be found in women of all ages, usually present in perimenopausal or menopausal women. They are usually asymptomatic, found incidentally, however can also present acutely. Here we present a case of a previously healthy 21-year old, presenting with sudden onset lower abdominal pain and found to have torsion of an ovarian fibroma.

Conclusion: Despite the rare occurrence, especially in young females, the possibility of ovarian fibromas should be kept in mind in patients presenting with an adnexal mass.

P.095

An incidental finding of peritoneal cysts: case report

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Introduction: Peritoneal inclusion cysts are rare benign fluid-filled structures arising from the peritoneum, commonly in females secondary to peritoneal injury caused by surgery, inflammation secondary to endometriosis or pelvic infection.

Conclusion: We present a case of a healthy 33-year-old female found to have peritoneal inclusion cysts during elective caesarean section after histological analysis. No specific risk factors for such cysts were found in our patient however patient gave a history of suprapubic pain accompanied with mild tenderness since 25 weeks gestation. Repeated urine samples sent for analysis revealed no bacteriuria.

P.096

Retroperitoneal granulosa cell tumour: a case report

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Introduction: A rare case of a retroperitoneal granulosa cell tumour (GCT) is presented in a menopausal lady who was referred with an incidental finding of an asymptomatic pelvic mass. Extraovarian granulosa cell tumours are derived from ectopic gonadal tissue which is situated along the embryonal route of the genital ridge. An ultrasound revealed a heterogenic mass with increased vascularity on colour Doppler. The diagnosis of a GCT is essentially a histological one.

Conclusion: To date, very few cases of retroperitoneal GCT are described in the medical literature.

P.097

A discrepancy between risk assessment scores: RMI I vs IOTA

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Introduction: Ovarian cancer is the commonest cause of mortality, resulting from gynecological malignancies, in the developed world. This pathology typically presents as an adnexal mass, therefore, by improving one's ability to ascertain its risk of malignancy, one can plan initial early treatment appropriately, improving prognosis.

Methods: The case discussed pertains to a 24-year old female with bilateral ovarian masses and a CA125 of 2078. Both RMI I and IOTA scores were calculated, to ascertain the optimal management with regards to surgery. Due to differing criteria between these two scoring systems, widely different results with opposing implications were obtained.

Results: Due to its heavy dependency on CA125 level, the specificity of RMI I may be argued to be somewhat compromised. RMI I predicted a high risk of malignancy for the patient, with guidelines suggesting management by an oncological gynaecologist. International Ovarian Tumour Analysis (IOTA) score, being far more multifactorial, was therefore concomitantly implemented. This scoring system predicted a benign outcome for the same patient in question and determined, with success, the proper surgical intervention necessary.

Conclusion: An important potential flaw was identified in the RMI I scoring system, creating leeway for potentially overly aggressive management plans to be implemented in cases with benign adnexal masses. In comparison, a more precise risk assessment was attained for this patient using the IOTA system.

P.098

Fertility preservation for women diagnosed with breast cancer

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Introduction: On the Maltese islands, approximately 306 women are diagnosed with breast cancer every year. The Malta National Cancer Registry reports that during the time period 2007-2016, 8.7% of these patients were under 44 years of age. The aim of this literature review is to describe the effects of breast cancer treatment including hormonal manipulation and chemotherapy on infertility in women. Available options for fertility preservation, including their associated moral and ethical dilemmas will be discussed. Examples include oocyte preservation, embryo cryopreservation, temporary ovarian suppression during chemotherapy, ovarian tissue cryopreservation and experimental autologous ovarian transposition. This is done as a preliminary step to create a guideline for the management of fertility preservation in patients with breast cancer managed at Agatha Breast Unit at Mater Dei Hospital.

Methods: A focused literature review was done using NICE and SIGN guidelines along with abstracts and articles obtained from PubMed using search terms "fertility preservation breast cancer". Only abstracts and articles in English or Italian were included in this literature review.

Results: All patients undergoing relevant treatment should be informed about potential gonadal toxicity and its consequences to include gonadal and uterine damage and possibility of early menopause. Specialist psychological support and counselling should be available to all these patients. The ovary and uterine function may also be affected by cancer treatments. When the patient has a supportive partner and the treatment may be delayed, embryos may be successfully generated and stored using in vitro fertilisation (IVF) techniques, also referred to as embryo cryopreservation. Egg freezing, also known as oocyte cryopreservation and ovarian tissue storage are also possible, however success rate is low in comparison. In ovarian suppression before cancer therapy, hormonal therapy is used to suppress ovarian function and protect eggs during the treatment. Autologous ovarian transposition is still in its experimental stages and is not recommended for routine use as part of a guideline.

Conclusion: The data will be presented to the necessary authorities to create an appropriate guideline for fertility preservation in women with breast cancer at Agatha Breast Unit.

P.099

A few pills can kill - a case study of amlodipine overdose

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Introduction: Amlodipine overdose can be potentially fatal due to cardiogenic refractory shock and its management can be very challenging

Methods: A case study of a 31-year old lady who presented to A&E earlier this year after taking a huge overdose of amlodipine tablets, paracetamol and perindopril tablets is presented. The patient's management from presentation at casualty to discharge from the intensive care is described. Cardiogenic shock from the amlodipine overdose was managed with high dose insulin euglycaemic therapy, calcium infusions, Intralipid, high dose inotropes and fluids.

Results: The patient improved after a few days but subsequently developed life threatening septic shock and multiorgan failure from a ventilator associated pneumonia. She developed respiratory failure, acute renal failure, acute liver failure, disseminated intravascular coagulation, ileus, conduction disturbances with cardiovascular collapse and ICU acquired weakness. She also developed skin necrosis of the antecubital fossa following extravasation of calcium chloride, which had been administered intravenously in high dosage when the patient first presented with severe hypotension. This needed debridement and eventually skin grafting. The patient was eventually discharged from the intensive care unit after one month.

Conclusion: Outcome can be improved by early and aggressive intensive care, inotropic support, calcium infusion and other supportive measures.

P.100

Audit on the adult, generic preoperative investigations for the preoperative clinic

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Introduction: An algorithmic guideline introduced in January 2017 to assist staff in the Preoperative Assessment Clinic (POAC) to standardise booking investigations and referrals according to age, BMI, ASA score, complexity of surgery and comorbidities. The new guideline was put in place to assist decision making, reduce unnecessary testing, highlight the need for further testing, and to trigger early specialist referral when necessary.

Methods: A total of 2,311 patients were clerked at POAC. Data on investigations, exercise tolerance, BMI, ASA and anaesthetic consult was retrieved from electronic patient records. Exclusion criteria included age <16, incomplete data, cancellation or postponement by 2 months.

Results: The positive difference in adherence to guideline recommendations was most observable with ASA scores \geq III. Specifically, patients scoring ASA III

had more anaesthetic consults; routine bloods; CXR and ECHOs after guideline introduction. Those with decreased exercise tolerance were more underinvestigated after the guideline. In ASA II patients, adherence to guideline improved for intermediate surgery but worsened for major surgery. ASA I patients are being less overinvestigated since introduction of the guideline.

Conclusion: This audit demonstrates a measurable improvement in practice at the POAC clinic after introduction of this hospital guideline and supports the use of standardised booking forms and referral pathways. Re-education on ASA scoring and the seriousness of decreased exercise tolerance may be necessary.

P.101

Setting up of the male urology infertility clinic as a clinic to investigate male reproductive health

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Introduction: The World Health Organization (WHO) lists infertility amongst the five commonest disabilities worldwide. With literature attributing half of these cases to male factor infertility, it was imperative to set up a Male Urology Infertility Clinic in Malta. The legislation and implementation of the Embryo Protection Act in 2012 paved the way in doing so. The Male Urology Infertility Clinic (MUIC) was setup in 2014. The purpose of this poster is to highlight the aims of this reproductive health clinic, the operating procedure of how patients are being investigated, treated, counseled, managed and prepared for Assisted Reproductive Technology (ART) procedures. The outcome of the investigations guides the urologist advice to the couple and liaises with the ART Clinic as to whether the couple is to go for Medical Assisted Procreation or not. More specifically, the male patients are referred for genetic screening in accordance with the European Association of Urology Guidelines in Male Factor Infertility. Another important role of the clinic was the setting up of a sperm banking service in liason with the Oncology Department and the ART Clinic, for males suffering from oncological pathologies and males having evidence of testicular failure. More than four hundred patients were investigated at the Male Urology Infertility Clinic since its inception in 2014.

Conclusion: The clinic has been central in dealing with male reproductive issues; a service that before was absent. The clinic has also succeeded in the synchronous management of the couple within a multidisciplinary framework.

P.102

The risk of malignancy associated with breast papillomata

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Introduction: The aim of the audit is to define how many of the breast papillomata diagnosed on core needle biopsy were excised between January 2011 and November 2016 at Mater Dei Hospital. Moreover, the percentages of the excised specimens that retained the same diagnosis as that on biopsy, and those that didn't, were calculated.

Methods: Papillomata identified on breast biopsy specimens between January 2011 and November 2016 at Mater Dei Hospital (Malta) were identified. The clinical signs and symptoms on presentation and modes of investigation were noted. The initial histology from core needle biopsies was recorded and subsequently followed-up. Histology reports from surgical excision were compared to the initial biopsy result to establish the percentage which retained the diagnosis. The percentage of papillomata that were surgically excised was calculated. Those lesions that were found incidentally following surgery for other pathology were excluded.

Results: A total number of 124 patients were found to have breast papilloma between January 2011 and November 2016 at Mater Dei Hospital (Malta). Of these, 48 did not meet the inclusion criteria for this study. The mean age in our cohort of patients [$n=76$] was 56.22 years (range: 28-91). The modes of presentation varied from skin changes to nipple discharge to palpation of a lump on examination, while some were detected on screening mammography. The most common mode of presentation was however, a breast lump. The commonest biopsy modality was Ultrasound-guided. In 50 cases, the lesion was excised with the most commonly practised surgical approach being wide local excision. Out of 76, 61 were typical on biopsy (80.26%); 36 of which were excised (59.01%). Out of these, 28 retained the diagnosis of typical papillomata on excision (77.78%). However, there were 8 cases in which the histological diagnosis on excision was different. The diagnoses on excision included 3 atypical papillomata (8.33%), 2 cases of DCIS (5.56%), another showing fibrocystic changes (2.78%), one showing ductal hyperplasia (2.78%) while one was diagnosed as having lobular carcinoma *in situ* (2.78%). From the 15 (19.74%) biopsies which showed atypical papillomata, 14 were excised (93.33%). Of those excised, only 3 retained the diagnosis. There were 5 reported cases of typical papillomata (33.33%), another one showing DCIS (6.67%) and another 5 reported as papillary carcinoma (33.33%).

Conclusion: The audit shows that a significant number of breast papillomata diagnosed on core needle biopsy was not excised. While the risk of malignancy associated with papillomata is greater when the initial biopsy shows atypia, there is still a risk associated with typical papillomata. Thus, excision of breast papillomata diagnosed on biopsy is recommended.

P.103

Trouble at the tip: a case report on neurofibroma of the nasal tip and review of the literature

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Introduction: Neurofibromata are localised, benign peripheral nerve sheath tumours arising from proliferation of axons, Schwann cells, fibroblasts, perineural cells and endoneurium. They can be sporadic or be part of the autosomal dominant disorder Neurofibromatosis Type 1, also known as Von Recklinghausen's disease. They can be typical or diffuse, the latter being an unusual variant with the skin and subcutaneous tissue diffusely infiltrated. Isolated neurofibromata of the nasal tip are rare and their treatment is challenging in view of their position, high recurrence rate and cosmesis. We report a case of a diffuse neurofibroma of the nasal tip in a 39-year-old female.

Methods: A 39-year-old lady was referred with a soft mass at the nasal tip situated mostly over the right lower lateral cartilage and over the right nasolabial fold with a diameter of about 2.5 cm. She was a known case of Neurofibromatosis Type 1. The lesion was excised via an open rhinoplasty approach. The alar cartilages were found to be very soft, with the left cartilage being smaller than the right. Considerable excess skin remained.

Results: The lesion was confirmed to be a diffuse neurofibroma (incompletely excised). At 9 months post-op, the nasal tip remained rather bulbous due to the excess skin with poor tip support and definition. The patient was thus listed for revision surgery to reduce the bulbous tip and create a dorsum and nasal columella, and reconstruct the lateral alar cartilages using a conchal cartilage graft.

Conclusion: An open rhinoplasty approach provides good access for excision of nasal tip lesion and subsequent reconstruction. In long-standing lesion large lesions, consider the possibility of loss of support due to softening of cartilage and make provisions to reconstruct and provide additional tip support, possibly by the use of grafts. Excess skin can be an issue when large lesions are removed – this should be taken in to account when planning surgery and consenting. Pre-operative radiography may aid diagnosis. Neurofibromata of the nasal tip are likely to be incompletely excised due to this being a cosmetically-sensitive area, hence they can have a high recurrence rate. The latter might affect the decision as regards the extent of reconstruction preferred by both surgeon and patient.

Disclosures: This case report was presented at the 5th Meeting of The British Society of Plastic Surgeons held in London in April 2016 and was published in The Rhinologist in January 2018.

P.104

Urinary tract infection following flexible cystoscopy

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Introduction: The incidence of urinary tract infection following cystoscopy is reported to be between 1 and 21%, with 4-5% having bacteriuria prior to surgery. The aim of this study was to investigate the rates of urinary tract infections post flexible cystoscopy in Mater Dei Hospital by comparing results of pre-procedure urine culture and urinalysis with post-operative results of the same investigations.

Methods: Data was collected prospectively for patients undergoing flexible cystoscopy between May and October 2016. Participants were asked to submit mid-stream urine samples for culture and urinalysis prior to the procedure, and repeat samples 5 days post procedure. Post-operatively patients were also asked whether they had persistent lower urinary tract symptoms [LUTS](>3 days), fever and whether they had been prescribed antibiotics. Chi-squared test was used to note if there were any statistically significant differences between pre-procedure and post-procedure urine samples. Data was also analysed for antibiotics used pre-procedurally and post-procedurally, persistent LUTS and fever.

Results: For the 124 participants included, there were no statistically significant differences between the two groups for any of the parameters measured on urinalysis. The most common organism cultured was *Escherichia coli* both pre and post-procedurally, with no difference between the number of positive cultures ($p=0.11$). None of the patients had post-procedure fever, and only 13.71% ($n=17$) of participants reported persistent LUTS post-procedurally.

Conclusion: This study confirms the European Association of Urology (EAU) recommendation not to use any peri-procedural antibiotic prophylaxis to reduce the rate of symptomatic urinary tract infections in flexible cystoscopy without specific risk factors.

P.105

Sclerosing mucoepidermoid carcinoma of the thyroid: a case report

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Introduction: Sclerosing mucoepidermoid carcinoma of the thyroid is an extremely rare neoplasm that tends to occur mostly in women.

Methods: We present the case of a 44-year old gentleman who was reviewed at the ENT department with a left sided enlarging neck lump as his presenting complaint. Initial CT scan showed cervical, mediastinal and axillary lymphadenopathy, an enlarged left thyroid lobe and a pulmonary nodule. A lymph node biopsy was reported

as metastatic adenocarcinoma, with focal squamous differentiation, favouring primary lung carcinoma. He was so referred to the oncology department and was started chemotherapy as part of the treatment protocol for his presumed pathology. His case was reviewed after three cycles of chemotherapy as there was only mild partial response. A repeat CT scan showed enlargement of the left neck mass. An ultrasound-guided FNA of the left thyroid nodule was organised and it was reported as Bethesda 6. A total thyroidectomy and left modified radical neck dissection were so performed. Histology showed a primary thyroid sclerosing mucoepidermoid carcinoma with lymph node metastasis. At three months post operatively, there was recurrence of right sided cervical lymphadenopathy with lung, liver and pancreatic metastasis.

Conclusion: Sclerosing mucoepidermoid carcinoma of the thyroid is a very rare entity and the literature only presents 8 cases that occurred in female patients and only one case in a male patient. This carcinoma is very aggressive, has a high propensity for metastasis and patients have very poor survival outcomes. It is essential to keep a high index of suspicion to be able to diagnose rare pathologies such as this case, and have the ability to re-evaluate the clinicopathological information available should doubts arise on earlier diagnoses.

P.106

Littoral cell angioma of the spleen: a case report

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Introduction: Littoral cell angioma is a rare vascular tumour unique to the spleen, originating from cells lining the venous sinuses of the normal spleen. It was first described by Falk et al. in 1991. The majority of cases have been composed of multiple nodules of varying sizes in the spleen, benign and asymptomatic in nature. Case Summary: The patient is a 54 year old, presenting with a 4 month history of worsening lower back pain, radiating to both lower limbs. CT Thorax Abdomen and Pelvis was carried out which showed a 6.2cm dense fluid density lesion in the spleen. The case was discussed at the multidisciplinary team meeting and open splenectomy was carried out. Histological diagnosis was consistent with an infarcted littoral cell angioma.

Conclusion: Littoral cell angioma is a benign tumour of the spleen, which may be associated with malignancy, immunological and congenital disorders. The treatment of choice is splenectomy. The imaging features of many other splenic neoplasms may mimic those of littoral cell angioma but in such cases diagnostic signs and symptoms are usually present. In cases of incidental finding of splenic mass on imaging and the patient has no associated signs or symptoms, littoral cell angioma should be suspected.

P.107

Left-sided Bochdalek's hernia in a young adult – case report

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Introduction: Bochdalek's hernia is a type of congenital diaphragmatic hernia occurring secondary to a defect in the posterior attachment of diaphragm. This condition commonly presents with respiratory insufficiency in infants. To date, there are less than 20 cases of bochdalek hernia presenting in adults published in the literature. The mainstay treatment of Bochdalek hernia involves reduction of hernial contents back into the peritoneal cavity with a tensionless graft repair closing the diaphragmatic defect.

Conclusion: We present an atypical case of a Bochdalek hernia presenting in a previously healthy 16-year-old male who presented to the Accident and Emergency department with a 2-day history of dysphagia and loss of breath. A Bochdalek hernia was confirmed on CT Imaging and the patient underwent surgical repair with Goretex mesh.

P.108

Delayed presentation of basal cell carcinoma - a case report

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Introduction: Basal cell carcinoma (BCC) is the most common non-melanoma skin cancer. It usually infiltrates locally and rarely metastasizes. About 85% of BCCs occur on the head and neck, with the rest mainly on the trunk and lower limbs, particularly in women.

Results: Case Summary A 51-year-old female presenting with an increasing lesion on the left side of the abdomen, which has been present for more than 20 years. However the lesion has been increasing in size over the past 2 years. On physical examination, a 63mm by 57mm by 23mm exophytic lesion located medially over the left anterior superior iliac spine was detected. On palpation the lesion was mobile, firm and not tethered to underlying tissue. No lymphadenopathy present. The patient was treated with excisional biopsy which identified basal cell carcinoma with extensive squamous differentiation (metatypical variant). This was completely excised.

Conclusion: Although mortality for BCC is low, early detection and treatment as well as reduction of ultraviolet exposure, prevention programs and optimal follow-up will help to decrease the incidence of BCC. Patients who develop BCC at less-exposed sites, such as the trunk have an increased risk of developing further lesions and may have a genetic predisposition.

P.109

First reported case of internal Littre's hernia presenting with small bowel obstruction

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Introduction: Littre's hernia is a protrusion of a Meckel's diverticulum (MD) through a defect in the abdominal wall. An extremely rare variety is diaphragmatic herniation of MD, which is mainly congenital. We present a unique case of small bowel obstruction in an adult caused by an

incarcerated Meckel's diverticulum in a diaphragmatic defect.

Methods: Case Report: A 71-year-old man with a past medical history of heavy smoking, alcoholism and left sided pneumothorax with surgical emphysema following traumatic left 5-6th rib fractures, presented to the emergency department with a 4-day history of colicky lower abdominal pain and constipation. Bowel sounds were sluggish. Blood investigations showed a microcytic anaemia and slightly raised inflammatory markers. A plain abdominal radiograph revealed multiple dilated loops of small bowel. CT located an area of jejunal herniation between the left hemi-diaphragm and chest wall. An urgent exploratory laparotomy was done and a posterior defect in the left hemi-diaphragm was confirmed. This contained herniated omentum and a Meckel's diverticulum, characteristic of a Littre's hernia. The diaphragmatic defect was closed with non-absorbable polypropylene 0 suture and the diverticulum stapled and excised. Post-operative recovery was uneventful and the patient was discharged 10 days later.

Results: From the history the diaphragmatic defect most likely resulted from trauma to the ipsilateral lower ribs. Meckel's diverticulum is present in 2-4% of the population, mostly asymptomatic. 50% of Littre's herniae are inguinal. In our case, MD was confirmed by histology and contained small bowel mucosa.

Conclusion: This isolated case adds to the scarce knowledge on internal Littre's herniae that are not related to adhesions. This makes it a separate entity in its own right.

P.110

A rare form of primary arterio-enteric fistula: presentation and management

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Introduction: Communications between an artery and the bowel are termed arterio-enteric fistulae (AEF). These are uncommon and mainly involve the aorta and duodenum. They can cause fatal haemorrhage. A primary aorto-enteric fistula has several aetiologies, one of which is post-radiotherapy.

Methods: A 75-year old man with a past history of right hemicolectomy and radiotherapy for right colonic cancer presented with acute upper gastrointestinal bleeding and haemorrhagic shock. Emergency gastroscopy was abandoned as he became critically unstable during the procedure. After resuscitation, a CT angiogram confirmed a right ilio-duodenal fistula between the right common iliac artery and duodenum. Interventional radiology was chosen and a covered stent was inserted in the right common iliac artery. The patient recovered and was discharged from hospital after a couple of weeks. Three months later, another episode of haematemesis occurred. Despite efforts to stabilise him, he passed away a few hours after this second admission.

Results: There are no set guidelines for the management of bleeding aorto-duodenal fistulae and literature is scarce.

This makes it difficult to treat and the outcome is relatively unpredictable. This case report sheds some light on the options available for immediate treatment of AEF in unstable patients.

Conclusion: While minimally invasive radiological techniques are invaluable in many areas and life-saving in countless emergency bleeds, cases like these should ideally not be treated by stenting alone. Open surgery has a role in follow-up of such patients to close off the duodenal defect and placing an omental pedicle or a protective sleeve between the vessel and intestine.

P.111

Outcome of testicular sperm extraction and cryopreservation done via the male urology infertility clinic in Mater Dei Hospital

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Introduction: Infertility, "the inability of a sexually active, non-contracepting couple to achieve spontaneous pregnancy in one year" (WHO), affects approximately 1 in 8 couples trying to conceive for the first time and 1 in 6 couples for subsequent children. In these cases, male-factor infertility is found in about 50% of cases, with azoospermia occurring in about 11.2% of affected males. Testicular biopsy can help in the diagnosis of non-obstructive azoospermia – combined with testicular sperm extraction (TESE), it can be part of ICSI treatment in effected couples. Since the setting up of the Male Urology Infertility Clinic (MUIC) in 2015, testicular biopsy has been combined with TESE and cryopreservation of spermatozoa to allow ICSI at a future date, with the effected male requiring a second biopsy to extract spermatozoa when IVF is being performed. In this audit we look at the outcomes of this procedure.

Results: Out of 371 patients seen at MUIC since its setting up in 2015, a total of 23 patients diagnosed with azoospermia underwent TESE as part of the diagnostic and IVF workflow (6.1%). The patient cohort had an average age of 35 years, they were all azoospermic as confirmed by MFTs done in MDH and had been fully investigated prior to surgery. At testicular biopsy, tissue is analysed by an embryologist, with spermatozoa being found in 16 cases (69.5%) and sent for cryopreservation. A smaller biopsy is sent to the pathology laboratory where pathological conditions were identified in 6 patients (26%). To date, from the cohort of patients who had cryopreservation, 3 couples underwent IVF successfully to conceive a pregnancy, of whom 2 carried it to term. A further couple is awaiting the result of a pregnancy test.

Conclusion: Prior to the setting up of the MUIC clinic, azoospermic males had to undergo testicular biopsy as part of their diagnostic workup, then if viable spermatozoa were found, they had to undergo a second biopsy for TESE simultaneously with implantation at the end of the IVF cycle. Multiple biopsies carried the risks

of causing damage and hypogonadism as well as failing to find viable spermatozoa the second time round meaning the partner was induced in vain. Since 2015, the procedure has improved, performing a diagnostic testicular biopsy with TESE and cryopreservation of viable spermatozoa found, meaning that subsequent testicular biopsy are not required. With the new amendments of the Embryo Protection Act, in 2019, the procedure will be fine tuned to perform diagnostic TESE simultaneously with the IVF cycle, avoiding degradation to sperm quality and motility that occurs with cryopreservation.

P.112

Delayed diagnosis

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Introduction: The purpose of such case presentation is twofold: To highlight the importance of full eye examination in primary central nervous system lymphoma (PCNSL) patients. To be cautious over rejecting the consideration of ocular lymphoma with a negative vitreous cytology.

Methods: A 76 year old Gozitan lady who presented with left sided hemiparesis and blurred vision, was found to have a right intracranial mass which when biopsied proved as PCNSL. She was started on systemic chemotherapy; methotrexate and rituximab and cytarabine for 4 cycles and found to be in remission. During her therapy she also suffered a head injury due to a fall, which was not sent to ophthalmology. She presented to an ophthalmologist with worsening left vision a year down the line and she was found to have left counting finger vision, vitritis and left posterior pole cream coloured chorioretinal infiltrates. A pars plana vitrectomy with vitreous biopsy was performed due to suspicious ocular involvement of the lymphoma. This revealed negative cytology, with only neutrophils reported. She was started on systemic steroids in view of a probable acute multifocal placoid pigment epitheliopathy and the visual outcome worsened. She was found to have a counting finger acuity from the left eye and 6/12 vision in the right. She had an obscured left fundal view with vitreous cells and disc swelling seen on B scan ultrasonography. Right eye showed mottling of RPE in posterior pole. This was then treated as ocular lymphoma.

Results: Treatment involved weekly intravitreal methotrexate in both eyes for six weeks. Her vitreous haze improved and her visual acuity in the right eye was maintained well.

Conclusion: Suggested ophthalmic review for PCNSL cases, with or without ophthalmic symptoms, since there is a 20% chance of ocular involvement. A negative vitreous cytology does not rule out ocular involving PCNSL. Immunohistochemistry with IL10/IL6 ratio and IGH analysis are more reliable

P.113

A case of venous arterialisation in delayed presentation of an acutely ischaemic limb

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Introduction: Patients with critical limb ischaemia (CLI) without patent pedal arteries cannot be treated by conventional arterial reconstruction. Distal venous arterialisation has been suggested to improve limb salvage in this subgroup of patients but has not gained wide acceptance.

Methods: We present the case of a 70 year old gentleman, smoker and hypertensive with no previous thromboembolic events. He presented with 5 days history of worsening pain of his right foot which was cold and dusky on presentation to hospital. No pedal pulses were palpable on the symptomatic side and no waveforms could be picked up. A CTA confirmed occlusion of all three calf arteries. He was taken to theatre with a view to early revascularisation.

Results: The dorsalis pedis was explored with a view to arterial reconstruction but this was unsuitable. Arterialisation of the great saphenous vein (GSV) was performed as a last resort. The ipsilateral GSV was used as a conduit. The popliteal artery was used as the inflow artery. 3Fr Fogarty catheter was passed through the dorsal venous arch to destroy any valves. The distal end of vein graft was anastomosed to the saphenous vein at the level of the medial malleolus in an end-to-end fashion. A pulse was palpable at the distal anastomosis immediately after the completion of the operation. His symptoms improved and almost resolved completely few days post op.

Conclusion: On the basis of limited evidence, venous arterialisation may be considered as a viable alternative before major amputation is undertaken in patients with inoperable CLI.

P.114

Prevalence and detection of testicular failure within the male urology infertility clinic

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Introduction: Testicular failure is encountered within the Male Urology Infertility Clinic (MUIC) as a low or absent sperm count in the presence of a high Follicle Stimulating Hormone (FSH). Progressive deterioration in sperm count occurs in a proportion of such patients. Identification of patients at risk enables the provision of cryopreservation and or expedited *in vitro* Fertilization (IVF).

Methods: Male fertility data for the past three years have been analysed in conjunction with records from the MUIC (number of patients $n=427$) for trends in falling sperm count and rising FSH. Luteinising Hormone (LH), testosterone, age and testicular volume are also included in the analysis.

Results: A total of 586 records from 427 patients were analysed. Of these, 92 patients were found to be in failure as defined by a Sperm Concentration $<15 \times 10^6/\text{ml}$ and an FSH $>11.1 \text{U/L}$; of these 20 were azoospermic. Trend analysis was performed on the 22 patients having more than one recordset: 6 individuals were receiving clomiphene citrate and could not be analysed, from the remaining, 6 exhibited progressive failure.

Conclusion: The data at MUIC is available only as a result of as required investigation and intervention. This limits the potential to validate a predictive model relating hypogonadism to spermatogenic failure. Additional correlation between age, testicular volume and hormone/fertility profiles while promising did not yield significant discrimination. Nevertheless, useful subgroups and their indicators have been identified, and further analysis is encouraged.

P.115

Hypogonadism and associated spermatogenic failure at the male urology infertility clinic

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Introduction: Hormonal investigation forms an accepted standard component of the male infertility workup. Different aetiologies may be identified on the basis of testosterone, luteinising hormone and follicular stimulating hormone levels. Description of the population presenting to the MUIC enables understanding of the aetiological basis of local male infertility, as well as enabling the provision of appropriate management and intervention.

Methods: A total of 586 hormone profiles taken within 90 days of a male fertility test were analysed. These pertained to 427 male members of subfertile couples investigated over the past three years. Age at testing was calculated and testicular volume was captured through ultrasonography. The distinct hormone profiles pertaining to different aetiologies were analysed.

Results: Established hypergonadotrophic hypogonadism was observed in 18 patients with a Sperm concentration $<15 \times 10^6/\text{ml}$, a testosterone $<8 \text{nmol/L}$ and FSH $>11.1 \text{U/L}$. Probable primary hypogonadism was seen in 55 patients in whom the testosterone was $<12.1 \text{nmol/L}$; 72 patients with a testosterone $<8 \text{nmol/L}$ and normal or low FSH and LH values were observed suggesting hypogonadotrophic hypogonadism. Of these 36 had sperm concentrations $<15 \times 10^6/\text{ml}$. Spermatogenic failure, defined as an FSH $>11.1 \text{U/L}$ and normal testosterone and LH values, was present in 16 patients. Primary testicular damage, a possible precursor to hypogonadism, in which testosterone is $>12.1 \text{nmol/L}$ and LH $>7.6 \text{U/L}$ was detected in 35 patients. Nineteen patients were excluded from the study because of the use of exogenous testosterone resulting in gonadotrophin suppression.

Conclusion: The data at MUIC is available only as a result of as required investigation and intervention. This limits the potential to validate a predictive model relating

hypogonadism to spermatogenic failure. Additional correlation between age, testicular volume and hormone/fertility profiles while promising did not yield significant discrimination. Nevertheless, useful subgroups and their indicators have been identified, and further analysis is encouraged.

P.116

Arterial blood gases; documentation & follow up. Are we doing it right?

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Introduction: Data was collected retrospectively from the patient's files: 59 patients' ABGs were reviewed between October 2017 till January 2018 from the Acute Medical Admission Wards 1-3 (First Cycle). In instances where there were multiple ABGs from a single patient, only the latest one was used. The data was analysed and the audit was repeated after implementing posters in the same wards (Second Cycle).

Results: In the first audit cycle oxygen status was documented in 72.9% of cases compared to 96.3% in the second audit cycle. Chi-Squared Testing was used to compare the data from both first and second cycles and a p -value of <0.05 (0.0001) was obtained indicating a significant improvement in the second cycle. Furthermore there was no change of management in 67.3% of ABGs in the first audit cycle compared to 45.5% in the second audit cycle.

Conclusion: The posters significantly helped in improving the documentation with regards to ABGs. ABGs were virtually in all cases taken according to the Guidelines. The Audit could be repeated with a larger data set and changing the ABG request form could be considered prior to a re-audit.

P.117

The rational design of partial peroxisome proliferator activated receptor gamma (PPAR γ) agonists using the synthetic analog of tetrahydrocannabinol (THC) ajulemic acid (AJA) scaffold as a lead molecule

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Introduction: PPAR γ is a druggable target for the management of diabetes and inflammatory disease. Total agonism of this receptor produces clinically significant adverse effects, resulting in the withdrawal of entire drug classes including the glitazones from the market. Partial agonism has resulted in an improved safety profile, with scaffolds, such as that of AJA decreasing inflammation and providing glycaemic control in animal studies.

Methods: This was a virtual screening exercise that aimed to identify scaffolds, which due to similar outer electronic configuration and morphology, were capable of acting as PPAR γ partial agonists. Two pdb crystallographic depositions, 20M9 and 4XUM describing the bound coordinates of PPAR γ bound to AJA and indomethacin respectively were recruited. The small molecules were extracted in each case, and their bioactive coordinates superimposed to generate a consensus pharmacophore.

This was submitted as query to the ZincPharmer database. A protomol, or idealised PPAR γ Ligand Binding Pocket was modelled and the hits from the virtual screening exercise were filtered for Lipinski Rule compliance, docked and ranked in order of affinity.

Results: A cohort of 44,276 high affinity Lipinski Rule compliant hits with known synthetic pathways were identified. They were grouped according to pharmacophoric similarity, and with the highest ranked structures being proposed for molecular dynamics and in vitro assay.

Conclusion: The use of a concensus pharmacophore incorporating the critical interactions of AJA and indomethacin with PPAR γ yielded a large cohort of structurally diverse Lipinski Rule compliant and high PPAR γ affinity structures suitable for inclusion into molecular libraries. The highest ranking structures require further validation and optimisation

P.118

Review: the use of umbilical cord stem cells as a form of treatment

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Introduction: Once regarded as a waste product, the umbilical cord was found to be a good source of hematopoietic and mesenchymal stem cells in 1974. Stem cells are a type of cells that are able to self-renew and undergo lineage differentiation. In this review, we assessed the safety and efficacy of using umbilical cord blood-derived stem cells as treatment for different diseases by looking into some of the latest clinical cases.

Methods: A 26-year-old female suffering from primary systemic lupus erythematosus and secondary Sjogren's syndrome (Case Study 1); a 56-year-old gentleman with a known case of idiopathic pulmonary fibrosis (Case Study 2); and 34 patients, with ages between 20 and 60 years, suffering from moderate-to-severe atopic dermatitis (Case Study 3) were all treated by transfusions of human umbilical cord-derived mesenchymal stem cells (hUC-MSCs). The patients were then followed up and their progress reported.

Results: In all three case studies, treatment with hUC-MSCs was shown to be effective, with no adverse effect due to the treatment being reported.

Conclusion: The studies discussed in this review clearly demonstrate the efficacy and safety of umbilical cord blood-derived stem cells transplantation in the treatment of different diseases. While these studies have their limitations, mainly that the sample size is too small for results to be statistically significant, they are nonetheless important pioneering studies which can form the basis for further research in this field.

P.119

A school-based study on the impact of type 1 diabetes mellitus on the school life of children

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Introduction: Having a diverse student body is an issue which cannot be avoided by school personnel nowadays. Unfortunately, children with different abilities are not always included properly within the school system. The aim of this study was to explore the primary school life of diabetic children; in terms of education, relationships, awareness and procedures regarding their well-being.

Methods: Interviews with two diabetic primary school students (coming from different school backgrounds), with their parent(s)/guardian(s) and their educators, were performed to learn more about how the condition of diabetes mellitus type 1 was tackled at their schools. Class observations were also carried out so as to observe the authentic holistic well-being of the children.

Results: Classmates and school personnel alike need more support and knowledge relating to the management of this condition. School policies and procedures need to be revised to be more compatible with the diverse student body. Educational opportunities for all school personnel, about how to help students with type 1 diabetes, are of great importance. Through this, responsibility of managing this condition does not solely depend on the parent(s)/guardian(s) and the diabetic children themselves.

Conclusion: Primary schools need to have well-trained personnel who can help students with different health conditions. Communication between staff members, parents/guardians, health consultants and students as a team is vital, so as to ensure a positive holistic experience for all.

P.120

The association between smoking and other unhealthy lifestyle behaviours in the adult Maltese population: a quantitative analysis using Eurostat's European health interview survey data for Malta

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Introduction: Tobacco use constitutes a source of morbidity and mortality worldwide. At the EU level, actions that address the burden of tobacco consumption aim to tackle smoking behaviour in isolation from the other health-related behaviours neglecting their tendency to cluster. Thus, the purpose of this study was to examine the interrelationship between smoking and other health behaviours, namely, alcohol consumption, exercise, diet and body weight in the Maltese population. The knowledge on the clustering of health risk behaviours associated with smoking provides valuable information for developing specific interventions in public health that may effectively address the burden of tobacco consumption in Malta and across the EU.

Methods: The field research was based on data from the EHIS 2014 for Malta and provided a picture of smoking behaviour in relation to the other risk behaviours in the Maltese population. A logistic regression analysis was conducted to examine association between each lifestyle behaviour and smoking status. The associations were controlled for some demographics such as age, gender, income and education.

Conclusion: Smoking behaviour was shown to be significantly associated with poor psychological and physical health, some demographics such as age, gender, income and education, and with a number of unhealthy health behaviours indicating their clustering tendency. Among general population of Malta, four lifestyle behaviours were found to be the strongest associated factors to daily smoking, namely physical inactivity, low fruit intake, addition of salt to meals at table and daily hazardous drinking. These findings have some implications for future smoking prevention programs and intervention strategies.

P.121

Rare diseases and orphan drug availability in Malta

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Introduction: Over 7000 rare diseases (RD) affect around 60 million patients in the European Union and the United States (US). 'RD-action' is a European Health Programme funded Joint Action which provides information and data on RDs. The aims of the study were to describe orphan drug (OD) availability and the health needs of the Maltese RD population.

Methods: Themes to assess RD management in Malta were adapted from the RD-action plan and were identified through literature concerning RDs in EU countries. The themes were used to formulate interview questions prior to meeting policy makers in the Department of Health Information and Research Malta to obtain information on availability to medication and treatment. Available RD registries were analysed and the 10 most common RDs in Malta classified.

Results: In Malta, there are no RD policies and no RD plan which is specific to Malta. In Malta, there are no clinical practice guidelines on RDs and no RD information centre. Four RD registers are active in Malta: 'Cancer register', 'Congenital anomaly register', 'Malta RD register' and 'Treated abroad RD register.' Eight out of the 10 most reported RDs in Malta are cancers. Thyroid carcinoma ($n=479$) and squamous cell carcinomas ($n=336$) are the most commonly reported RDs between 2015 and 2017 in Malta. Out of the 10 most common RDs in Malta, only multiple myeloma has an approved OD which is bortezomib.

Conclusion: In Malta, there is a need for policy makers to focus on establishing an RD plan and increasing access and availability of ODs.

P.122

Implementation of a pharmaceutical care model within haematology

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Introduction: The complexity of haematological diseases together with complications that may arise due to the chemotherapy treatment, warrant the need of having a complete interdisciplinary team including the presence of a ward-based clinical pharmacist. The aim of this research was to develop and test the feasibility of a standardised pharmaceutical care model within the adult haematology ward at Sir Anthony Mamo Oncology Centre.

Methods: During ward rounds and whilst reviewing treatment charts and patient files, the pharmacist identified pharmaceutical care issues (PCIs). Discussions to resolve these PCIs were held with the other healthcare professionals (HCPs). Ninety-three different patients were seen during 7 months of ward attendance.

Results: A total of 465 PCIs were identified. These were issues with drug selection ($n=144$), monitoring needs ($n=137$), with dose selection ($n=74$), need for patient education ($n=57$), issues with treatment duration ($n=24$), occurrence of side effects ($n=13$) and an issue related to the drug-use process ($n=1$). Eighty-seven percent of the interventions proposed were accepted by the other HCPs. The pharmacist also provided other pharmaceutical services ($n=398$) including; medicines information ($n=180$), administration advice ($n=40$), modifications on treatment charts ($n=37$), liaison with other pharmacy entities ($n=37$), dosage calculations ($n=36$), guiding doctors in filling the correct forms ($n=23$), checking treatment against chemotherapy protocols ($n=14$), drug interactions checking ($n=13$), and provision of medication tables on discharge ($n=7$).

Conclusion: The pharmacist interventions contributed to identifying PCIs occurring in patients which were, in the majority, accepted by the caring haematologists.

P.123

A case of bone marrow suppression secondary to influenza B

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Introduction: Influenza is an RNA virus which consists of three main types. Influenza A is the most virulent and is associated with the most severe illness. The case described below shows serious haematological complications that occurred in a patient with influenza B. This case is about an 88-year-old lady who was undergoing post hip fracture care in a rehabilitation hospital. She developed a fever and cough and similar to other patients in the ward, respiratory screen was positive for influenza B. She was treated with oseltamivir and she improved symptomatically but five days after diagnosis it was noted that her white cell count had decreased showing a predominantly neutropenic picture.

Other haematological investigations were within normal limits and the impression was that of neutropenia secondary to influenza. She was started on G-CSF injections. Despite neutropenic precautions, she developed a temperature spike and was treated according to the febrile neutropenia guideline. A high CRP and procalcitonin indicated that there was likely a concomitant bacterial infection although no clear source could be found. When her white cell count started to improve, there was a decrease in haemoglobin requiring blood transfusion and she had a small decline in her platelet count which resolved on its own. She improved symptomatically and remained stable after this.

Conclusion: This case showed haematological complications of influenza B which have not been frequently reported. Influenza is associated with a number of complications and therefore one must emphasise the importance of vaccination to try and prevent them.

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Hb F Malta 1; A biomarker for the developmental control of globin gene switching

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Introduction: Commonly occurring foetal haemoglobin variants (Hb F Malta 1 and Hb F Sardinia) were used as biomarkers in order to search for quantitative trait loci which are associated with the expression of foetal haemoglobin in the perinatal period.

Methods: A total of 282 Hb F Malta 1 newborns were enrolled in the study. Reverse phase HPLC was used for globin chain quantification and several genotyping techniques were used to characterise known quantitative trait loci. Two Hb F Malta 1 homozygotes were sequenced with NGS to find regions which are coinherited with Hb F Malta 1.

Results: *BCL11A* rs4671393 polymorphism was found to be associated with increased foetal haemoglobin. XmnI polymorphism was associated with increased γ -globin expression whilst Hb F Sardinia compound heterozygotes were found to have increased Hb F Malta 1. Several upstream and downstream olfactory genes are coinherited with Hb F Malta 1. These regions are thought to contain foetal haemoglobin enhancer regions.

Conclusion: The significance of XmnI polymorphism suggests the presence of stress erythropoiesis in the newborn. A *BCL11A* variant delays the foetal to adult haemoglobin switching. Further research with NGS might reveal long range regulatory regions.

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Utility of bone marrow biopsy in positron emission tomography-staged patients with classical Hodgkin lymphoma

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Introduction: Classical Hodgkin lymphoma (cHL) is a potentially curable disease and treatment is based on accurate staging. Bone marrow infiltration (BMI) implies stage IV disease, which entails more extensive chemotherapy. BMI is traditionally detected by bone marrow biopsy (BMB). 18F-fluorodeoxyglucose positron emission tomography/computed tomography (PET/CT) has become the standard imaging investigation for cHL. Some studies have shown PET/CT to be more sensitive than BMB in detecting BMI by lymphoma. The aim of this study was to determine whether PET/CT can reliably substitute BMB in the detection of BMI by cHL.

Methods: Patients treated for cHL between January 2010 and December 2017 were retrospectively identified. All PET/CT scan reports were evaluated and scans showing skeletal uptake were reviewed by nuclear medicine physicians who categorised the uptake as diffuse or focal. Patients with focal skeletal uptake were considered to have BMI by cHL. The agreement in the classification of Ann Arbor stage between the combination of PET/CT and BMB compared to PET/CT alone was assessed.

Results: One hundred and five patients were included, with a median age of 34 years (range 16-91). Fifty-nine patients (56.2%) were male. Twenty-four patients (22.8%) had BMI on PET/CT. Six patients (5.7%) had a positive BMB. All patients with a positive BMB had a positive PET/CT. In 18 patients (17.1%) the PET/CT was positive while the BMB was negative. No patient was upstaged when considering BMB information compared to the use of PET/CT alone. Patients with BMI on PET/CT were more likely to have B symptoms ($p=0.007$), other extranodal sites involved ($p=0.001$), anaemia ($p=0.006$), raised C-reactive protein ($p=0.003$) and higher ECOG performance scores ($p=0.013$).

Conclusion: PET/CT is very sensitive for the detection of BMI by cHL. BMB adds very little to the staging of patients undergoing baseline PET/CT.

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Human co-culture immune system model for immunomodulatory applications

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Introduction: The immune system is one of the most complex systems in the human body and models are constantly being developed in the sets, presenting a complex network of cellular interactions, molecular affinities via differential receptor expression, and the rel

talk. Notwithstanding the potential of *ex-vivo* models in gathering information on the nature of the particular cell in isolation, they are very different from the natural *in vivo* conditions.

Methods: Following an in-depth investigation of the literature for *ex-vivo* models using isolated cell types by means of various isolation techniques, particularly for lymphocyte studies, a shortlist of potential RNA and protein controls was drawn up. This was used as a basis to develop an investigative model supporting leukocyte isolation and in which multiple cell types are studied in co-culture. Leukocytes for this study were isolated from Buffy Coats produced from the processing of voluntary whole blood donations from Blood Transfusion Services.

Results: The results showed that by selecting a panel of RNA and protein controls, the designed model enabled the study of gene expression and protein production or release in the presence of different immune cell types.

Conclusion: Although not completely optimised yet, data so far shows that this model can take into account, and even look directly at, the interactions of the different protagonists in the immune microenvironment.

P.127

Investigating the effect of differentiation therapy using extracts from *Holothuria poli* on the haemopoietic malignancy

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Introduction: In leukaemia, cells do not differentiate into mature cells, but remain blocked at an early stage during their development, hence failing to become functional mature white blood cells. Sea cucumbers possess various useful chemicals related to treating bacterial, fungal and viral infections, and others which cause cytotoxic effects. They have a water vascular system and are known to possess high amounts high value-added compounds. Organisms belonging to the species *Holothuria poli* undergo autotomy.

Methods: The first step involved in this study was the determination of which part of the *Holothuria poli* to be used for the tests, namely the outer part, the coelomic fluid or the coelomytes. Results showed that the coelomic fluid was to be chosen. The approximate concentration of coelomic fluid to be used was determined using MTT, followed by its effect on human lymphocytes. Pooled coelomic fluid was used to test for cytotoxicity and MTT/NBT tests on various cell lines. Morphology is also being tested.

Results: Results showed that the coelomic fluid is not toxic at % lower than 15 and coelomic fluid taken from organisms that have regenerated their organs for 9-12 days showed more of a positive result in the NBT and MTT tests. Initial morphological tests have shown some degree of differentiation.

Conclusion: This preliminary work has now opened the door for further tests to further prove the theory that this coelomic fluid can be used to cause differentiation.

P.128

The design of novel structures capable of modulating the steroid receptor co-activator (SRC) for the management of malignant disease

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Introduction: The Steroid Receptor Co-activator (SRC) is over-expressed in solid tumours, with degree of over-expression increasing as staging advances. Receptor over-expression is normally targeted through small molecule antagonists. However, in the case of the SRC, a study 2015 study by Wang *et al.* suggested that paradoxically, overstimulation of the SRC resulted in tumour cell mortality as a result of homeostasis disruption. Furthermore, the study suggested that the small agonist molecule MCB-613 is a super-agonist, suppressing SRC transcriptional activity.

Methods: PDB crystallographic deposition 2SRC describing the SRC receptor bound to the small molecule antagonist AMP-PNP was the template for this study. MCB-612 was docked within the SRC Ligand Binding Pocket (LBP), conformational analysis performed, and the critical contacts forged between the optimal conformer and the receptor identified. These were used to create 5 seed fragments which were planted into a modelled SRC_LBP map. User directed fragment growth was allowed within this pharmacophoric space.

Results: *De novo* growth resulted in 402 high SRC affinity Lipinski Rule compliant molecules with different degrees of pharmacophoric similarity. Their different logP values (range 3.02-5.45) allows for their segregation into 2 categories: those capable and those incapable of blood brain barrier penetration.

Conclusion: This study was successful in the *de novo* generation of molecules with high SRC affinity. There are a number of assumptions inherent to this study, the main one being that the MCB-612 scaffold was modelled within an antagonist circumscribed LBP, implying that the designed molecules require both computational and *in vitro* validation.

P.129

Targeting the beta cell lymphoma-2 receptor in the design of novel agents for the management of leukaemia and solid tumours

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Introduction: The Beta Cell Lymphoma-2 (BCL-2) receptor is an apoptosis regulator. Its antagonism promotes tumour cell mortality. Literature indicates the utility of the small molecules navitoclax and venetoclax as BCL-2 antagonists owing to their pro-apoptotic protein mimetic structures. Both these molecules have been associated with significant adverse effect profiles. Drug design efforts to conserve antagonist ability for a reduced adverse effect profile represents the way forward for this drug class.

Methods: PDB crystallographic deposition 4LXD describing the navitoclax:BCL-2 complex was selected. Venetoclax was modelled in 3D, and its optimal bound conformation within the BCL-2 receptor identified through conformational analysis. Bioactive navitoclax and the optimal venetoclax conformer were superimposed and an average or consensus pharmacophore was modelled. This was the query structure for the ZincPharmer database. A protomol or virtual ligand binding pocket was also modelled, and the Lipinski Rule compliant hit molecules were docked and their affinity calculated.

Results: A total of 300 novel structures which complied with Lipinski's Rule of 3 for hit molecules, and for which synthetic pathways are known were identified. The optimal 5 structures, identified on the basis of atomic affinity to the BCL-2 receptor moieties were identified for computational and in vitro validation

Conclusion: This study was valuable in demonstrating that the combined pharmacophoric features of venetoclax and navitoclax are useful in the design of high affinity BCL-2 ligands with the potential to retain Lipinski Rule Compliance and consequently bioavailability after computational optimisation.

P.130

Design of novel protein kinase inhibitors using the naturally occurring staurosporine scaffold as a lead molecule

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Introduction: Literature indicates that Protein kinase C (PKC) activation can result in the phosphorylation of potent activators of transcription, thus leading to increased oncogene expression and cancer progression. PKC inhibition is associated with tumour growth mitigation. Staurosporine, isolated from *Streptomyces staurosporeus* has recognised PKC inhibitory ability, and represents a novel scaffold for development from a drug design perspective.

Methods: Virtual screening was used as an initial molecule mining tool. The bioactive conformation of Staurosporine was identified from PDB crystallographic deposition 1STC. A second PKC antagonist, C58 was extracted from PDB crystallographic deposition 3ZH8. The bioactive co-ordinates of both antagonists were superimposed and merged to a single average pharmacophore such that maximal pharmacophoric space could be explored. This structure was read into ZincPharmer, for the identification of morphologically and electronically similar structures. The energetically unsatisfied area at the core of the protein was identified, designated a protomol, and the Lipinski Rule compliant hits were docked into it and their binding affinity was measured.

Results: A total of 198 molecules compliant with Lipinski's Rule of 3 recommendations for lead molecules, with known synthetic pathways were identified. The binding affinities of the four highest ranked structures, expressed on an atomic level as a total score, ranged from 9.65-6.92.

Conclusion: The staurosporine scaffold was useful in the identification of high affinity structures which occupied the entire breadth of the PKC ligand binding pocket. The fact that all four structures are pharmacologically diverse, that they can be synthesised, and that they are Lipinski Rule of 3 compliant makes a case for their further validation and optimisation.

P.131

Differentiation-inducing effects by chalcones on myeloid leukemia cell line

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Introduction: The bone marrow is normally occupied by haematopoietic and mesenchymal stem cells. The former giving rise to myeloid and lymphoid progenitor cells, through haematopoiesis. With maturation, such cells specialise and differentiate, and in so doing their proliferation ability decreases. However, in acute myeloid leukemia, differentiation arrest at the blast stage occurs, with a clonal proliferation advantage, resulting in an accumulation of blast cells in the marrow. The aim is to analyse the alteration of this differentiation block in KG1A cells by eight Chalcone chemical agents and their metal complexes from the COST Consortium CM1106, known as STEMCHEM, using an optimised method.

Methods: MTT and NBTZ assays were used as screening tests for the differentiation index after exposure to the eight agents in three concentrations of 10 μ M, 1.0 μ M, and 0.1 μ M. NBTZ acts as a leukocyte differentiation marker whilst MTT indicates cellular activity and cell number. A large NBTZ:MTT ratio alludes to differentiated myeloid leukemia cells, whereas a small ratio points to undifferentiated myeloid leukemia cells. Leukocyte differentiation related enzymatic activity was assessed spectrophotometrically on Days 3 and 5 of the experiment. Iscove's Modified Dulbecco's Medium (IMDM) was used in cell culture and all variables were kept constant in all 4 repeats of the agent using the 3 variable concentrations. The negative control was the culture medium, whilst the positive controls were Propylene glycol Monomethyl ether Acetate (PMA) and Dimethyl Sulfoxide (DMSO). The whole set of the experiment was repeated, always treating the chemicals blindly.

Results: Certain chemicals showed effective results.

Conclusion: These agents may hold interest as potential future drugs since previous studies with similar family members of Chalcones - (Chalcogen) semicarbazones and their cobalt complexes - using HL-60 myeloid leukaemia cells, have shown differentiation and cytotoxicity towards tumour cell-lines.

P.132

Central nervous system progression of diffuse large B-cell lymphoma in the rituximab era

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Introduction: Central nervous system (CNS) progression of diffuse large B-cell lymphoma (DLBCL) is associated with very poor outcomes. Two-year CNS progression risk is 0.6% in low, 3.4% in intermediate and 10.2% in high risk patients as defined by the CNS-International Prognostic Index (CNS-IPI). High-risk patients should receive CNS-directed prophylaxis. This study aims to determine the incidence of secondary CNS involvement in patients with DLBCL and to assess the impact of CNS-IPI on risk.

Methods: Data from patients with DLBCL treated with rituximab-based chemotherapy between January 2010 and December 2017 were retrospectively evaluated. Details of CNS prophylaxis were collected and CNS-IPI scores were calculated for all patients.

Results: There were 193 cases of DLBCL identified during the study period. The median age was 65 years. Ninety-nine patients (51.3%) were female. Six patients (3.1%) developed CNS progression, which was parenchymal in three cases and leptomeningeal in another three cases. One of these patients (16.7%) had leptomeningeal involvement at diagnosis. All the patients with CNS progression had stage IV disease at presentation. CNS-IPI was high risk in three patients and intermediate risk in another three. Four patients (66.7%) did not receive CNS prophylaxis, one patient (16.7%) received intrathecal methotrexate and one patient received intravenous high-dose methotrexate and cytarabine. The median time from lymphoma diagnosis to CNS progression was 5.9 months (range 2.0-16.4 months). The median survival from CNS progression was 11.2 months. The incidence of secondary CNS progression was 6% and 2.8% in patients with high and intermediate CNS-IPI risk respectively.

Conclusion: The incidence of CNS progression is low in patients treated with rituximab-based regimens, but it predicts for shortened survival. Application of the CNS-IPI identifies a high-risk group where CNS-directed therapies are indicated.

P.133

Differentiation-inducing effects on chronic myeloid leukemia cell line K562

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Introduction: The bone marrow is normally occupied by haematopoietic and mesenchymal stem cells. The former eventually give rise to myeloid and lymphoid progenitor cells, through haematopoiesis. With maturation,

such cells specialize and differentiate, and in so doing their proliferation ability decreases. However in acute myeloid leukaemia or in the blast phase of chronic myeloid leukaemia, differentiation arrest at the blast stage occurs, with the clonal proliferation advantage resulting in an accumulation of blast cells in the marrow, and a resultant lack of functional cells. The aim is to analyse the alteration of this differentiation block in K562 cells by six agents from Professor Constantinos Athanassopoulos, a member of the COST Consortium CM1106, known as STEM-CHEM,

Methods: Six agents derivatives of minoxidil and Artemisinin in three concentrations of 10µM, 1.0µM, and 0.1µM were tested on K562 cells, using NBT and MTT. Leukocyte differentiation related enzymatic activity was assessed spectrophotometrically on Days 3 and 5 of the experiment. NBT acts as a leukocyte differentiation marker whilst MTT indicates cellular activity and cell number. A large NBT:MTT ratio alludes to differentiated myeloid leukemia cells, whereas a small ratio points at undifferentiated myeloid leukemia cells. K562 cells were cultured in Roswell Park Memorial Institute (RPMI) positive differentiation controls were Phorbol Myristate Acetate (PMA) and Dimethyl Sulfoxide (DMSO).

Results: The most promising results were exhibited with BDP 137 at 10µM.

Conclusion: Repeats of this experiment together with morphological and flow cytometric analysis will be done to confirm this activity.

P.134

Baseline C-reactive protein is an independent prognostic marker in diffuse large B-cell lymphoma

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Introduction: C-reactive protein (CRP) is a commonly utilised inflammatory marker. An elevated CRP is an important prognostic factor in different types of cancer. The aim of our study is to verify whether the CRP is a valid prognostic parameter in diffuse large B-cell lymphoma (DLBCL).

Methods: Data from patients with DLBCL treated with rituximab-based chemotherapy between January 2010 and December 2017 were retrospectively evaluated. Receiver operating characteristic (ROC) curves and area under the curve (AUC) were used to determine the best cut-off value of CRP for survival. Kaplan-Meier curves with log-rank test and multivariable analysis using a Cox regression model were used to assess the impact of pre-treatment CRP and other parameters on the overall survival (OS).

Results: One hundred and ninety-one cases of DLBCL were identified, with a median age of 65 years (range 18-97). One hundred and two patients (53.4%) were females. The best cut-off for CRP at diagnosis was 30mg/L with an AUC of 0.72 (95% CI, 0.65- 0.79, $p < 0.001$). Elevated CRP levels (>30 mg/L) were present in 95 patients (49.7%). Patients with a high CRP were more likely to have Ann Arbor Stage

III or IV disease ($p=0.013$), higher ECOG performance scores ($p<0.001$), raised lactate dehydrogenase (LDH) levels ($p=0.001$) and higher revised International Prognostic Index (R-IPI) scores ($p<0.001$). The OS at 5 years was 39% in patients with elevated baseline CRP and 80% in patients with low CRP ($p<0.001$). On multivariate analysis the CRP retained prognostic significance for OS (HR: 2.2 [95% CI: 1.2–4.06]; $p=0.011$) when controlling for the R-IPI.

Conclusion: Our study demonstrates that elevated baseline CRP is an independent poor prognostic marker in DLBCL.

P.135

Design and optimisation of Epigallocatechin-3-gallate and genistein analogs for histone deacetylase inhibition

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Introduction: Histone deacetylases (HDACs) play an important role in cancer progression. Their inhibition mitigates carcinogenesis. Epigallocatechin-3-gallate (EGCG), the most abundant polyphenol in green tea, and Genistein, the prime isoflavone in soy beans were shown, through *in vitro* studies, to be potent HDAC inhibitors. The EGCG and genistein scaffolds were modelled for the identification and design of novel HDAC inhibitors.

Methods: PDB crystallographic deposition 4QA1 describing the bound co-ordinates of the antagonist M344:HDAC complex was identified. The small molecule was extracted and EGCG and Genistein were successively docked into the HDAC Ligand Binding Pocket (LBP). Conformational analysis allowed identification of the best binding pose for each scaffold. For each optimal conformer, 2D topology maps highlighting the critical interactions of each optimal conformer with the HDAC_LBP were generated. This data guided the formation of high efficiency seed fragments capable of sustaining growth at pre-designated sites. These were docked into modelled HDAC_LBP maps and *de novo* growth allowed. Virtual Screening involved the modelling of a protomol or idealised LBP. The optimal conformers from each scaffold were submitted as queries, and Lipinski Rule compliant hits were docked into the protomol and ranked in order of affinity.

Results: Two high affinity, Lipinski Rule molecular cohorts were obtained. The first, obtained through *de novo* design was structurally restricted due to the incorporation of the imposed seed fragment. The second, obtained through Virtual Screening was structurally diverse. The two cohorts were pharmacophorically compared.

Conclusion: Both scaffolds yielded high affinity HDAC ligands. These must be further validated and *in vitro* studies used to confirm antagonism.

P.136

Case series of long-term macrolide therapy effect on eosinophil counts in COPD

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Introduction: Long-term macrolide therapy is a treatment option in COPD patients with frequent exacerbations, and long-term azithromycin therapy in COPD patients can reduce COPD exacerbation frequency and improve quality of life. However, treatment response is heterogenous and the modulation of inflammation by macrolides is not fully understood. After an exceptional clinical response to macrolide therapy in a patient with COPD, it was noted that the peripheral blood eosinophil count (PBE) increased steadily while on macrolide therapy.

Methods: A retrospective case series review of the effect of long-term macrolide therapy on PBE levels in COPD patients was performed. All COPD patients attending COPD clinic at our Trust who were started on long-term macrolide therapy (azithromycin) in 2016 were included ($n=16$), and anonymised data was audited. The dose used was azithromycin 250mg three times a week ($n=15$), and 250mg daily ($n=1$).

Results: The overall mean PBE increased (mean change in mean PBE was 0.05; $SD\pm 0.18$) during azithromycin therapy. There was no significant difference between gender ($p=0.51$), mean age ($p=0.44$), smoking status ($p=0.66$) and mean FEV1 at the start of azithromycin therapy ($p=0.55$) between patients who had an overall increase in PBE and in those who had an overall decrease in PBE, although numbers were small. There was a reduction in the mean COPD exacerbation frequency (from 15.5 to 2.1 exacerbations per year) in patients with a mean rise in PBE during azithromycin therapy. In the group of patients who had a mean decrease in PBE, there was inadequate data available on exacerbations.

Conclusion: COPD is heterogenous and inflammation can be variable. Long-term azithromycin may affect the underlying inflammatory COPD phenotypes, suppressing the T-helper 1 neutrophilic inflammation, with an increase in the T-helper 2 eosinophilic inflammation, possibly indicating more steroid-responsive disease. However, larger studies are required to further investigate this.

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P.137

Treatment of choice for smoking cessation prescription by doctors locally

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Introduction: Smoking is a common worldwide detrimental health addiction thought to affect around 1.1 billion people. On the local guidelines there exists a smoking cessation therapy guideline aimed to target this problem.

Methods: Data was collected by means of a questionnaire relating to awareness of this guideline along

with awareness about the local smoking cessation therapy (SCT) available and correct way of prescribing them and commonest side effects.

Results: A total of 110 questionnaires were completed and quantitative data was drawn from the responses given. The majority of doctors (70%) were not aware of the existence of such guidelines, with a fewer number using these guidelines. The commonest reason (56%) for not using them was that of them not being up-to-date. Nicotine replacement patches (NRP) was the commonest therapy (56%) that doctors heard of with nicotine replacement inhalers being the least heard about (10%). NRP were most likely to be prescribed (58%). Knowledge about correct prescribing of NRP (69%) was high along with knowledge about their side effects. In contrast, knowledge about the correct way of prescribing Varenicline (26%) was low along with any potential side effects, but knowledge and use of this drug was being more sought after.

Conclusion: The local guidelines are not up to date, need to be revised and made easier to access online. Nicotine replacement patches remain the treatment of choice for stopping smoking amongst doctors locally, yet a presently increasing knowledge and use of Varenicline is slowly being established.

P.138

The role of pleural stress in pathophysiological pathways in apical and upper lobe lung disease

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Introduction: The lung is a heterogeneous organ due to the effect of gravity on the arterial supply and lymphatic system, and this partly explains a predilection for different pathologies to certain areas of the lung.

Methods: A computer-simulation finite-element-analysis (FEA) model was used to measure pleural stress as a marker for pleural tissue destruction.

Results: The model identified a tall, thin body habitus with an antero-posteriorly flattened chest as associated with a low body mass index, accentuated by a physically tall lung and a deep first rib furrow that results in an unstable apex from a pressure vessel point-of-view, as pathophysiological factors that make the upper lobe "vulnerable" to specific pathologies. These factors promote high physical stress with resultant tissue tearing or destruction, caused by a negative circumferential stress vector within the postero-apical area visceral pleura in a prominent apex, leading to large-sized apical alveoli abetted by the distortion of the lung under its own weight.

Conclusion: The localisation of lung pathologies with a predilection to upper lobe and apical disease can be explained by the combination of the biomechanical factors resulting from the peculiar anatomical shape of the upper lobe and apex as modelled by our computer

analysis, together with the traditional factors such as poor apical blood supply, limited lymphatic drainage and others including dusts and genetic disorders; such factors being additive and not mutually exclusive. Cycles of destruction, repair and healing lead to fibroblastic lesions and cavity formation especially in the postero-apical area of the lung around the rib furrows.

P.139

Effect of neuromuscular electrical nerve stimulation in moderate to severe chronic obstructive pulmonary disease patients - a pilot study

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Introduction: Neuromuscular Electrical Nerve Stimulation (NMES) is a new modality being investigated for its effect related to quadriceps strength and walking distance in Chronic Obstructive Pulmonary Disease (COPD) patients. The purpose of this small pilot study was to observe and absorb as much as possible information on the methodology and learning outcomes. Information from this small pilot study would present recommendations for the possibility of a larger national study regarding this new modality.

Methods: For this aim, a mixed method approach was deemed appropriate. A total of seven moderate to severe COPD patients were included in this feasibility study, four in the experimental group and three in the control group. Following patient consent, the quadriceps strength as well as a 6 minute walk test were completed. The objective measures were taken at the baseline of this study, week four and week eight.

Results: Positive outcomes were reported in all subjects with the experimental group benefitting the most. However, the results are insignificant in view of the small population sampling. A self-designed questionnaire was distributed to the experimental group at the end of the study, with the aim to get a better view on how patients felt during the duration of NMES. Constant feedback was kept during the study duration between the researcher, intermediary physiotherapist and the subjects.

Conclusion: Constant feedback and the results from the questionnaire were important for the researcher to present recommendations based on the strength, limitations and learning outcomes. This feasibility study provided guidance for larger more randomised national studies to maximise the benefits of NMES in COPD patients.

P.140

Bilateral Reinke's oedema secondary to smoking

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Introduction: Reinke's oedema is a benign condition which is commonly found in association with smoking, with well over 97% of patients who are diagnosed being habitual smokers. Other risk factors for the condition

include hypothyroidism, gastro-oesophageal reflux disease, overuse of the voice and advancing age. Reinke's oedema is more cited in female patients rather than in their male counterparts with the reason being that voice changes are more noticeable in women. In Reinke's oedema, the vocal cords become more gelatinous, slowing down vocal cord vibration. This leads to a deeper and hoarse voice.

Methods: Case Presentation: A 70-year-old lady presented to her geriatrician at the medical out patients department in view of a 1 year history of hoarseness which was progressively worsening. She had a 40 pack year history of smoking. Her past medical history included obesity and panic disorder. The respiratory examination was normal. A chest X-ray was normal. She was given an urgent referral to the ENT specialist who performed microlaryngoscopy which revealed bilateral Reinke's oedema. Biopsies taken from the vocal cords confirmed the diagnosis.

Results: Treatment and Follow-up: Upon diagnosis the patient was advised thoroughly regarding smoking cessation and prescribed nicotine replacement therapy. The patient was followed-up 1 month after the microlaryngoscopy for discussion with the patient regarding the biopsy result and to further stress the importance of smoking cessation.

Conclusion: Reinke's oedema is a benign condition which is most commonly found bilaterally rather than unilateral. Smoking cessation decreases the risk of premalignant change.

P.141

The psychological and emotional impact of a Brugada syndrome diagnosis in the Maltese population

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Introduction: Brugada syndrome (BrS) is a hereditary cardiac arrhythmic syndrome that can lead to sudden cardiac death (SCD). Mean age at diagnosis is 42 years. In high risk cases the only treatment is an implantable cardioverter defibrillator (ICD). Since the set-up of an Inherited Arrhythmic Clinic at Mater Dei Hospital in January 2017, 36 individuals have been diagnosed with BrS and 9 have been implanted with an ICD. The psychological and emotional impact of a diagnosis linked to SCD and implantation of an ICD in this population has never been studied locally.

Methods: All patients who consented for enrolment (n=36) were asked to fill in a World Health Organisation Quality of Life - 100 (WHOQOL-100) questionnaire. The population was split into two groups: Patients with an ICD (Group 1) and patients without an ICD (Group 2). Results were analysed.

Conclusion: The effect of a diagnosis linked to SCD and an ICD may have a significant impact on the social and professional lives of young individuals. This study emphasizes the need for a multidisciplinary approach in the Inherited Arrhythmia Clinic to support the social and mental well-being of these patients.

P.142

Transcriptional control and function of the CCR4 receptor and selected variants

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Introduction: The CCR4 receptor is a 360-amino acid GPCR receptor protein, expressed by a gene located on chromosome 3p24. In asthmatic patients, high expression has been reported in Th2 lymphocytes, and activation of this receptor by specific endogenous ligands promotes the inflammatory process by contributing to the trafficking of dendritic cells and the localization of T-cells to the airways.

Aim: To study the transcriptional activity and functional relevance of wild-type and genetic variants of the CCR4 receptor in a simulated asthma cytokine inflammatory environment.

Methods: A panel of luciferase reporter deletion constructs generated from the two known CCR4 promoters available at the department, will be utilized. These will be transfected into an airway cell line model and exposed to different cocktails of asthma-relevant cytokines in order to simulate an asthmatic airway microenvironment. These profile compositions will be based on literature reported data of cytokine concentrations in the airways in stable asthmatic patients, and those suffering acute exacerbations. Furthermore, a panel of three CCR4 coding region non-synonymous variants existing in the population and carrying high bioinformatically-predicted functional relevance, will be individually expressed in an airway cell line model. Ligand-induced signalling assays will be carried out on these variants as well as wild-type, with and without the presence of cytokine cocktails.

Conclusion: This work is currently in progress. The outcome will provide a profile of transcriptional CCR4 activity and variant CCR4 signalling and has pharmacogenetic relevance to CCR4-targeted drugs reported to be currently under development in the literature.

Disclosures: This project is being funded by the Endeavour Scholarship Scheme.

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The role of the HTR4 rs6889822 variant in lung function

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Introduction: The SpiroMeta lung function GWAS (n=48201) reported the strongly linked SNPs rs3995090, rs6889822 and rs7715901 located within a 3' intronic region of the helix-loop-helix transcription factors 4 (HTR4) gene, to be strongly associated with altered lung function and its COPD related phenotypes. This observation was

also reported in later GWAS projects. HTR4 appears to be developmentally regulated in human lung, with low expression in adults. Published studies have been unable to identify the functional mechanisms related to this specific association. Recently, the GWAS Sentinel SNP *HTR4* rs68889822 has been reported to act as an eQTL associated with changes in lung tissue expression of the F-box protein 38 (*FBXO38*). This gene is positionally adjacent to HTR4 and is highly expressed in lung. No functional mechanism linking *FBXO38* to airway function has yet been described. This study aims to investigate the effects of knockdown of the *FBXO38* gene in the H460 airway epithelial cell line.

Methods: A standard siRNA approach will be applied, with scrambled negative control. Total RNA will be extracted post transfection and used for cDNA synthesis with reverse transcriptase and oligo(dT) primers. Quantitative Taqman based qPCR designed to specifically target all three *FBXO38* protein coding transcripts will be used to detect knockdown. Differential expression between transcribed genes in wild-type and *FBXO38* knockdown H460 airway epithelial cells will be analysed using RNAseq.

Conclusion: This is work in progress. The comparative transcriptome between normal and altered *FBXO38* expression could provide a basis for the identification of the mechanistic pathways underlying the reported GWAS association.

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Pulmonary hypertension in systemic sclerosis - are we screening according to guidelines?

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Introduction: Pulmonary arterial hypertension (PAH) is a well known complication of connective tissue diseases (CTD) and is responsible for almost 30% of systemic sclerosis related deaths. Diagnosis is often delayed, potentially leading to unfavourable outcomes. Recommendations are designed to promote yearly screening in all patients (with yearly echocardiograms and lung function tests), facilitating early detection of CTD-PAH. In this local audit, we looked at the screening service provided at the scleroderma clinic and whether we are adhering to international guidelines.

Methods: Clinical notes, echocardiogram reports and lung function tests for all patients seen at the clinic ($n=49$) were scrutinized to evaluate whether the necessary tests were being carried out and whether referral for right heart catheterization was performed appropriately.

Results: Eighty five percent of patients had an echocardiogram booked within the last 12 months, with 80% being referred for right heart studies as recommended by guidelines. Only 23% had a DLCO performed within the last 12 months.

Conclusion: Referral for catheterization should be based on TR jet results rather than estimated pressures. DLCO, which is now readily available in Malta, is another avenue for detecting early onset CTD-PAH in patients with unremarkable echocardiogram findings.

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Pathogenesis of tuberculosis: novel predictors of TB reactivation and their application to TB screening

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Introduction: There are currently two main categories for latent TB screening; those at risk of exposure to active TB, and medical factors associated with progression from latent TB infection to active disease. The pick-up rate is too low to achieve the World Health Organisation (WHO) Stop TB 2050 targets, indicating that other predictors are required.

Methods: A computer-simulation-analysis (FEA) modelled pleural stress as a marker for pleural tissue destruction and subsequent repair by fibrosis as suggested by the lung's relatively poor apical blood flow.

Results: FEA identified five predictors of TB reactivation, namely adolescent and young adult age, male gender, apical location, low antero-posterior chest diameter or low thoracic-index rib-cage shape and pre-existing apical blebs present in 15% of the population. This hypothesis explains the occurrence of lower lobe apical disease, the age, gender and build (BMI) of those at risk, the incidence of other concurrent apical disease and also Esmail's observation that the size of the population at-risk of TB reactivation is far lower than the global population

Conclusion: Once a subject can be identified as having several of the biomechanical predictors of TB reactivation as explained by this model, initial screening can be performed based on demographics, BMI and thoracic index. A second round of screening by imaging can confirm the presence of apical blebs or bullae with an expected pick-up rate of approximately 15% of the screened group. New and emergent magnetic-resonance (MRI) technologies promise low-cost, ambient-temperature, portable MRI as a near ideal screening tool.

P.146

Health professionals and patients knowledge on chronopharmacology and blood glucose and cholesterol management

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Introduction: Chronopharmacology contributes to optimisation of drug effects in disease management. The aims of the study were to understand layperson and healthcare professionals (HCPs) knowledge of chronopharmacology in the management of blood pressure (BP), and blood cholesterol.

Methods: Self-administered questionnaires in English and Maltese for laypersons on statins (LSs), laypersons on antihypertensives (LAs) and for healthcare professionals

were developed and validated. University of Malta Ethics Committee approval was obtained. During the pilot study, 20 LAs and LSs, and 5 community pharmacists in Northern harbour district and 5 doctors at Mater Dei Hospital completed the questionnaires. Subsequently, 50 LAs and LSs in a town randomly selected from each of the five parts in Malta were recruited. The HCPs questionnaire was completed by 50 doctors at Mater Dei Hospital and 20 community pharmacists practising in towns randomly selected from each part of the island. T-test and Z-test were used to compare results from both studies and significance threshold set at the 0.05 level.

Results: Fifty-five laypersons ($n=70$) were aware that medicines should be taken at the time they work best ($p=0.0057$, $z=2.8$), 34 LAs knew BP varies throughout the day ($p=0.0151$, $z=2.4$), 7 LSs knew that the amount of cholesterol produced by the body varies throughout the day ($p=0.0469$, $z=2$). Fifteen HCPs ($n=80$) knew that endogenous cholesterol synthesis is highest at night ($p=0.1044$, $z=1.6$).

Conclusion: There is need to improve the knowledge on chronopharmacology to optimise management of blood pressure and cholesterol.

P.147

Management of dyslipidemia in a local population of HIV positive patients

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Introduction: HIV patients have increased prevalence of cardiovascular disease (CVD) primarily due to dyslipidemias secondary to the infection and its treatment. Our objective was to identify whether this association prevails amongst HIV patients in Malta and to determine how current management of dyslipidemia can be improved.

Methods: This was a retrospective observational study. Data collected included demographics, CVD risk factors, type of antiretroviral treatment (ART) and lipid-lowering therapy. HIV viral loads and lipid profiles at time of diagnosis and last visit were obtained.

Results: Of 101 patients, 77 were males. Mean age at diagnosis was 38.2 years and mean follow-up duration was 8.2 years. Twenty five percent of patients were started on lipid-lowering agents. Barring a mild increase in HDL ($p=0.04$), lipid profiles did not significantly change with statins. However, patients not on statins experienced worsening in all lipid profile parameters. There was no significant association between lipids and viral load or when comparing triglyceride levels between the two commonest ART combinations; NNRTI/NRTI and NRTI/PI ($p=0.83$). However, triglycerides did significantly improve when patients were switched off a PI ($p=0.03$).

Conclusion: Significant deterioration in lipid profiles was seen amongst patients not taking statins. This supports the European Aids Clinical Society 2017 guidelines recommending a low threshold for starting statins in HIV. Significant reductions in triglycerides were seen when switching from PIs endorsing changing ARTs as a means of managing dyslipidemia. Our results highlight the need for

more aggressive statin therapy in our local HIV population so as to see greater improvements in patient lipid profiles.

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Two trop..too late: the timing of 2nd troponin sampling at Mater Dei Hospital

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Introduction: hs-cTnT was introduced into clinical practice to expedite diagnosis of myocardial injury and exclude low-risk individuals. ESC Guidelines for the management of ACS in patients presenting without persistent ST segment elevation, 2015, recommend measurement of high sensitivity cardiac Troponin at 0 hours and 3 hours. Our aim was to audit our local clinical practice with respect to timing of the second hs-cTnT sampling in patients admitted with chest pain; excluding ST elevation myocardial infarctions.

Methods: Retrospective analysis of all patients admitted with "Chest Pain" as their provisional diagnosis from 1st January 2017 to 28th February 2017 was carried out. Patient data was obtained from admission booklets held at A&E department. Further data was collected from iSoft Clinical Manager and Electronic Case Summary. Data collected included patient demographics, blood results and discharge diagnosis. Data was inputted and analysed using Microsoft Excel 2007.

Results: A total of 741 patients were admitted with a provisional diagnosis of "Chest Pain", of which 679 patients were recruited for the study. Forty four patients were excluded as the discharge diagnosis was STEMI and another 18 patients were excluded as they did not have a repeat troponin taken during their admission. A total of 223 patients were female. Mean age was 63.83 ± 16.57 years. The mean time elapsed between 1st and 2nd hs-cTnT sampling was 6.1 ± 4.40 hours (median 5 hours).

Conclusion: The above results show that we are not following 2015-ESC recommended guidelines. This may potentially lead to a delay of diagnosis of myocardial injury and/or early discharge of low risk individuals.

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Pathophysiological mechanism of post-lobectomy air leaks

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Introduction: Air leak post-lobectomy continues to remain a significant clinical problem, with upper lobectomy

associated with higher air leak rates. The pathophysiological role of pleural stress in the development of post-lobectomy air leak was investigated by means of computer modelling.

Methods: Data from 367 consecutive video assisted thoracic surgery (VATS) lobectomy resections from one centre were collected prospectively between January 2014 and March 2017. Computer modelling of a lung model using finite element analysis (FEA) was used to calculate pleural stress in the lung. As the right lung is larger with higher pleural forces, a higher level of right-sided air leak was predicted

Results: Air leak following upper lobectomy was significantly higher than after middle or lower lobectomy (6.3% versus 2.5%, $p=0.044$), resulting in a significant six-day increase in mean hospital stay, ($p=0.004$). Lung FEA showed that the apical bullet shape was subject to eightyfold higher stress as compared to the lung. There was more right-sided air leak (6.3% versus 2.3%) but this did not reach significance ($p=0.112$).

Conclusion: After upper lobectomy, the exposed bullet shape of the apex of the lower lobe was associated with high pleural stress, aided by the reduction in mechanical chest-wall support to the visceral pleura due to the initial lack of chest-wall confluence in the early post-operative period. It is suggested that such higher stress in the lower lobe apex explains the higher parenchymal air leak post-upper lobectomy. The pleural stress model also accounts for the higher incidence of right-sided prolonged air leak post-resection.

P.150

Audit on bariatric surgery referrals from sleep clinics

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Introduction: Studies have shown that diet and lifestyle modifications are relatively ineffective in treating morbid obesity in the long term. According to NICE Guidelines on management of obesity, bariatric surgery is a treatment option for people with a BMI of 40kg/m² or more, or between 35kg/m² and 40kg/m², and other significant disease (e.g. type 2 diabetes or high blood pressure) that could be improved if they lost weight. Obstructive sleep apnoea (OSA) is a common disorder, the prevalence of which is linked to obesity. The aim of the audit was to identify whether patients who met criteria for bariatric surgery referral were being referred accordingly from the sleep clinic.

Methods: A retrospective analysis of patients who underwent investigation for OSA over a 6-week period at the Sleep Lab at MDH was carried out. All patients who underwent investigation by domiciliary sleep study and met criteria for bariatric surgery referral were included in the audit. Co-morbidities were identified according to electronic case summaries and Isoft.

Results: Over a six week period, 104 patients underwent investigation by domiciliary sleep study. Fifty four (51.9%)

met criteria for bariatric surgery referral, with 50% of patients having had a BMI of 40. 89.6% of patients were diagnosed with OSA, 40.7% had an AHI >30. Only 2.1% of the 54 patients who met referral criteria were referred for bariatric surgery assessment from our sleep clinics.

Conclusion: Bariatric surgery is an effective therapy for sustained weight loss in morbidly obese patients and those who meet referral criteria should be referred accordingly.

P.151

Activity and outcomes from a dedicated pleural on-call service

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Introduction: Over the last 5 years, the Oxford Pleural Unit has operated a pleural on-call service by instituting the provision of a 'pleural phone' and a pleural email service. The phone is held in working hours by one of the pleural team (Consultants and/or Pleural Fellows) and the email service is monitored daily. The aim is to assess the activity, impact and outcomes from a pleural on-call service.

Methods: Received phone calls logged on a datasheet were analysed. All documented datasheet pleural phone referrals and email (received at any time, checked during working hours) referrals between March 2016 to February 2017 were analysed retrospectively.

Results: In total, 506 cases were discussed via email ($n=257$) or via phone ($n=249$), a mean of 1.9 referrals per working day. The outcome of the referrals included advice (33.6%, $n=170$), advice and pleural clinic follow up (23.7%, $n=120$), and advice and scheduling for a pleural procedure (42.7%, $n=216$). Analysis of the referrals received revealed that a total of 22 unnecessary procedures and clinic appointments were avoided after discussion with the pleural team: 5 unnecessary pleural procedures, 16 unnecessary clinic visits (follow-up clinic visits [$n=10$], new clinic visits [$n=4$], other specialities clinic appointments [$n=2$], unnecessary computed tomography scan [$n=1$]). Outcomes such as unnecessary hospitalisation or impact on length of stay were not measurable in this retrospective analysis.

Conclusion: Our study shows that a pleural on-call service is beneficial and can help avoid unnecessary clinic and procedure list appointments.

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Hepatitis B and varicella zoster seroprotection status in patients receiving biological therapy for inflammatory bowel disease

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Introduction: Hepatitis B virus (HBV) and varicella zoster virus (VZV) immune status testing should be carried out in all patients receiving immunomodulators according

to the European Crohn's and Colitis Organisation (ECCO). This retrospective study aims to review local serology testing practices and whether patients are inadequately seroprotected, in which case vaccination is recommended.

Methods: Eighty patients receiving biological therapy for inflammatory bowel disease (IBD) at Mater Dei Hospital were randomly recruited. Patients initiating biological treatment prior to 2007 were excluded. Blood serology was retrospectively analysed for hepatitis B surface antibody (HBsAb) titre levels and varicella zoster immunoglobulin G (VzIgG). HBsAb titres of <100mIU/mL were considered as inadequate seroprotection according to guidelines.

Results: HBsAb testing was carried out in 48.8% of patients ($n=39$), of whom 84.6% ($n=33$) were inadequately seroprotected. 12.1% ($n=4$) underwent repeat testing, only one of which achieved a titre of >100mIU/mL. HBsAb testing in all patients pre-dated initiating biological treatment in 74.4% ($n=29$), whilst 27.3% ($n=9$) were first found to be inadequately seroprotected after starting biological treatment. VzIgG serology was available in 95.0% of patients ($n=76$), of whom 19.7% was negative ($n=15$), none of whom had repeat testing. VzIgG testing pre-dated biologic treatment in 81.6% of patients ($n=62$).

Conclusion: Local HBsAb serology testing practices adhere poorly to ECCO recommendations. Of those tested the majority were not adequately seroprotected. Booster vaccination and repeat serology testing is recommended – the latter was done in the minority. VzIgG serology was available for the majority, the minority of which are recommended to undergo vaccination as inadequately seroprotected.

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The relationship of azathioprine dose, 6-thioguanine levels and disease activity in patients with inflammatory bowel disease

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Introduction: In-patients with inflammatory bowel disease (IBD), azathioprine dosing has traditionally been weight-based. However, a proportion of patients do not respond to such a strategy. Monitoring the levels of 6-thioguanine (6-TGN), the active metabolite, and 6-methylmercaptopurine (6-MMP), the inefficacious and potentially hepatotoxic metabolite, is an alternative, emerging approach.

Methods: A group of patients with predominantly colonic IBD were selected at random, and included in the study. Patient weight, azathioprine dose and serum 6-TG and 6-MMP levels were recorded. Disease activity was measured based on findings at endoscopy, as well as analysis of histology. All patients had been on the same treatment regime for at least one year prior to endoscopy.

Results: A total of 18 patients were included, of which 56% ($n=10$) were found to be in endoscopic remission (remission group), while 44% ($n=8$) had active disease (active group). The remission group had a higher dose of azathioprine (remission group mean: 2.3mg/kg; active group mean: 1.8mg/kg). Remission group had higher levels of 6-TGN (remission group mean: 235pmol/8x10⁸

RBCs; active group mean: 185pmol/8x10⁸ RBCs). On individual analysis, one case from the active group was noted to be a metabolic shunter, with very low levels of 6-TGN (68pmol/8x10⁸ RBCs) and high levels of 6-MMP (1,070pmol/8x10⁸ RBCs). Regression analysis noted no reliable relationship between the weight based dose and 6-TGN levels.

Conclusion: Prescription of azathioprine can successfully result in remission through both weight-based dosing and monitoring of 6-TGN levels. There is no predictable relationship between the weight based dose and the 6-TGN level, hence testing of serum 6-TGN can aid clinical decision making and allow for optimisation of drug efficacy.

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National outbreak of salmonella give in Malta linked to a local food manufacturer, October 2016

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Introduction: *Salmonella* Give is a rare serotype across Europe. In Malta, an average of 0.78 cases were reported annually from 2007-2015. In October 2016, five cases of *S. Give* were detected. We investigated to identify the source and implement control measures.

Methods: We conducted a descriptive epidemiological investigation. We collected data on risk exposures from cases by telephone interviews, inspected implicated restaurants and conducted food trace-back investigations. Food, human and veterinary samples were microbiologically analysed. Whole genome sequencing (WGS) was performed on positive human, food, environmental and veterinary isolates.

Results: Thirty-six human cases were reported between October and November 2016, 10 (28%) of whom required hospitalisation. Twenty-six (72%) cases were linked to four restaurants. *S. Give* was isolated from ready-to-eat antipasti served by three restaurants which were all supplied by the same local food manufacturer. Food-trace back investigations identified *S. Give* in packaged bean dips, ham, pork and an asymptomatic food handler at the manufacturer; inspections found inadequate separation between raw and ready-to-eat food during processing. WGS indicated two genetically distinguishable strains of *S. Give* with two distinct clusters identified; one cluster linked to the local food manufacturer and a second linked to veterinary samples.

Conclusion: Epidemiological, environmental and WGS evidence pointed towards cross-contamination of raw and ready-to-eat foods at the local manufacturer as the likely source of one cluster. Severity of illness indicates a high virulence of this specific serotype. To prevent future cases and outbreaks, adherence to food safety practices at manufacturing level need to be reinforced.

P.155

MEDIWARN: Implementation using virtual biosensors for medical alerts

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Introduction: The continuous monitoring and measurement of vital functions is extremely important in order to ensure early and rapid action in critical patients, who could have a progressive clinical deterioration. Currently this is done by systems such as the Early Warning Score (EWS), but such systems only alert after a significant deterioration has occurred. The aim of this project is to devise a new alerting system, derived from usual physiological parameters.

Methods: After review of medical literature, and together with expert opinion from the University of Malta, the University of Catania and the Policlinico Vittorio Emanuele, parameters that will be incorporated into this system will be chosen. This review will also lead to the derivation of an algorithm, based on fuzzy logic, that will allow for an earlier detection of deterioration of a patient. This system will then be validated in number of clinical scenarios, and the algorithm adjusted accordingly.

Conclusion: This project, a collaboration between the University of Catania, the University of Malta and the Azienda Ospedaliero Universitaria Policlinico Vittorio Emanuele, is funded by the EDF as an INTERREG V-A Italia - Malta project. We plan to devise a better monitoring system for use in an acute medical clinical setting, in order to detect the deteriorating patient earlier.

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P.156

3D printing and pharmaceutical dosage forms

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Introduction: The project aims to 3D print a tablet with amitriptyline as the active ingredient.

Methods: A literature review was carried out to identify the ideal material to be used as a bulking agent. Autodesk Fusion 360 was used to create the 3D model for the tablet. The 5 flat torus shaped tablets were printed with a zero percent infill under the printing settings selected in Cura 3.2.0. The tablets were tested for their dissolution properties

Results: Polyvinyl alcohol (PVA) was selected as the printing filament. The printer settings were 185 degrees for the printing temperature, 95 degrees for the bed temperature, 120mm/s for the travel speed, 50mm/s for the print speed, 100% for the fan speed. The average dissolution time for the flat torus shaped tablets was 100 minutes. The

average dissolution time for the 25mg amitriptyline tablets was 10 minutes. The theoretical weight of one flat torus shaped tablet was 201mg which is less than the actual weight range of 225-228mg which gave an average gross weight of 226mg. Amitriptyline tablets weigh on average 100mg. The theoretical gross length needed to print one flat torus shaped tablet with zero percent infill is 5.7mm. PVA filament was found not to be soluble or swellable when immersed in absolute ethanol solution.

Conclusion: Different shapes and dimensions may be considered if the torus shaped tablet shows inadequate results from tests when compared to the ones used in the European Pharmacopoeia.

P.157

Enhancing patient safety through interactive evaluation of community pharmacy practice

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Introduction: The pharmacist translates science to regulated practice in a patient-centred scenario. This research attempts to answer the question; could the evaluation of community pharmacy practice enhance patient safety by carrying out the assessment in an interactive way?

Methods: The methodology involved: (1) retrospective analysis of community pharmacy regulatory audit (CPRA) reports to extract features that could lead to identification of deficiencies related to patient safety in community pharmacy practice, (2) development and validation of an updated CPRA tool, (3) identification of desirable improvements to the CPRA, and (4) interactive educational discussions with the pharmacists. These steps were carried out using case studies.

Results: A total of 512 CPRA reports between January 2012 and September 2016 were analysed. The developed tool was implemented during CPRA in 85 pharmacies between January and November 2017. Seven case studies were identified and evaluated including four dispensing problems (errors, near misses, lack of proper prescription, unsupervised pharmacy staff), two inventory deficiencies (expired items, inappropriate storage temperature) and one equity of treatment between private and government-sponsored patients. Concordance through interactive educational discussions was reached with the pharmacist and 46 corrective and preventive actions with a patient-centred focus were taken to address the deficiencies.

Conclusion: Interactive evaluation helps towards promoting patient safety by identifying errors, near-misses, inappropriate prescriptions, unsupervised pharmacy staff, expired items, inappropriate storage of medicines and treatment inequity. The interaction evolved in instituting methods to prevent recurrence of these patient safety issues.

P.158

Structure activity relationship of drugs of abuse

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Introduction: The molecular structure of novel psychoactive substances is based on the structure activity relationship (SAR) of related existing drugs of abuse. The study aimed at identifying links between structural modifications and adverse effects, toxicities and physiological effects of cannabinoids, cathinones and opioids.

Methods: Literature review was carried out to identify the structural backbone of cannabinoids, cathinones and opioids and to identify adverse drug reactions, toxicities and physiological effects of synthetic drugs. The SAR for synthetic cannabinoids, cathinones and opioids was based on amino alkyl indoles (AAI), cathinone derivatives and fentanyl derivatives, respectively.

Results: The synthetic cannabinoids XLR-11 and MDMB-CHMICA have been linked to acute kidney injury. Blocking of CB1 receptors present in kidney cells causes protective effects on renal function. Pyrolysis of XLR-11 produces degradation products having higher potency than XLR-11 at CB1. The presence of a tert-leucine group, ester link and indole core in MDMB-CHMICA results in high CB1 selectivity. The synthetic cathinones MDPV and α -PVP cause a higher occurrence of psychosis and delirium compared to cathinone and other synthetic cathinones, due to inhibitory uptake effects at DAT (dopamine transporter) and NET (Norepinephrine transporters). Modifications present in fentanyl analogues result in different lipophilic characters. Fentanyl analogues having a lower lipophilic value than fentanyl displayed shorter duration of physiological effects when compared to fentanyl analogues having higher lipophilic values than fentanyl.

Conclusion: Knowledge of toxicities of different drugs of abuse is important in helping to raise awareness and educate the public, and to decreasing risks associated with abuse of synthetic drugs.

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Developing and using a tool to compare evaluations between regulatory agencies

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Introduction: Regulatory agencies are tasked with the evaluations of medicinal products. Different factors like guidelines and legislation result in differences in evaluations by different agencies for the same medicinal product. The aim was to develop and content validate a tool to (i) collect information from evaluation documents of regulatory agencies, and (ii) compare evaluations between the European Medicines Agencies (EMA) and the US Food and Drug Administration (FDA).

Methods: A 'Collect and Compare Information' (CCI) tool was developed from guidance documents available from the European Commission and European Medicines

Agency websites. A panel of 6 experts from the regulatory field validated the tool. The CCI tool was applied on 27 cardiology-related new molecular entity medicinal products.

Results: The developed CCI tool consisted of 6 sections: administrative information, non-clinical and clinical aspects, benefit-risk balance, risk-minimisation measures and risk evaluation and mitigation strategies, and product information. Fourteen products were found to have different indications when comparing the label (FDA) to the Summary of Product Characteristics (EMA). Differences related to side-effects (EMA 571 vs FDA 482) and contra-indications (EMA 105 vs FDA 53) were identified. Seven disagreements regarding use in pregnancy and 1 disagreement regarding the effect of the product in fertility were found.

Conclusion: The CCI tool ensures consistency when extracting information and comparing evaluations by the EMA and FDA. The tool can be adapted to compare evaluations between other agencies and is applicable to all types of medicinal products whether generics, biological agents or molecular entities.

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Pharmacy practice research driving innovative clinical pharmacy services at Mater Dei Hospital

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Introduction: Establishment of innovative pharmaceutical services in a hospital requires advocacy to justify the impact of the service. Piloting the service through pharmacy practice research platform provides evidence for the justification of the elaboration of new pharmaceutical services and identifies champions to lead revolutionary system changes. The aim was to pilot innovative clinical pharmacy services offered at an acute general hospital through pharmacy practice research.

Methods: Clinical services that are priority areas for the development of clinical pharmacy services within an interdisciplinary model at Mater Dei Hospital were identified in collaboration with the Department of Pharmacy at Mater Dei Hospital. The services focused on direct-patient care for in-patients as well as patient follow-up through ambulatory care clinics established in the hospital service. The research projects were undertaken as the research dissertation in partial fulfillment of the requirements for a clinical pharmacy oriented post-graduate course leading to a Doctorate in Pharmacy degree.

Results: Four priority areas namely Accident & Emergency Department, Paediatric-Adolescent Oncology, Adult Onco-Haematology and Discharge Lounge were identified for the development of clinical pharmacy services. Impact of the innovative clinical pharmacy services developed included individualized care plans, identification of drug-related needs which were accepted by the medical team and patient education on treatment.

Conclusion: The Doctorate in Pharmacy research

dissertation is driving the elaboration of clinical pharmacy services in the hospital and addressing improvements required in the current health service.

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In silico design and optimisation of phytoalexin resveratrol polyphenolic analogs for histone acetyltransferase inhibition

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Introduction: Resveratrol is a naturally occurring phytoalexin whose anti-cancerous benefits documented both through in vitro and in vivo studies have led to its recognition as a promising tumour suppressing agent. Literature suggests that its anti-neoplastic effects are related to its histone deacetylase inhibitory activity, however, the cycle of cancer is complex making it difficult to pinpoint the exact process which is responsible for tumour suppression. Therefore, this study has considered resveratrol from a different perspective, and has investigated its potential to modulate the p300-Histone Acetyl Transferase ligand binding pocket (p300-HAT_LBP), a protein which is implicated in epigenetic evolution of many epithelial and haematological malignancies.

Methods: The X-ray crystallographic deposition 4PZT describing the holo-p300_LBP bound to Acetyl-CoA was selected, and the small molecules' bound co-ordinates were used as a template for the conformational analysis of trans-resveratrol, extracted from PDB ID: 4DPN. The optimal conformer was identified and used for the design of novel analogs via the de novo and virtual screening drug design approaches. This was followed by the analysis of the molecular oral toxicities, a critical step which prevented the disposal of toxic molecules at a later stage.

Results: The molecules Chembridge_5190757 (pKD: 6.31) and IBS-STOCK1N-57915 (pKD:6.42) were chosen for further studies in molecular dynamics as a result of their predicted in vivo bioavailability and non-toxic properties (LD50>5000mg/kg).

Conclusion: This dual approach has led to the generation of molecular cohorts whose structures and affinities may be compared, and are possible suitable candidates for inclusion into molecular libraries that contain p300-HAT modulating properties.

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Methylphenidate prolonged release tablets – a drug utilisation report

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Introduction: Methylphenidate Modified Release (MR) 18mg and 36mg tablets were introduced on the Government Formulary List in October 2015. The aim of this drug utilisation report (DUR) was to analyse and monitor prescribing trends and compare actual and forecasted utilisation for methylphenidate MR 18mg and 36mg tablets between 2015 and 2017.

Methods: Directorate for Pharmaceutical Affairs (DPA) was the main focal point for gathering and processing information. DPA liaised on a regular basis

with the Pharmacy of Your Choice to gather the necessary data and prepared a monthly report to inform the Central Procurement and Supplies Unit on the trend of use of methylphenidate MR tablets using coded data.

Results: After 21 months coded data has been compiled for 370 patients. The data compiled included the number of patients, month initiated, prescribed and any change in dose. The most commonly prescribed dose was 36mg (43%), followed by 54mg (32%), 18mg (15%), 72mg (9%) and 90mg – 108mg (1%). In the initial estimates, the majority of patients were forecasted to utilise 18mg (44%), followed by 36mg (38%) and 54mg (18%). Forty eight patients were being prescribed both immediate and MR methylphenidate, whilst 80 patients were not collecting or stopped treatment.

Conclusion: Following the results obtained for the methylphenidate MR, DUR is being considered a useful tool to monitor and assess trends of use. The shift in prescribed doses for methylphenidate prolonged release tablets was expected due to dosage adjustment at approximately weekly intervals. It is being acknowledged that there were some limitations, mainly due to limited resources.

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Medication-use evaluation of enzalutamide

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Introduction: Enzalutamide was included into the Government Formulary List (GFL) in July 2017 for the treatment of Metastatic castration-resistant prostate cancer. Medication Use Evaluation (MUE) was conducted to monitor utilisation and outcomes of Enzalutamide.

Methods: MUE utilisation and outcome tool was prepared and discussed with clinicians. Institutional and ethical approvals were obtained from the Clinical Chairperson Oncology and Haematology, Data Protection Officer, Mater Dei Hospital (MDH). Utilisation data was obtained from outpatient dispensing hospitals. Outcome data was obtained from MDH's iSoft Clinical Manager Software. MRI and CT scan reports, and Prostate Specific Antigen (PSA) levels, were collected and analysed. Data was inputted into a spreadsheet based MUE tool and followed up for 12 months. Updates were regularly submitted to management.

Results: Between July 2017-June 2018, 61 patients started Enzalutamide, an average of 5 new patients per month, and using 3347 capsules per month. Eleven patients stopped treatment. Twelve patients passed away with an average Overall Survival (OS) of 4.9 months. PSA declined in 37 patients, 15 patients showed no decline and results were unavailable for 6 patients (10%). Disease progression occurred primarily in the first 3 months (18%), following by second and third quarter (both 10%) and at 12 months (2%). Two patients have been on treatment for over a year without disease progression. 25 patients had a good response to treatment, while 14 had mixed/partial response. Response for 7 patients could not be identified.

Conclusion: MUEs have been useful tool for monitoring Enzalutamide utilisation and outcomes. Enzalutamide has shown to be beneficial for the treatment of Metastatic Castration-Resistant Prostate Cancer.

P.164

Identification and optimisation of Leishmania kinase inhibitors

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Introduction: Leishmaniasis is a disease transmitted by the protozoan Leishmania. Organism survival is contingent on glycolytic processes which produce the energy essential for its survival. Inhibition of pyruvate kinase (PYK), the enzyme which mediates protozoal glycolysis is one route to protozoal life cycle termination. In vivo and in vitro studies show that suramin is a small molecule with strong PYK inhibitory properties. Its scaffold was used to model and identify novel high affinity structures with antagonist potential.

Methods: PDB deposition 3PP7 describing suramin bound to Leishmania mexicana PYK (LmPYK) was identified. The bioactive conformation of suramin was submitted as a query in a virtual screening (VS) exercise designed to identify morphologically and electronically analogous structures which also complied with Lipinski's recommendations for lead-like molecules. They were docked into a protomol, or idealised Ligand Binding Pocket (LBP) and ranked in order of affinity. A 2D topology map describing the critical contact points between suramin and the LmPYK_LBP was generated. These contact points were preserved in the modelling of fragment structures which sustained directional growth within a modelled 3D LmPYK_LBP map.

Results: The 3 highest ranked molecules identified through VS were examined structurally and their interactions within the LmPYK_LBP compared. The Lipinski Rule compliant molecules which were modelled de novo were grouped into families based on pharmacophoric similarity and ranked according to affinity.

Conclusion: Lipinski Rule compliant molecules with an affinity for PYK exceeding that of suramin were identified. The optimal structures were selected for computational and in vitro validation.

P.165

The design of novel kappa opioid receptor (K-OR) modulators using salvinorin A as a lead scaffold for the management of pain and addiction

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Introduction: Activation of κ opioid (K-OR) receptors results in antinociceptive and anticocaine-like effects. Experimental K-OR agonists typically exhibit an unacceptable adverse-effect profile that limits clinical development. Salvinorin A, isolated from *Salvia divinorum*, is the first non-alkaloid molecule that has potent K-OR agonist activity and may induce a unique response with similar antinociceptive and anticocaine addiction effects

as the classic KOP receptor agonists, with a different side effect profile. This study used the Salvinorin A scaffold to probe the K-OR ligand binding pocket and to design and identify novel K-OR modulating small molecules.

Methods: The 3-D crystallographic coordinates of the K-OR were identified bound to the small antagonist molecule JD_{Tic}, from pdb crystallographic deposition 4DJH. The optimal binding modality of Salvinorin A within the K-OR Ligand Binding Pocket was identified through conformational analysis. This scaffold was used to construct, de novo, novel high affinity K-OR ligands. It was also used in the construction of a consensus pharmacophore that was used to query the online database ZincPharmer to identify electronically and morphologically similar structures.

Results: Two molecular cohorts, were obtained. The de novo cohort was structurally restricted, while that obtained through virtual screening differed to a greater extent from the salvinorin A scaffold. The highest affinity structures that also complied with Lipinski's Rule of 5 as modified for Blood Brain Barrier penetration were identified, and proposed for molecular dynamics simulation.

Conclusion: The salvinorin A scaffold is useful for the design of high affinity K-OR modulators, which require further validation and optimisation prior to synthesis and clinical evaluation

P.166

Drug distribution practices in a long-term care facility of the elderly

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Introduction: Literature shows that the incidence of preventable adverse drug events in long-term care facilities for the elderly is higher than that in ambulatory care. Pharmacist interventions were successful in improving patient outcomes through clinical pharmacy activities and use of different types of drug distribution systems. The latter include the ward stock system, unit-dose dispensing, automated drug distribution, and bar-coding technology. The aim of the study was to evaluate perception of drug distribution at St. Vincent de Paule (SVP) long-term care facility.

Methods: Questionnaires were devised and answered by 4 pharmacists, 121 nurses, 6 pharmacy technicians and 24 doctors working at SVP, to learn about their insight on the current drug distribution system. Statistical analysis for the data generated with the questionnaires was carried out using the Chi-Square test.

Results: Quantitative data gathered shows that 51.3% of the respondents claimed to be satisfied with the current drug distribution system at SVP, with the rest indicating that there is room for improvement. The majority of all healthcare professionals agree on introducing unit-dose dispensing (70.4%), personalised packaging of patients' medications (67.1%) and extra precautionary measures to differentiate between similar drug names (81.2%). Qualitative data from the questionnaires underlined the urge to extend the current pharmacy opening hours.

Conclusion: The current drug distribution system can be improved by innovative approaches to minimise the possibility of medication errors and to improve patient accessibility to medicines. SVP pharmacists need to be empowered through higher involvement in decision-making of pharmacotherapy for better patient outcomes.

P.168

A closed cycle audit to assess consistency of axial plane imaging for magnetic resonance imaging of the brain

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Introduction: The anterior commissure - posterior commissure (AC-PC) line, has been accepted by the neuroimaging community as the reference plane for axial brain imaging. It is identified on midline sagittal images and defined as a line passing through the superior edge of the anterior commissure and the inferior edge of the posterior commissure. The importance of standardizing this imaging plane is that it allows for follow-up examinations to be accurately compared with the baseline study. The aim of this audit was to evaluate adherence to the AC-PC line as the reference plane for axial brain imaging.

Methods: Retrospective analysis of 100 consecutive MRI brain examinations performed in November 2017 was carried out. Adherence to the AC-PC line as the reference plane for axial imaging was documented. Six months following the intervention, 100 consecutive MR brain scans were again analysed.

Results: During the first cycle, out of the 100 MRI examinations, only 5 adhered to the AC-PC line. Results were presented to radiographers working at the MRI unit, and they were advised to adopt the AC-PC line as a reference plane. Six months following intervention, 64 out of 100 scans adhered to the AC-PC line.

Conclusion: This audit identified initial poor adherence to the AC-PC line. No consistent standard axial imaging plane was identified, making comparability in follow-up MRI examinations difficult. Following initial intervention, there was an improvement, with 64% adherence to this plane. The results of this audit will be presented to radiographers, with the aim of further improving adherence to the AC-PC line.

P.168

Analysis of amitriptyline and its metabolites

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Introduction: Tricyclic antidepressants have been in use for half a century and are renowned for their efficacy and pharmacoeconomic benefits. Therapeutic drug monitoring during amitriptyline therapy is recommended in 2018

neuropsychopharmacology guidance. Most analytical procedures only account for parent drug, amitriptyline, and active demethylated metabolite, nortriptyline. Determination of the hydroxylated metabolites is expedient due to their potential clinical effects, particularly cardiovascular toxicity.

Methods: A simple chromatographic procedure was developed, for simultaneous assay of amitriptyline, nortriptyline and their isomeric hydroxy-metabolites. Reversed-phase HPLC triplicate runs were carried out using Agilent 1260 Infinity Series® II liquid chromatography system with UV detection. A Kinetex® C18 LC Column at a temperature of 27°C was used as stationary phase and acetonitrile and a phosphate buffer as mobile phase. Flow rate, pH and percentage of organic modifier were adjusted to optimise separation of the six tricyclic compounds.

Results: Good chromatographic outcomes were achieved with isocratic conditions comprising of 31% acetonitrile and 69% phosphate buffer at pH5.6 as mobile phase, a flow rate of 0.5 mL/min and the detection wavelength set at 210 nm. These parameters resulted in the separation of trans-10-hydroxy nortriptyline, trans-10-hydroxy amitriptyline, cis-10-hydroxy nortriptyline, cis-10-hydroxy amitriptyline, nortriptyline and amitriptyline, eluting at 4.3, 4.7, 5.4, 6.0, 15.9 and 19.9 minutes, respectively.

Conclusion: The proposed method, including relevant sample preparation procedures, is apposite for validation in the analysis of pharmaceutical impurities and pharmacokinetic studies. Variations in metabolite-to-parent drug concentration ratios may be linked to enzyme activity, determined by genetic and environmental factors, and clinical events.

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Developing safe and effective medicinal products to treat Leber hereditary optic neuropathy. Clinical and regulatory challenges

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Introduction: Leber Hereditary Optic Neuropathy (LHON) is a rare maternally-inherited mitochondrial optic neuropathy, causing loss in visual acuity (VA). Within the European Union, one medicinal product (MP), idebenone is approved and one MP, rAAV2 has an orphan designation. The aims of this study were to understand prospective treatment protocols and to understand clinical and regulatory pathways pursued by pharmaceutical companies when developing MPs to treat LHON (MPLHON).

Methods: Methodology included the identification of MPLHON studied from 2007 to 2017, mechanism of action of MPLHON and nature of active substances. Suggestion of prospective treatment protocols was performed. Analysis of clinical development programs (CDPs) using descriptive

statistics. Identification and comparison of emerging patterns in primary endpoints was studied. Identification of regulatory pathways pursued from pharmaceutical companies and regulators was performed.

Results: Nine MPLHON are in development: 6 small molecules (cyclosporine A, cysteamine bitartrate, elamipretride, idebenone, KH176 and QPI-1007) and 3 advanced therapy MPs (rAAV2, scAAV2 and stem cells). Cyclosporine A, Elamipretride and QPI-1007 are inhibitors of apoptosis; idebenone, KH176 and cysteamine bitartrate are modulating agents; rAAV 2, scAAV 2 are fixing gene therapy agents and stem cells is a reverse-disease therapy. Comparison of CDPs shows improvements in quality of clinical trials performed through time. The most common primary endpoint studied was the improvement in VA. Idebenone was marketed under exceptional circumstances and protocol assistance was requested during the development.

Conclusion: An increased interest in MPLHON has been observed. The number of studies performed for LHON is increasing and an increased number of drugs is being explored.

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Transitional care in rheumatology

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Introduction: Rheumatology patients have their medications reviewed at the Rheumatology Clinic while the medications are dispensed from the patients' community pharmacy of their choice (POYC). The aim of the study is to improve the documentation of medication reviews for patients as they move across the hospital and the community setting.

Methods: Literature review was carried out in order to identify transitional care documents available. A draft Rheumatology Transitional Care Letter was developed and reviewed by an expert panel consisting of 2 rheumatology consultants, a rheumatology clinical pharmacist, a community pharmacist and a general practitioner.

Results: The Rheumatology Transitional Care Letter consists of three main sections: Patient's details, Pharmacist's Notes and the Consultant's Notes. The Patient's Details includes the details of the patient, the rheumatology condition and the details of the POYC community pharmacy. The Pharmacist's notes section documents comorbidities and highlights any changes in medications which were carried out during the Rheumatology Clinic visit. An updated list of current medications is included for ease of reference. Additional notes by the pharmacist can be written to the community pharmacist or the family doctor. The Consultant's notes section provides space where the Consultant can provide written instructions to healthcare providers in the community setting.

Conclusion: The panel concluded that the Rheumatology Transitional Care Letter is essential in highlighting in an effective timely manner the changes in medications ordered at the Rheumatology clinic so that these are promptly identified by the pharmacist or general

practitioner in the community setting thereby decreasing medication errors and improving service efficacy.

P.171

The mocking smile

- a case of tetanus that caught us off guard

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Introduction: Tetanus is rarely encountered in the developed world due to easy accessibility to vaccination. It is difficult to recognize in the initial phases due to its rarity and varied presentation.

Methods: We report an unusual presentation of tetanus in a 71 year-old male who exhibited transient episodes of dysphagia and painful mastication. Nasal endoscopy performed on presentation was abandoned due to poor patient tolerance. In the ensuing hours, the patient developed transient, self-resolving painful neck spasms accompanied by a sardonic smile. These spasms were initially attributed to a dental pathology resulting in a delay in diagnosis. Further physical examination 24 hours after presentation revealed a two-week old minor leg wound suffered in a field. He subsequently developed opisthotonus and life-threatening apneas.

Results: The patient was administered tetanus toxoid and immunoglobulins and started on intravenous metronidazole. He required intubation in intensive care and treatment with benzodiazepines, intravenous magnesium sulphate and intrathecal baclofen. The tetanic contractions were best controlled with serum magnesium levels >2 mmol/L and his leg wound was debrided. The patient was transferred to a rehabilitation hospital after 4 weeks of intensive care, and achieved a full recovery. Nasal endoscopy was possibly not tolerated due to reflex spasms of the masseter muscles when touching the posterior pharynx. This is a positive spatula test which is useful in diagnosing tetanus early.

Conclusion: Tetanus is a life threatening condition if diagnosis and treatment are delayed. Points of entry should be actively sought in individuals presenting with unusual head and neck complaints.

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miRNA influences in mesenchymal stem cell commitment to neuroblast lineage development

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Introduction: The important regulatory role of microRNAs (miRNAs) in differentiating stem cells into neural cells and their involvement in neural induction, differentiation and fate specification has encouraged research development in both diagnostic and therapeutic approaches. Mesenchymal Stem Cells (MSCs) are widely

used in tissue engineering and therapeutic applications and their plasticity and predisposition to differentiate into cells of the neuronal lineage are ideal to study whether a selection of miRNAs may direct the differentiation of MSCs into neuroblasts or further down the neuronal cell lineage.

Methods: MSCs differentiated into cells of the neural lineage (Conditioned Cells) upon addition of medium obtained from cultured SH-SY5Y neuroblast cells and rich in microvesicles containing miRNAs. Characterisation of stemness and neural markers preceded transfection of selected miRNA antagonists or mimics, providing insight regarding the neuronal state of each cell type.

Results: Transfection of MSCs with miRNA inhibitors or mimics showed that on their own, these miRNAs were not sufficient to induce differentiation. The marginal changes in the miRNA targets observed in transfected Conditioned Cells show potential for the modulation of intermediate neural progenitors and immature neuron cell types. Transfections of combination of miRNA inhibitors or mimics showed more promise although the change was not as large as expected, possibly due to miRNAs having multiple targets acting against each other.

Conclusion: Undoubtedly components are being released by the SH-SY5Y in culture that induce MSCs to differentiate. Screening to identify more of the miRNA components will allow further combinatorial testing to elucidate the role of miRNA modulation.

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An analysis of patients taking desmopressin treatment in Malta

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Introduction: Desmopressin treatment is prescribed for multiple pathologies. This retrospective study analyzed the population administering ddAVP treatment locally.

Methods: Forty-one subjects administering ddAVP via nasal or oral routes were retrospectively identified from the pharmacy registry. Data was gathered from iSoft clinical manager, discharge letters, patient notes and pharmacy registry.

Results: Data was collected from 41 participants, having a male-to-female ratio 1.6:1. Treatment given in view of acquired conditions accounted for 41.4% of cases, of which 82.4% required treatment secondary to neoplasms and 5.9% due to acquired head injury. Whilst 48.8% required treatment in view of nocturnal enuresis, 2.4% for empty sella syndrome and 4.9% were idiopathic causes. In 4.9% of participants the indication for ddAVP was not documented. Locally, the oral formulation accounted for 70.2% vs 16.2% nasal spray formulation. Both formulations were utilized in 13.5% of cases. The start date of treatment was documented in 73.2% of cases, with only 17.1% having documented stop date and 29.2% of cases still on treatment. In 51.2% of cases no investigations prior to treatment were taken. Abnormal serum sodium levels were observed in 12.1% of patients admitted to hospital. From which, only 5% of patient were

admitted due to hyponatremia. Furthermore, one patient was admitted due to accidental overdose, having normal serum sodium throughout the admission.

Conclusion: From this audit, it was concluded that although desmopressin treatment is commonly associated with Central Diabetes Insipidus, it only accounted for 44% of cases. Recommendations acquired from this audit include better documentation of indication for treatment development of a basic protocol of investigations advised prior to initiating desmopressin treatment.

P.174

A novel way of diagnosing cranial diabetes insipidus

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Introduction: The main pathology in cranial diabetes insipidus (DI) is a deficiency of arginine vasopressin (AVP). Diagnosing DI can be challenging. Conventional methods used to make a diagnosis include biochemical analysis and water deprivation test. Serum AVP measurement is challenging to measure in clinical practice, however copeptin - the c-terminal segment of the AVP precursor peptide - has emerged to be a stable and easily measured surrogate marker of AVP release.

Results: We report a case of isolated cranial DI presenting in an otherwise healthy 61 year old Caucasian female. The patient presented with a two month history of polyuria and polydipsia of up to six liters per day. She had history of hypertension, controlled with valsartan and bendrofluthiazide - which she stopped of her own accord upon noticing an increased urine output. Of note, no history of cranial irradiation, trauma or surgery was provided. Initial investigations revealed elevated serum sodium, uric acid and osmolality. For this reason, the patient was admitted for measurement of urine output and concomitant biochemical analysis. A serum copeptin level was also drawn which measured at 1.5pmol/L, which when taken in context with her serum osmolality was abnormally low favoring a diagnosis of cranial DI. A subsequent MRI of the sellar area and a pituitary hormone profile were performed both of which were unremarkable. On prescribing desmopressin nasal spray, her urine output and thirst improved drastically, favoring a diagnosis of idiopathic cranial DI.

Conclusion: The differential diagnosis of polyuria and polydipsia is varied and can be challenging to make. Measuring serum copeptin is an easier and a more efficient method of diagnosing cranial DI as opposed to the water deprivation.

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Radioactive iodine therapy for thyrotoxicosis - an observational analysis of a Maltese cohort

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Introduction: Radioactive iodine therapy (RAIT) constitutes a commonly used definitive treatment for hyperthyroidism.

Methods: We carried out an observational study of patients receiving RAIT at the Oncology Centre between 2010 and 2018. Demographic and relevant clinical data (diagnosis, baseline free T4 and T3, RAIT dose, number of RAIT doses, anti-thyroid pharmacological treatment, cure at 3, 6 and 12 months post RAIT) were collected. Categorical variables were expressed as counts and percentages. Numerical variables were expressed as mean (SD). Binary logistic regression analysis was used to identify predictors of response to RAIT. SPSS 24.0 was used for statistical analyses. Statistical significance was defined by a two-sided p value < 0.05.

Results: One hundred and eighty-eight patients (52 males and 136 females) were analysed. Mean (SD) age at first RAIT dose was 52.94 (14.6) years. Most patients undergoing RAIT suffered from Graves hyperthyroidism (114 patients [61%]). Mean (SD) thyroxine (T4) and triiodothyronine (T3) levels at diagnosis were 35.42 (15.44) pmol/L and 12.21 (5.29) pmol/L respectively. 179 patients (95.2%) received only one RAIT dose; 9 patients (4.9%) received a second RAIT dose. The vast majority (96.8%) of patients received a dose of 10 mCi. 85.9% achieved cure (defined as euthyroidism or hypothyroidism) within three months of initial treatment dose; this proportion increased to 95.6% at 12 months. Baseline age, free T4 and free T3 at diagnosis and RAIT dose did not predict cure at 12 months on univariate logistic regression analysis.

Conclusion: Locally, RAIT is mostly used in the setting of Graves hyperthyroidism. The majority achieve cure within twelve months.

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An atypical presentation of primary hyperparathyroidism

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Introduction: Acute pancreatitis caused by hypercalcaemia is a known but infrequent condition. Primary Hyperparathyroidism (PHPT) is the most common cause for hypercalcaemia. This condition can occur at any age, but most cases occur in subjects over the age of 45 years with a female predominance of 2:1. We present a case of pancreatitis which helped in diagnosing an otherwise clinically silent parathyroid adenoma.

Methods: A 64-year-old lady was admitted to hospital with a 3-day history of jaundice, pruritus and dark-coloured urine.

Results: CT pancreas showed a suspected lesion in the pancreatic head and MRI was suggestive of recent pancreatitis. Initial blood biochemistry showed hypercalcaemia, corrected serum calcium 3.07mmol/l (2.05-2.6), low serum phosphate 0.62mmol/l (0.87-1.45) and elevated serum amylase 449U/l (40-140). Renal function was normal. Parathyroid hormone level was elevated 143pg/ml (15-65), compatible with primary hyperparathyroidism. A parathyroid radio-isotope scan reported a focus of increased tracer uptake at the lower pole of the right thyroid lobe, suggestive of a parathyroid adenoma. Hypercalcaemia was initially treated with intravenous fluids followed by calcitonin in view of dental pathology, with improvement in serum calcium levels. Following dental intervention, intravenous pamidronate was administered for recurrence of hypercalcaemia. An elective right lower parathyroidectomy was performed 9 days after patient discharge. Histology confirmed a parathyroid adenoma.

Conclusion: We postulate that in this case, pancreatitis might have been precipitated by hypercalcaemia secondary to primary hyperparathyroidism, which helped in diagnosing an otherwise clinically silent parathyroid adenoma. It is important to check serum calcium in cases of pancreatitis and to consider pancreatitis in PHPT patients who present with abdominal symptoms.

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Are diabetics on long-term haemodialysis being followed-up in eye specialist and diabetic clinics? The results of a local retrospective study

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Introduction: The Joint British Diabetes Societies for Inpatient Care guidelines recommend that diabetics on haemodialysis have eye screening done at least annually. Regular access to diabetes specialist nurses is recommended. Specialist diabetes input is suggested in patients with "acute and/or chronic glycemic instability". Eye and diabetes specialist input is not routinely offered within Mater Dei Hospital's Renal Unit. This is provided through out-patient clinics.

Methods: All patients undergoing haemodialysis during one week in June 2018 and who had been on haemodialysis for at least one year were recruited. Diabetic patients were identified and their attendance at ophthalmic and diabetes clinics during the previous year was audited. Demographics and antiglycemic treatment were documented. Data was analysed using Statistical Package for the Social Science (SPSS) software.

Results: One hundred and twenty-eight patients were undergoing haemodialysis for at least one year and 47 were diabetic. Seventeen (36.2%) were seen by diabetes specialists and/or diabetes education nurses on an out-patient basis in a state-funded hospital and/or health centre during the previous year. 27 (57.4%) patients were

seen by an eye specialist. It was significantly more likely for patients to attend eye specialist clinics when they were also seen in diabetic clinics (p -value=0.014). Age, gender and insulin treatment did not influence attendance to these clinics.

Conclusion: The attendance of diabetic haemodialysis patients to diabetic and ophthalmic clinics is poor. Patients attending diabetic clinics are more likely to see an eye specialist, therefore ensuring better patient care. Expanding diabetes and ophthalmic services into the renal unit may be beneficial.

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Hospital admissions for urinary tract infection in the first year post kidney transplantation

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Introduction: Urinary tract infection (UTI) is the most common infectious complication after kidney transplantation (KT). Aim: To describe the local incidence and characteristics of UTIs leading to emergency hospital admission in the first year after KT.

Methods: A retrospective review of adults receiving a kidney transplant in Mater Dei Hospital, Malta from January 2008 to December 2016 was performed. Recipients with primary non-function and transplants performed overseas were excluded. Patients with a functioning allograft admitted with UTI during the first posttransplant year were identified.

Results: One hundred and fourteen recipients were included with 1 patient receiving 2 allografts during the study period. 63.5% ($n=73$) were male; 76.5% ($n=88$) and 23.5% ($n=27$) received a deceased and living donor allograft respectively. Median age at transplantation was 51 years (IQR=21). Eight lost their allograft in the first year (including 3 deaths with functioning graft). There were 42 admissions secondary to UTIs occurring in 28 patients in the first-year post KT (cumulative incidence 24.3%). 76.2% ($n=32$) of UTIs occurred in the first 6 months. Microbiological isolation was obtained in 88.1% ($n=37$). The most common organisms were *Klebsiella pneumoniae* (38.1%, $n=16$) and *Escherichia coli* (31.0%, $n=13$). These included *Klebsiella pneumoniae* carbapenemase-producing bacteria ($n=6$) and extended-spectrum beta-lactamases-producing strains ($n=5$). 16.7% of UTIs were associated with bacteremia.

Conclusion: UTIs are common especially in the first 6 months when immunosuppression burden is high. Minimising duration of indwelling urethral catheters and stents, adequate glycaemic control and use of prophylactic antibiotic treatment can all contribute to minimisation of UTIs. Screening for urinary tract infections at outpatient visits is advised.

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A retrospective study investigating contrast-induced nephropathy at Mater Dei Hospital, Malta

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Introduction: Iodinated contrast media are associated with a small but important risk of contrast induced nephropathy (CIN). The National Institute for Clinical Excellence (NICE) recommends assessment of kidney function (a) within 3 months prior to administration of contrast in elective patients and (b) within 72 hrs after administration of iodinated contrast media in patients at risk of acute kidney injury (NICE CG 169, 2013). This is a retrospective audit performed on Computer Tomography (CT) angiography scans, against NICE guidelines.

Methods: A total number of 610 Computed tomography angiography (CTA) scans, performed between 1st January 2017 and 31st December 2017, were identified through the hospital Radiology Information System (RIS). Blood tests for patients who underwent these examinations were manually retrieved from Isoft. Renal function, including estimated glomerular filtration rate (eGFR) and serum creatinine values were recorded both before (at least 3 months) and after CTA (within 72 hours for patients at risk); whenever the data was available. According to the mentioned guidelines, high risk patients include: Chronic kidney disease (eGFR less than 40ml/min/1.73m²) Diabetes Heart failure Renal transplant Age >75 Hypovolaemia Volume of contrast Intra arterial administration Since patient's files were not reviewed, only patients with age above 75 and pre-existing renal disease were considered (eGFR<40ml/min).

Results: Four hundred and twenty-one (69%) patients were male and 189 (31%) female. The average age for both males and females was 64.7, with ages ranging from 18.7 to 95.4. Of these, 43 patients had an eGFR of less than 40 whilst 154 patients were above 75 years of age. (a) Assessment of renal function prior to contrast administration: 510 out of 610 (83.6%) patients had renal function assessed within 3 months prior to contrast. Four out of 610 patients did not have renal function prior to contrast administration at all. All patients with an eGFR of <40 had renal function assessed prior to contrast at some point. 41 (95.35%) of these were taken within 3 months, whilst 2 were taken more than 3 months prior contrast. All patients above 75 years of age had renal function assessed prior to contrast administration at some point. 134 (87.01%) of these were taken within 3 months prior whilst 20 taken more than 3 months prior CT. (b) Assessment of renal function post contrast administration: 109 out of 610 (82.13%) patients did not have renal function post contrast administration. 75 patients (48.70%) >75 yrs had renal function taken within 72 hrs. 29 patients (67.34%) with pre-contrast eGFR <40 had renal function assessed within 72hrs.

Conclusion: 84% of patients receiving contrast for CT angiography had an eGFR assessment within 3 months prior to contrast administration. There is ample room for

improvement regarding follow up of patients at high risk of CIN within 72hrs of contrast administration.

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Insulin pump therapy - a pharmaco-economic analysis

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Introduction: Objective: A pharmaco-economic analysis of Insulin Pump Therapy (IPT).

Methods: An extensive literature review of pharmaco-economic studies concerning IPT was carried out. Cost comparison for IPT compared to MDI was carried out. Guidelines for pharmacists and patients were prepared and validated using the AGREE2 and PEMAT tools respectively. A consultant endocrinologist and paediatric endocrinologist were interviewed.

Results: Literature review shows benefit of IPT versus conventional therapy. Cost comparison shows the considerable expense of IPT. Pharmacist guidelines was graded in different domains and recommendations will be carried out. Patient guideline was not validated due to lack of response of T1DM patients.

Conclusion: Despite the extra cost, IPT offers a better Quality of Life to T1DM patients. However, it has to be reserved for patients who suffer frequent moderate to severe episodes of hypoglycaemia. Study can be used as a guide to introduce therapy in Malta. **Key words:** Cost, cost-effectiveness, quality of life.

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Latent autoimmune diabetes in adults masquerading as gestational and type 2 diabetes in a young caucasian female

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Introduction: Latent Onset of Autoimmune Diabetes in Adults (LADA) is a special form of diabetes in which there is a gradual progression of autoimmune β -cell failure. Over the years, the definition and characteristics of LADA have been contested and poorly defined, leading to impaired recognition and often misdiagnosis as type 2 diabetes. In this case report we describe a 28-year-old Caucasian woman with a history of coeliac disease and sub-clinical hypothyroidism who was referred to diabetes outpatients for optimization of glycaemic control prior to attempts at a second pregnancy. She had been diagnosed with gestational diabetes during her first pregnancy the previous year. However after a positive oral glucose tolerance test 6 weeks post-delivery, the patient was diagnosed with type 2 diabetes. Despite management with Metformin 500mg TDS, the patient was having episodes of hyperglycaemia and increments in dose were required. Clinically, she had

a normal body mass index and no features of metabolic syndrome. In view of her presentation, strong autoimmune background and phenotypic characteristics the patient was screened for LADA.

Results: The patient was found to be positive for glutamic acid decarboxylase 65 autoantibodies (GAD65) antibodies and diagnosis of LADA was made. To date, the patient is still being regularly followed up, and is yet to require insulin therapy.

Conclusion: Appropriate and early diagnosis of LADA is important so as to prevent misdiagnosis these patients as type 2 diabetes. Proper diagnosis would help in optimum treatment so that residual β -cell function is preserved and the further autoimmune destruction of β -cells is delayed.

P.182

In silico design and optimisation of novel human glucocorticoid receptor modulators

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Introduction: The glucocorticoid receptor (GR) mediates effects in response to the endogenous secretion of corticosteroids. It is a target for pharmacotherapy that manages chronic inflammatory and malignant disease. Steroidal molecules are associated with an unacceptable adverse effect profile, which makes the quest for the design of non-steroidal selective glucocorticoid receptor modulators particularly significant.

Methods: PDB crystallographic deposition 4MD1 describing the bound coordinates of the GR and the bound experimental non steroidal ligand 29M was identified and designated as template. Its bioactive co-ordinates were extracted from the GR Ligand Binding Pocket (LBP). A 2D topology map was modelled and the stabilising interactions between the small molecule and the receptor identified. This guided the design of 7 seed fragments which were planted into, and allowed to grow de novo, within a 3D GR_LBP map. The bioactive 29M conformer was also used to query the ViCi small molecule database, and the resultant hit molecules were read into a modelled protomol representing the energetically unsatisfied GR_LBP core.

Results: The de novo approach yielded 200 Lipinski rule compliant molecules from each seed fragment which were grouped according to pharmacophoric similarity and ranked in order of affinity. 134 lead like molecules were obtained through Virtual Screening, and were ranked in order of affinity for the protomol.

Conclusion: The optimal structures obtained from each approach were identified in terms of a combination of affinity and physicochemical characteristics. Their interactions within the GR_LBP were computationally compared, and the molecules were proposed for further in silico and in vitro validation.

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Variegate porphyria triggered by acute hepatitis A infection: the first reported case

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Introduction: Variegate porphyria (VP) is a rare inherited disorder of haem biosynthesis which can present with neurovisceral and cutaneous symptoms. To date, association with hepatitis A infection has not been reported.

Methods: A 31-year old gentleman of Scandinavian descent with a history of human immunodeficiency virus seropositivity, whose therapy over the past year included abacavir, lamivudine and raltegravir, presented with epigastric pain, nausea, vomiting and fever. The diagnosis of hepatitis A was made on the basis of an acute transaminitis and positive hepatitis A IgM. During recovery the patient developed non-specific abdominal pain and a blistering eruption on the scalp, face, neck and dorsal hands with background erythema. The eruption was pruritic and photoaggravated. His urine tested markedly positive for porphobilinogen and delta-aminolevulinic acid. Chromatography displayed a raised urinary coproporphyrin III isomer level with an increased uroporphyrin-to-heptacarboxylate porphyrin ratio, suggesting an acute cutaneous porphyria rather than the more prevalent porphyria cutanea tarda. Protoporphyrin was markedly increased on faecal chromatography and a characteristic peak emission maximum at 629 nm was evident on plasma fluorescence scanning. These findings clinched a biochemical diagnosis of VP.

Conclusion: The patient's clinical presentation suggests latent VP with a partial deficiency of the enzyme protoporphyrinogen oxidase. Overt VP was induced following acute hepatitis A infection and the metabolic stress this caused on the biosynthetic haem pathway. The association of hepatitis A infection with VP has not been reported previously and to our knowledge, this is the first case of VP in the Maltese Islands.

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Thymolipoma associated with myasthenia gravis: a case report

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Introduction: We are describing a case of 44-year-old, previously healthy, man who presented with general muscular fatigue, which was more prominent in his arms but also affected his legs, with difficulty climbing stairs and standing for any length of time. The patient later complained of difficulty with chewing and swallowing. Eventually, a diagnosis of myasthenia gravis was made. Initially all his symptoms improved significantly with pyridostigmine where eventually he was prescribed prednisolone and azathioprine. A computed tomographic

(CT) scan of the thorax revealed normal mediastinal contours with no obvious tumour in the thymus. A thymectomy was performed via an upper mini-sternotomy incision extending through the right third intercostal space. A fleshy encapsulated thymic gland was totally excised. Further improvement was reported by the patient, particularly with chewing and swallowing. This is an uncommon tumour and its association with myasthenia gravis is exceptionally rare. To our knowledge, less than thirty cases have been documented in the world literature.

Methods: Representative sections from the tumour were taken and examined with haematoxylin and eosin (H&E). All sections were examined using a light microscope.

Results: The pathological diagnosis made on H&E was thymolipoma.

Conclusion: As part of the workup for myasthenia gravis, axial radiography of the chest is important to exclude thymic pathology, usually thymoma. Thymolipomata are benign tumours and usually asymptomatic. Their association with myasthenia gravis is what makes them extremely rare.

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Sensitivity of the prothrombin time and activated partial thromboplastin time to fibrinogen deficiency

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Introduction: Fibrinogen deficiency should result in prolongation of the prothrombin time (PT) and activated partial thromboplastin time (aPTT). In our coagulation laboratory a Clauss assay of fibrinogen is not routinely included with each coagulation screen but is performed when investigating prolonged PT and/or aPTT. The purpose of our study is to assess the sensitivity of our PT and aPTT reagents to fibrinogen deficiency.

Methods: Results of Clauss fibrinogen assays performed by our coagulation laboratory in the period between January 2016 and June 2018 were collected. We only included samples where the fibrinogen assay was performed in conjunction with PT, aPTT or both. All assays were performed on an ACL TOP 500 analyser (Instrumentation Laboratory) with the following reagents: Recombiplastin 2G (PT), SynthASil (aPTT) and Q.F.A. bovine thrombin (Clauss fibrinogen). Reference ranges are as follows: PT (9.2-11.8s), aPTT (24.8-35s) and fibrinogen (2.0-3.93g/L).

Results: There were 1,193 fibrinogen assays identified during the study period. A low fibrinogen concentration (range: 0.34-1.99g/L) was present in 162 samples (13.6%). There were 134 samples with a concomitant aPTT and this was prolonged in 42 cases (31.3%). In the 154 samples with a concomitant PT, this was prolonged in 128 cases (83.1%). There was however no correlation between fibrinogen concentration and either aPTT (Pearson R -0.004, P=0.961) or PT (Pearson R -0.076, P=0.35).

Conclusion: Assessment of the sensitivity of PT and aPTT reagents to low fibrinogen levels is essential. This study shows that our PT and aPTT reagents are insensitive

to fibrinogen deficiency. A fibrinogen assay should be included as part of the routine coagulation screen since it can identify patients with unexplained bleeding despite a normal PT and aPTT.

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Adrenal gland involvement by peripheral T-cell lymphoma

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Introduction: T-cell lymphoma of the adrenal gland is a rare diagnosis associated with a poor prognostic outcome. A 67 year old gentleman, with a history of chronic alcoholism, presented to Mater Dei Hospital in view of a two week history of weight loss, epigastric pain, anorexia and fever. Serological examination showed anaemia and acute renal failure. Computed tomographic assessment showed bilateral adrenal masses and splenomegaly. Biopsy of the adrenal mass revealed a partly necrotic tumour comprised of neoplastic lymphocytes with prominent nucleoli. The neoplastic lymphocytes strongly expressed CD3, CD5 and bcl-2 but failed to express B-cell markers. A high proliferative index was noted. These findings were in keeping with a high grade peripheral T-cell lymphoma. A subsequent PET scan showed uptake in both adrenals together with an aorto-caval lymph node. The patient was started on CHOP chemotherapy however, developed carbapenemase-producing *K. pneumoniae* septicaemia shortly after the first cycle and succumbed to his illness.

Conclusion: Involvement of the adrenal glands by lymphoma is exceptionally rare but has been described for both Hodgkin and non-Hodgkin lymphoma, being commoner with non-Hodgkin lymphoma. Involvement by B-cell lymphoid neoplasms is far commoner than T-cell lymphomatous involvement, the latter having only been described rarely in the literature. While involvement of both adrenal glands is typically seen, unilateral disease has been described. Clinically, adrenocortical insufficiency is uncommon and typically occurs with high grade tumours. Lymphomatous involvement of the adrenals is typically a harbinger of an aggressive clinical course and carries a poor prognostic outcome, as illustrated in this case.

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Change from Rh (D) negative to Rh (D) positive phenotype in a patient with chronic myeloid leukaemia

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Introduction: We report a case of a 69 year old male patient whose Rh (D) phenotype changed from Rh (D) positive to Rh (D) negative. In June 2018 the patient was admitted to hospital for a routine pre-operative assessment where a blood sample was submitted for blood grouping and antibody screen. On this occasion, the patients' red cells were typed as strongly Rh (D) positive (4/3+). The patient's Hospital Blood Bank records date back to April

2013 where the result on repeated sampling was Rh (D) negative. During that time the patient was treated with Imatinib for Chronic Myeloid Leukaemia (CML) and since then he has been on treatment and remained in molecular remission to this day. No blood group records are available prior 2013. Following this, repeat testing on the latest sample and on a freshly collected sample was performed to confirm the Rh (D) status with both the conventional test tube technique (CTT) and the column agglutination technique (CAT). Furthermore Rh (D) phenotyping was performed on 2 additional samples collected on different occasions between June and July 2018; these results showed the patient to be positive for the Rh (D) antigen. In view of this discrepancy, Rh (D) negative blood was issued and transfused.

Conclusion: Rh antigens are generally considered to be stable, but abnormal expression of some Rh antigens, notably Rh (D) has occasionally been observed in patients with certain myeloproliferative disorders including CML. To study the underlying cause of change in Rh (D) typing, PCR based assays and sequencing needs to be carried out which can help to explain the molecular mechanism causing the change from Rh (D) positive to Rh (D) negative.

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A case of extra-neural metastases from medulloblastoma

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Introduction: Medulloblastoma is a highly aggressive tumour of the cerebellum, accounting for 1% of primary brain tumours in adults. Medulloblastoma typically invades along the neural axis. Extra-neural (systemic) metastases are uncommon, arising in around 5% of the subset population. Numerous case series have noted a correlation for peritoneal deposits and the presence of a shunt.

Conclusion: We report of a 36 year-old male, who was diagnosed with a central nervous system medulloblastoma following investigation of cervical discomfort with associated recurrent vomiting. In view of obstructive hydrocephalus, a right frontal ventriculo-peritoneal (VP) shunt was inserted. Maximal cyto-reductive surgery was performed. There was no residual cranio-spinal disease on post-operative imaging. Our patient declined adjuvant radiotherapy, and experienced localised relapse ten months down the line. He underwent repeat debulking and received adjuvant cranio-spinal irradiation. Interval imaging over the next 12 months showed a stable, residual left cerebellar lesion. After a 30-month interval, he presented with a history of periumbilical discomfort radiating to mid back, associated with bloating, reduced appetite and worsening constipation. An axial, contrast-enhanced computed tomography (CT) scan of the abdomen showed an enhancing soft tissue mass immediately posterior to the right liver lobe in keeping with peritoneal deposits.

Ultrasound guided biopsy of the para-hepatic lesion was undertaken. Histological findings were consistent with medulloblastoma with myogenic and rhabdomyoblastic differentiation. Radiological and histological findings in this case are in keeping with evidence of extra-neural metastases from a medulloblastoma, possibly aided by the presence of a VP shunt.

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Portal vein thrombosis with pyelophlebitis presenting as post-operative pyrexia; a case report

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Introduction: Portal vein thrombosis (PVT) has a prevalence of 3.7 per 100,000 inhabitants, however it is a relatively common complication in patients with liver cirrhosis and is thus mostly suspected in these patients.

Methods: Case Presentation: A 79 year old female, non-alcohol user, with no previous medical history presented due to a mechanical fall for which she underwent open-reduction & internal-fixation of her right ankle. Two days post-op she spiked a fever of 38.5°C and had a significant rise in CRP. Systemic enquiry and initial investigations were unremarkable except for a white cell count of 500 on urinalysis. It emerged that the patient had returned from Thailand two months previous to admission and had experienced a fever a month previous to admission – she was found to have a urinary tract infection for which she was treated. During this admission, investigations for pyrexia in returning travellers were taken – these were negative. Ultrasound abdomen & pelvis showed hepatic steatosis. Day four post-op, the patient was found to be in fast atrial fibrillation for which she was anticoagulated and started on Atenolol. A CT Trunk was performed – this showed PVT with pyelophlebitis and diverticulosis. Ceftriaxone and Metronidazole were started on which the patient remained afebrile and then discharged. Follow-up MRI showed PVT, however no abscesses, solid lesions or signs of cirrhosis were noted.

Conclusion: This case primarily highlights the importance of imaging in diagnosing a cause for pyrexia, and secondly, that uncommon diseases may present in individuals with low risk and may have non-specific symptomatology.

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The forgotten autoimmune liver entity: a rare case of autoimmune cholangitis

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Introduction: A 39-year-old lady, known case of type 1 diabetes mellitus, presented with a three week history of painless jaundice and pruritus. No personal or family

history of liver disease was present. She was on regular Insulin. She denied alcohol or drug abuse. On general physical examination, icterus was present and the liver was palpable four fingerbreadths below the costal margin.

Methods: Liver function tests (LFTs) showed an alkaline phosphatase and gamma-glutamyl transferase twenty times the upper limit of normal (ULN). Bilirubin was ten times the ULN and alanine aminotransferase three times the ULN. C-Reactive protein (CRP) was raised. Infective, metabolic and congenital tests were normal. Autoimmune screen revealed an anti-nuclear antibody test which was positive 1/320 and raised Immunoglobulin M antibody. Magnetic resonance imaging of the liver failed to show biliary dilatation and an obstructive cause, but revealed periportal T2 hyperintensity around the intrahepatic portal venous system with restricted diffusion throughout the liver and periportal and portacaval low volume lymphadenopathy, indicating an autoimmune pathology. Liver biopsy findings were consistent with obstructive cholangitis and bilirubinostasis with underlying fibrosis and no features of autoimmune hepatitis.

Results: As LFTs continued to deteriorate, she was started on ursodeoxycholic acid, to no effect. A presumed diagnosis of autoimmune cholangitis was made and she was started on prednisolone therapy, with significant improvement in her LFTs and CRP. Azathioprine was introduced with slow tailing of her steroids.

Conclusion: Autoimmune cholangitis is a rare chronic autoimmune liver disorder characterized by mixed hepatocellular and cholestatic findings with good response to immunosuppression.

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Fractionation and identification of polyphenolics in a food supplement Perilla extract for modulating inflammatory responses

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Introduction: Oxidative stress has been shown to play a role in the a variety of human conditions. One of the major transcription factors involved in the cellular defence against oxidative stress is nuclear factor erythroid 2-related factor 2 (Nrf2). This binds to a specific motif on the promoter of phase II antioxidant enzymes called the antioxidant response element (ARE). Intake of Perilla leaves is known to protect against inflammatory and redox stress. The aim of this study is to determine the major active components.

Methods: From the whole Perilla extract, a methanol-soluble fraction, an ethyl acetate-soluble fraction, and the aqueous remnant were obtained and analysed by HPLC. Cells were transiently transfected with a custom-designed human NQO1 ARE-luciferase construct using magnetofection 24 hours before the addition of different concentrations of the Perilla whole extract or fractions. Dual luciferase assay (Promega) was then performed after 48 hours incubation. Western blotting was performed in parallel to quantify the protein changes.

Results: The MTS assays showed no toxic effect of the aqueous solution of the Perilla extract on the cells up to 1000 µg/mL. Both the methanolic and ethyl acetate fractions induced the human NQO1 ARE-luciferase reporter more than raw extract, however the methanolic fraction was found to produce a far higher induction of Nrf2 in cultured cells and the highest cytoprotective effect following redox insults using an NRF2-ARE luciferase reporter assay.

Conclusion: Following these promising results, further analysis of the extract by LC-MS and determination of the physiologically active concentration range are currently underway.

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Xeno-free plasma and platelet lysate supplementation of stem cell cultures for therapeutic applications

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Introduction: A fundamental principle of research for therapeutic application is the importance of using xeno-free products. Both commercial and academic centres rely heavily on the use of commercial sera, such as Foetal Bovine Serum, despite the well-known fact that animal-derived sera are not well-defined and induce early-stage cell differentiation. Human-derived products are a viable option but defining concentration ranges and dealing with the clotting factors in plasma, which in the presence of calcium-containing medium induce gelling, has not been dealt with quantitatively.

Methods: Human plasma and platelets, were re-processed for research and used as a replacement for animal-derived serum supplementation and as a source of growth factors respectively over a range of concentrations. Human plasma was prevented from clotting in a variety of ways. For the preparation of platelet lysate, the most common preparation method, which is through a series of freeze-thaw cycles was compared to a mechanical homogenisation method. The effectiveness of each preparation was measured through the proliferation rate of cultured cells.

Results: To prevent gelling of the plasma, addition of calcium chloride before aliquotting was selected over depletion of factors from plasma (as it negatively affected the rate of proliferation and survival of the cells in culture), or addition of heparin (since recombinant heparin is rarely used). The use of mechanical disruption drastically reduced the preparation time while generating a higher yield in terms of total proteins and growth factors.

Conclusion: Numerous different methods of preparing media supplemented with human plasma and platelet lysates have been optimised for specific cell types.

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Investigation of xeno-free 3D cell culture systems utilising fibrin clots for therapeutic applications

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Introduction: Three-dimensional (3D) cell culture systems are designed to produce a reliable representation of the cellular microenvironment in tissues, which provides a more accurate physiological representation than traditional two-dimensional cell cultures. The main issue with most 3D culture systems is that the matrix is of animal origin, making them inadequate for therapeutic applications. On the contrary, fibrin clots from human plasma only require the addition of calcium, making them completely xeno-free, and a much closer physiological model.

Methods: Three crucial factors, important when considering the use of fibrin clots for 3D cell culture: matrix density, setting time and matrix dissolution for cell recovery were investigated together with numerous biochemical quantifications in order to determine the optimal parameters for preparing a range of replicable fibrin clots for sustaining 3D stem cell and cancer spheroid cultures.

Results: Results showed that low-density clots could not support the cells, while high-density clots increased the shear force on the expanding spheroids, altering the shape as well as necessitating the use of more aggressive clot-dissolving measures, leading to the damage and loss of cells. Clotting time determined the rate at which the clot formed, with a prolonged clotting time failing to keep cells suspended in the clot and subsequently spheroids attached to the bottom of the flask. Cell recovery from the clot was the most challenging of the three factors, due to the impact that dissolving this clot had on the embedded cells.

Conclusion: By modulating these three variables of the clot, the size and shape of spheroids was optimised.

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The walking dead: what zombies tell us about the dehumanisation of people with dementia

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Introduction: There are uncanny parallels between the popular depiction of zombies in popular culture and how dementia is perceived as both a personal tragedy and a threat to societies and services.

Methods: The presentation looks at the zombie stereotype and shows how people with dementia are often depicted in similar ways.

Results: The presenter will argue that the effects of such depictions are to make people feel that death is preferable to living with dementia. The treatment of people with dementia is more likely to be inadequate others think that person is just an empty shell. Even more worryingly that there are suggestions that people with dementia should be euthanized.

Conclusion: Doctors should be aware of such risks and understand, and counter stigmatization of the condition and be vigilant to overt and covert discrimination against people with dementia.

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The 1837 cholera epidemic in Malta

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Introduction: Epidemic cholera reached Europe for the first time at the beginning of the nineteenth century. After devastating countries all over Europe, it reached Malta in June 1837 finding a poor and destitute population that was too fragile to withstand its onslaught. It attacked the old and weak inmates of the Ospizio and then spread to every corner of the archipelago. The Government, belatedly appointed Committees of Health to deal with the epidemic and cholera hospitals were opened in the cities and villages, directives issued and health workers and priests mobilized. The malady wreaked havoc for 3 months attacking 8785 and killing 4252. Many Maltese doctors feared contagion and would not attend the cholera hospital but others and a few British forces doctors did not believe it was contagious and cared for the sick and the dying. Parish priests did their best for their parishioners and the monks contributed immensely to the spiritual needs of the dying. The population at large was in terror; brother shunned brother, mothers abandoned their sick children and sons and daughters stayed away from their sick parents. Amid this horror there were bold kind persons who took care of the sick and the dying.

Conclusion: This presentation considers the relations and conflicts amongst people; the Government, the people, the doctors and the churchmen. Many people were very poor, deeply religious and uneducated; few were better off but all had to face the destructing calamity. Their behaviour varied from fear to fatalism, abandonment to the urge for survival.

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A case of Sjögren's syndrome with rare extraglandular manifestations

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Introduction: Sjögren's syndrome (SS) is a chronic autoimmune disorder that typically affects the salivary and lacrimal glands however there may be manifestations of the disease beyond these exocrine glands demonstrating its potentially systemic nature. Clinically silent cardiac changes in SS have been reported but obvious cardiac involvement is rare with only a few cases reported in the literature. Renal involvement in SS is usually associated with a tubulointerstitial nephritis and only rarely with an immune complex glomerulonephritis. We report a case of a 37 year-old female with SS who developed worsening generalized oedema, palpable purpura, arthralgias and

dyspnoea. Laboratory investigations were significant for a positive anti-nuclear antibody (1/1000), Anti-SSA antibody (7.3), and Anti-SSB antibody (7.0). Also noteworthy was an abnormal erythrocyte sedimentation rate (53 mm 1st hr), NT-proBNP (2424 pg/ml) and estimated glomerular filtration rate (53 mls/min/1.73m²). A skin biopsy of the purpuric lesions demonstrated leukocytoclastic vasculitis. An echocardiogram showed a low-normal left ventricular function (ejection fraction: 50%), with features of a restrictive cardiomyopathy and a small pericardial effusion. Urinalysis showed a proteinuria of 1.8g/24 hours and subsequent renal biopsy revealed a membranoproliferative glomerulonephritis (MPGN). Treatment was commenced with intravenous bumetanide, pulsed corticosteroids and enalapril. Over the next few days the patient experienced rapid resolution of the generalized oedema, rash, arthralgias and dyspnoea. Cardiac MR six days after starting corticosteroids was unremarkable. This was indicative of a steroid-responsive autoimmune myopericarditis.

Conclusion: This case demonstrates the potentially systemic nature of SS with the unusual involvement of multiple vital organs.

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A case of Wegener's granulomatosis with polyangitis

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Introduction: A forty-seven year-old lady presented with a six-month history of new onset cough and intermittent haemoptysis associated with mild pleuritic chest and generalised fatigue. She was otherwise well with no fever, joint pains, weight loss nor loss of appetite. She was a lifelong non-smoker. The lady was a type 2 diabetic on oral hypoglycaemics and hypothyroid on thyroxine replacement. A chest x-ray was performed by her GP, which showed several bilateral round cavitating lesions. This was initially treated as a lower respiratory tract infection with antibiotics, however the haemoptysis persisted. Referral to a respiratory physician followed. Blood investigations included a Complete blood count with low lymphocytes, raised Erythrocyte Sedimentation Rate (100mm/hr), raised C-reactive Protein (62mg/L) and a strongly positive Anti-neutrophil cytoplasmic antibody. Liver function tests were deranged with a hepatitic picture (ALP 181 and GGT 161 IU/L respectively). She was HIV negative and had no signs of immunosuppression. Serum ACE levels and galactomanan levels were normal. A CT scan of the thorax showed persistent bilateral cavitating lesions, which were discussed at the Multidisciplinary Team meeting – highly suggestive of Wegener's Granulomatosis. Bronchoscopy was normal. Tuberculosis and fungal infection were excluded. High dose immunosuppressants were commenced, namely Cyclophosphamide 200mg daily and Prednisolone 80mg daily for one month. These were slowly tailed down and titrated according to symptoms with close monitoring. An immediate response to immunosuppressant therapy was achieved, with resolution of pain and haemoptysis accompanied by normalisation of the inflammatory

markers. Co-trimoxazole was prescribed prophylactically to prevent opportunistic fungal infections.

Conclusion: The patient relapsed after 8 months of treatment. She developed proximal myopathy and worsening liver function tests. A liver biopsy and MRI confirmed steroid-induced hepatitis. Prednisolone was tailed down and cyclophosphamide was stopped. She is now receiving six monthly Rituximab in addition to maintenance low dose steroids with excellent response.

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Chorioretinitis complicating cat scratch disease

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Introduction: A 43-year-old lady presented with a 4-week history of spiking fevers up to 39.5°C associated with night sweats. She also complained of intermittent generalized joint pains. Her past medical history included hypothyroidism, left nephrolithiasis, well-controlled asthma and menorrhagia secondary to a fibroid uterus. She had two kittens at home and she denied any recent travel. Physical examination was unremarkable. Baseline investigations showed mildly raised inflammatory markers, leukocytosis with monocytosis and slightly deranged liver function tests. Positron emission tomography (PET) scan showed abnormal increase in glucose metabolism in a right axillary lymph node, with a smaller focus on the left. Bartonella henselae IgG and IgM titres were 1:512 and 1:80 respectively. A diagnosis of cat scratch disease was made and she was treated with azithromycin. Soon after starting treatment, she complained of impaired vision in her right eye. Examination revealed a right nasal inferior quadrantanopia. Ophthalmic review revealed the chorioretinitis with normal visual acuity. In view of the above findings, azithromycin was switched to rifampicin and doxycycline for 6 weeks with eventual resolution of symptoms.

Conclusion: Ocular involvement in cat scratch disease occurs in 5-10% of patients. Therefore, any visual symptoms should be assessed thoroughly in order to prompt early diagnosis and appropriate treatment. This has been shown to enhance recovery and reduce the duration of the illness.

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SIADH secondary to influenza A - a case report

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Introduction: The syndrome of inappropriate anti-diuretic hormone (SIADH) secretion is a frequent cause of hyponatraemia. It is a dilutional hyponatraemia secondary to impaired urinary dilution in the absence of renal disease or any identifiable non-osmotic stimulus known to induce anti-diuretic hormone (ADH) secretion. SIADH is a clinical manifestation of a wide spectrum of diseases including respiratory tract infections, however the association between SIADH and influenza A infection is described in only a few cases in the literature.

Methods: The authors present a case of a 66-year old previously healthy gentleman who presented with a five day history of dry cough associated with myalgias, fever, chills and rigors. On physical examination, he was afebrile, normotensive but tachypnoeic at 30 breaths per minute and tachycardic at 110 beats per minute. He was maintaining oxygen saturations at 95% on room air. Auscultation of his chest revealed reduced air entry bilaterally. He was clinically euvolaemic and neurologically intact.

Results: Laboratory investigations revealed a profound hypotonic hyponatraemia at 105mmol/L. The urine osmolality and urine sodium level were both elevated. Serum creatinine, calcium and magnesium levels, and liver function tests were within normal limits. Hypothyroidism and adrenal insufficiency were excluded. There was also a leucocytosis of 13.26x10⁹/L with a neutrophil shift and a minimally elevated C-reactive protein. There was no evidence of consolidation on chest X-ray. A nasal swab polymerase chain reaction (PCR) for Influenza A was positive. The patient was diagnosed with Influenza A and SIADH. The SIADH was corrected via fluid restriction aiming for a negative fluid balance and by managing influenza A supportively.

Conclusion: This case highlights the possible association between SIADH and Influenza A. Physicians should be made aware of this possible association as prompt diagnosis and effective management of the underlying disease causing SIADH is critical. Supportive management and oseltamivir in Influenza A may help correct the SIADH-related hyponatraemia in addition to reducing the symptomatic duration of Influenza. However further studies are needed to establish the incidence, pathogenesis and suspected association between SIADH and Influenza A.

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Ipilimumab induced hypophysitis

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Introduction: Immunotherapy for malignant melanoma has advanced significantly over the past years. Immune-related adverse events (IRAEs) are various and include endocrinological complications such as Ipilimumab-induced hypophysitis (IIH). The incidence of this cytotoxic T-lymphocyte antigen 4 antibody ranges from 0 to 17%¹. Patients usually present with symptoms secondary to hormonal insufficiencies.

Methods: A 73 year-old lady, known case of metastatic melanoma presented with a one week history of pre-syncope episodes and nausea. The patient had been undergoing immunotherapy with ipilimumab and had been given her 3rd course few days prior to presentation. A MRI brain showed a 1.5 x 1.4 x 1.2cm sellar lesion involving the pituitary gland with mild suprasellar extension. The lesion demonstrated low T1 signal and mildly hyperintense T2 signal intensity. The lesion enhanced avidly following administration of contrast with a central non-enhancing component. The infundibulum was thickened.

Results: Cortisol level during admission was 23nmol/L, from a previously normal level of 993 few weeks prior. The patient had low T4 and TSH levels (0.080mIU/mL and 6.7pmol/L respectively) together with low FSH, LH and prolactin levels in keeping with panhypopituitarism. The patient was started on glucocorticoids and thyroxine with rapid improvement of her symptoms.

Conclusion: Development of IIH can precipitate acute adrenal failure or crisis. Early diagnosis and management are vital to prevent complications including increased morbidity and mortality rates.

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New onset undifferentiated inflammatory arthropathy following removal of adrenal adenoma in Cushing's syndrome

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Introduction: A 55-year-old woman with a history of hypertension and dyslipidaemia was referred to Endocrine outpatients following an incidental 3cm left-sided adrenal nodule found on CT virtual colonoscopy. The patient reported generalized muscle weakness, facial hirsutism easy bruising and weight gain.

Results: Investigations demonstrated an elevated serum morning cortisol 729nmol/L (171-536 nmol/L), a positive 1mg overnight dexamethasone-suppression test : 9am cortisol 613nmol/L (normal suppression <50), elevated 24 hour urine cortisol levels 1332nmol/24hr (<120) and a low plasma ACTH level 8pg/ml (10-50). An elective left-sided laparoscopic adrenalectomy was performed successfully under steroid cover. Histology showed a benign adrenocortical adenoma. Two months post-surgery, the patient developed widespread joint pains, swelling and stiffness. There was no history of recent infection, mucosal ulcers, alopecia, Raynaud's or rashes. On examination there was synovitis of the 3rd metacarpophalangeal joints (MCPJs) bilaterally, the 4th and 5th proximal interphalangeal joints bilaterally, both wrists and ankles and multiple metatarsophalangeal joints. Investigation showed raised inflammatory markers but negative results for RF, Anti-CCP, ANA and ENA. X-rays of the affected joints were normal. An ultrasound of her hands showed synovial hypertrophy and hyperemia, with effusions, in her left wrist and right 2nd, 3rd, and 4th MCPJs, in keeping with an active inflammatory arthritis. She was commenced on prednisolone 10mg/day, methotrexate 15mg/week and folic acid 10mg/week with excellent results.

Conclusion: In summary we report a patient who developed a new onset inflammatory arthropathy after successful treatment of Cushing's syndrome. Excessive levels of cortisol in patients with Cushing's disease can cause immunosuppression which may mask underlying inflammatory /autoimmune diseases.

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Severe hirsutism complicating adrenocortical carcinoma - a case report

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Introduction: Adrenocortical carcinomas (ACC) are rare malignant tumours with an incidence of 1 to 2 per million per year. We report a case of a newly diagnosed metastatic ACC presenting with a mixed Cushing's and virilization syndrome.

Results: A 70-year old lady was admitted with a month's history of new onset hypertension, hyperglycaemia, and generalised weakness. On examination she was cushingoid with facial plethora, hirsutism, central obesity and proximal myopathy. Blood investigations confirmed uncontrolled diabetes in the setting of a grossly elevated serum random cortisol (1209nmol/L [145-619nmol/L]), suppressed ACTH (<5pg/ml [10-48pg/ml]), elevated total testosterone (46nmol/L [<1.49]nmol/L), raised oestradiol (507pmol/L [<118pmol/L]), elevated progesterone (5.15nmol/L [<3.2nmol/L]), elevated 17 hydroxyprogesterone (21.6ng/ml [0.13-0.6ng/ml]), elevated androstenedione (19.4ng/ml [0.35-2.49ng/ml]) and DHEAS (23.3 µmol/L [0.95-11.67µmol/L]). Computed tomography confirmed a large, lobulated, inhomogeneous, solid left adrenal mass 8x5cm in size with enlarged local and paraortic lymph nodes and pulmonary metastases. During admission she developed acute sigmoid bowel perforation needing emergency laparotomy. Post-operative care was complicated by profound hypokalaemia necessitating prolonged continuous intravenous potassium replacement therapy and poor wound healing despite treatment with multiple antibiotics. She suffered a right femoral vein thrombosis due to poor mobility. Sadly, she succumbed to her illness after developing neutropenic sepsis as a complication of her first dose of treatment with doxorubicin-etoposide and cisplatin-based chemotherapy.

Conclusion: ACC is rapid and aggressive. Our patient suffered the complications of hypercortisolism as evidenced by sigmoid bowel perforation, poor wound healing and hypercoagulability. Excess cortisol resulted in a mineralocorticoid effect causing recurrent profound hypokalaemia.

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Adrenal medullary hHyperplasia mimicking pPhaeochromocytoma - a case report

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Introduction: Adrenal medullary hyperplasia (AMH) is a rare syndrome of catecholamine excess.

Results: A 59-year old lady known to suffer from hypertension underwent a computed tomography scan of the abdomen as further investigation for unprovoked deep vein thrombosis. This showed a 37mm right adrenal mass which enhanced heterogeneously with contrast

on the porto-venous phase and became homogeneously hyperdense on the delayed phase. Findings were not typical of an adrenal adenoma. The patient was asymptomatic and denied headaches, sweating, palpitations or postural symptoms. Baseline investigations for an adrenal mass including urinary free cortisol, adrenal androgens, aldosterone renin ratio and Chromogranin A were normal. However, she had persistently raised serum noradrenaline levels up to 1120ng/L (upper limit 420 ng/L). MIBG scan did not show any evidence of pheochromocytoma and PET CT was negative. MR adrenals confirmed the presence of 2.2x3.3cm mass but unfortunately there were no definite features to suggest a specific entity for the cause of the adrenal mass. Thus, the patient underwent right laparoscopic adrenalectomy with adequate pre-operative alpha blockade. Histology confirmed AMH. The adrenal medulla did not exceed 8mm in size. It stained for Chromogranin A and Synaptophysin. HMB45, S-100 and Ki-67 were negative. The adrenal cortex was unremarkable. Our patient remains clinically well.

Conclusion: AMH is an increase in the number of chromaffin cells within the adrenal medulla. AMH can only be diagnosed histologically and cannot be differentiated from pheochromocytoma before surgery. AMH is a recognized precursor for pheochromocytoma in MEN 2 but not in isolated cases.

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Hyperthyroidism following iodinated contrast media exposure: a case of the Jod-Basedow phenomenon

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Introduction: We report a case of iodine-induced hyperthyroidism (IIH) in a 61-year old gentleman following iodinated contrast media (ICM) exposure during computed tomography imaging performed for the investigation of a raised hemidiaphragm.

Results: The patient presented with weight loss, increased appetite, emotional lability and a fine resting hand tremor, 8 weeks following ICM administration. Baseline thyroid function assays (TFTs) and thyroid-stimulating hormone receptor antibody titres were within reference intervals. In the first few weeks following the iodine load, the patient's TFTs were synonymous to hyperthyroidism. TFTs subsequently normalised over a period of 8 weeks with resolution of patient's symptoms. Ultrasonography of the thyroid gland revealed a 2cm left nodule with a central cystic component and mild intranodular Doppler flow on a background of multiple bilateral thyroid nodules. A radioisotope ^{99m}Tc scintigraphy thyroid scan confirmed a hyperfunctioning nodule in the left thyroid lobe which had not yet reached autonomy.

Conclusion: The Jod-Basedow phenomenon refers to a state of iodine-induced hyperthyroidism. IIH is often latent in presentation and runs a subclinical course, although severe cases may necessitate antithyroid treatment. IIH may be triggered by ICM exposure which in itself, has an iodine

load at least 90 times above the recommended daily intake of this essential mineral. Individuals with underlying thyroid disease and the elderly are at particular risk since adequate autoregulation of iodine uptake by the thyroid follicular cells may be absent. High risk individuals, especially with underlying unstable cardiovascular disease, should be carefully monitored after iodinated contrast studies.

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When a rare syndrome keeps behaving in rarer ways over and over again

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Introduction: Pituitary apoplexy usually occurs because of haemorrhage and/or infarction within a pituitary tumour. The local estimated standardised incidence rate (SIR) of apoplexy is 0.15/100,000/year. ACTH secreting pituitary adenomas have a prevalence rate of 2.82/100,000 and a SIR of 0.17/100,000/year.

Methods: A 46 year-old gentleman was referred following the diagnosis of a pituitary adenoma extending into the left cavernous sinus, after having presented with a 1.5 year history of left third cranial neuropathy. Biochemical assessment revealed an inadequately suppressed cortisol level of 149mmol/L on a 48 hour low dose dexamethasone suppression test in keeping with Cushing's syndrome.

Results: The patient was referred for inferior petrosal sinus sampling, which confirmed an ACTH secreting pituitary macroadenoma. The patient could not undergo tumour resection at the time in view of an infected diabetic ulcer. He was initiated on Metyrapone in an effort to control his hypercortisolaemia. The patient presented 2 months later with severe headache and new right III and VI cranial nerve palsies. Ophthalmological assessment revealed reduced visual acuity; from 6/6 to 6/12, Ishihara 11/13 from previously full. Magnetic resonance imaging showed a mass lesion in the sella and suprasellar area, measuring 3.2x1.5cm with evidence of an acute haemorrhage. The lesion was impinging on the optic chiasm and both cavernous sinuses, resulting in a supero-temporal visual field defect and deteriorating acuity.

Conclusion: The patient was referred for urgent surgery and the mass was debulked trans-sphenoidally. Clinical symptoms and visual disturbances showed rapid improvement post-operatively. These findings confirmed pituitary apoplexy due to tumour infarction of a functional (ACTH secreting) pituitary macroadenoma.

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A case of cardiac arrest unravelling the cause of multi-organ failure

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Introduction: Amyloidosis is a rare disease presenting with nonspecific and variable symptoms and a high index of suspicion is required. Cardiac, peripheral nerves and renal manifestations are amongst the commonest of presentations. A 62-year old male, a known case of thalassemia trait with no other co-morbidities was referred for urgent inpatient investigations for diarrhoea and worsening iron deficiency anaemia. Further history taking revealed a longstanding history of atypical chest pain, evidence of peripheral neuropathy and gastro-intestinal symptoms. A number of investigations were ordered in view of his unexplained multi-organ involvement. Blood investigations revealed elevated cardiac enzymes (hs-cTnT 514ng/L), high nt-proBNP (2672 pg/mL) and a microcytic anemia (Hb 7.2g/dL, MCV 65fL). An unexplained deranged renal profile was noted with a Creatinine of 165µmol/L. CT trunk showed thickening of the gastro-oesophageal junction of uncertain significance, for which an OGD was done. Early into his inpatient stay, the patient sustained a cardiac arrest after which he was transferred to Intensive Care. Electrocardiography did not reveal any ischemic changes. Small complexes in the limb leads were noted. An echocardiogram showed granular sparkling myocardium with preserved left ventricular function and no regional wall motion abnormalities. A provisional diagnosis of amyloidosis was made and was histologically confirmed through the gastric biopsies. Electromyography confirmed a severe length-dependent sensory polyneuropathy. A positive monoclonal band and bone marrow trephine showed a hypercellular bone marrow consistent with multiple myeloma.

Conclusion: Amyloidosis complicating multiple myeloma may have different presentations. A high index of suspicion is required for diagnosis. Prompt diagnosis and treatment improves survival.

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An unusual case of pre-excitation

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Introduction: This is a case of a 62-year old gentleman, with a history of coronary artery bypass grafts. A CT thorax, taken as part of the preoperative work-up, showed isolated cardiac dextroversion (heart located in the right hemithorax with left ventricle remaining on the left side and anteriorly to the right ventricle) with atrio-ventricular concordance and ventriculo-arterial concordance. A standard 12-lead ECG taken with (chest leads placed on the left of the chest and right/left leads in standard positions) showed an upright P wave in lead I (differentiating it from

mirror-image dextrocardia) and delta waves suggestive of pre-excitation. R waves were dominant in the chest-leads, which is opposite of what is expected in a patient with a heart in the right hemi-thorax (absent R wave progression is expected). The positive R wave progression suggests that the net vector of ventricular depolarisation is occurring from posterior to anterior and from right to left, implying that the right ventricle is pre-excited and that the accessory pathway should be on the right side of the heart. The vector of the inferior leads (II, III, aVF) is expected to remain relatively unchanged in dextrocardia/dextroversion. The delta wave in our patient's ECG was negative in these leads, meaning that the accessory pathway is posterior.

Conclusion: This patient presented a diagnostic challenge as both cardiac dextroversion and pre-excitation are rare entities. The index patient has a right posterior accessory pathway, statistically most likely to be a right posteroseptal pathway. An electrophysiology study would be necessary to confirm this.

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Now you see it, now you don't – pulmonary embolisation of a large tricuspid valve vegetation

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Introduction: Right-sided infective endocarditis (IE) accounts for only 5-10% of all cases, with 90% involving the tricuspid valve (TV). Most cases are related to intravenous drug use (IVDU).

Methods: We present the case of a 40-year old male and active IV cocaine user, who was admitted with a week's history of fever, chills, rigors and weight loss. Transthoracic echocardiography (TTE) showed a large TV vegetation measuring up to 3cm, associated with significant tricuspid regurgitation (TR). Multiple blood cultures grew methicillin-sensitive *Staphylococcus aureus*. The patient had a very good initial response to IV flucloxacillin and gentamicin, with near-normalisation of inflammatory markers and resolution of fever. However, around 3 weeks into his antibiotic treatment, his condition deteriorated again with spikes of fever and desaturation down to 91% on room air.

Results: On chest examination, there was severely reduced air entry over the right lower zone and a widespread wheeze. Chest X-ray showed a new right lower lobe consolidation. A CT pulmonary angiogram revealed a large embolus in the right lower lobar artery causing infarction of the right lower lobe, with evidence of other small emboli throughout the lungs. A repeat TTE confirmed almost complete absence of the previously-documented large vegetation as a result of pulmonary embolisation, as well as worsening of TR, increasing right ventricular dilatation and dysfunction. The patient's antibiotic regime was altered and he was put forward for tricuspid valve replacement.

Conclusion: Distal embolic phenomena are recognised complications of IE and represent one of the indications for early valve surgery.

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When three is not a magic number – a case of native triple-valve endocarditis caused by *Streptococcus agalactiae*

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Introduction: Multiple valve infective endocarditis (IE) is uncommon. It has mostly been reported in immunocompromised subjects or those with structural heart disease or intravenous drug use (IVDU).

Methods: We report the case of a 47-year old woman with a background of type II diabetes mellitus, morbid obesity and poor dental hygiene that presented to hospital with septic shock and hyperosmolar hyperketotic state secondary to three-valve IE. She had no history of valvular or structural heart disease or IVDU. Transoesophageal echocardiography confirmed a large vegetation on the pulmonary valve resulting in severe pulmonary regurgitation, infective involvement of the tricuspid valve with a torn chorda resulting in a flail septal leaflet and severe tricuspid regurgitation as well as infection of the aortic valve resulting in cusp retraction and severe eccentric aortic regurgitation. Blood cultures grew *Streptococcus agalactiae*.

Results: The patient's condition deteriorated after multiple recurrent infective pulmonary emboli from the pulmonary valve vegetation and she subsequently underwent urgent mechanical aortic and tissue pulmonary and tricuspid valve replacements in a tertiary centre in the United Kingdom. This was followed by the implantation of a dual chamber pacemaker for post-operative complete heart block. After a stable period following her transfer back to Malta, the patient deteriorated rapidly as a consequence of sternotomy wound breakdown, disseminated intravascular coagulation and acute kidney injury and passed away in intensive care.

Conclusion: Multiple valve IE can occur in the absence of recognised risk factors and is associated with a high mortality even following successful surgical infected valve replacement.

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A rare case of cor triatriatum and mitral valve prolapse

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Introduction: Cor Triatum Sinister is a rare congenital cardiac anomaly that accounts for 0.1% of all congenital cardiac malformations. In this condition the left atrium is divided into two chambers by a fibromuscular septum. The superior proximal chamber receives the pulmonary veins whilst the inferior distal chamber is continuous with the left atrial appendage and the mitral valve orifice. The septum may be fenestrated by one or more ostia and the prognosis of this condition depends on their presence and size. A large fenestration allows unrestricted blood flow through the septum and patients in this class may remain asymptomatic well into adulthood before the fenestration

begins to calcify or fibrose. Here we describe the surgical repair of a myxomatous prolapsing mitral valve and the resection of a cor triatriatum septum in a 68 year old gentleman.

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The development of the sympathetic system of the heart

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Introduction: Cardiac pathologies present in various ways, including cardiac referred pain. A good knowledge of the cardiac innervation and development helps to understand its clinical presentations. The sympathetic system and its development follow sets of complex mechanisms, which need to be explored to further our understanding of significant clinical implications.

Discussion: Development of the sympathetic nervous system begins with the migration of the neural crest cells to the dorsal aorta and the development of neurons and the sympathetic ganglia. This is followed by the axonal elongation towards the developing cardiac tissue, directed by a series of signal ligands including ephrin-B1, semaphorin 3a (Sema3a), F-Spondin, bone morphogenetic proteins (BMPs), Wnt-1 protein, neurotrophin-3 (NT-3), nerve growth factor (NGF) and artemin (ARTN). Once at the developing heart, the nerve fibres follow the coronary veins in the sub-epicardium using NGF and the chemorepellent Sema3a as signals. Here they interact with the cardiac conduction system. Bilateral innervation of the heart comes from the middle cervical stellate (MC-S) ganglion. Although the left ventricle and atrium receive noradrenaline from the MC-S on both sides, the right ventricle receives more from the MC-S from the left rather than from the right side. The development of the great vessels also contribute towards the pattern of development of cardiac innervation.

Conclusion: This review attempts to give insights into possible explanations of referred pain distribution in clinical cardiology, based on our understanding of human embryology and anatomy. Although this study collated work based on animals, it can also be applied to human subjects.

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Two cases of prosthetic mitral valve thrombosis treated by thrombolysis

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Introduction: Thrombosis of Prosthetic heart valves can be a disastrous postoperative complication with grave haemodynamic consequences. Here we describe the clinical presentation, diagnostics and successful therapy in two separate cases.

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Percutaneous treatment of atrial septal defect complicated by iliac artery embolisation of device - a case report

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Introduction: A previously healthy 35-year-old gentleman presented with an acute minor cerebrovascular accident (CVA) in October 2016. Subsequent investigations revealed a patent foramen ovale (PFO) suggesting a “paradoxical” brain embolism as the probable underlying mechanism for the CVA. The PFO was occluded in August 2017 using a 10.5mm Figulla Occlutech Atrial Septal Occluder Device via a percutaneous approach. In May 2018 this gentleman presented following embolization of the device, 9 months after PFO Occlusion device insertion. The device was subsequently found to have embolized into the left Common Iliac Artery (CIA). Computed-Tomography (CT) Angiography showed infra-renal aortic dissection with the dissection flap extending into the left CIA. Following failure of device retrieval via a percutaneous approach; a surgical approach was sought. Surgery was performed via a midline laparotomy and a trans-peritoneal approach. The left CIA was isolated and successful device retrieval via a longitudinal arteriotomy over its medial segment was performed. This gentleman made a full recovery post-operatively with a full set of distal pulses.

Conclusion: Device closure of atrial septal defects is considered safe with a low incidence of complications. Embolization of closure devices may occur (in 0.5% of cases) and percutaneous retrieval is reportedly successful in up to 70% of cases. This gentleman subsequently made a full recovery with resumption of normal circulation to the lower limbs.

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The short intralobar fibres of the frontal and occipital lobe revisited in a 19th century context

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Introduction: Rapid development of diffusion-weighted MRI (dMRI) and tractography in the 21st century allows fast mapping of *in-vivo* brain networks and has revived interest in the anatomy of white matter tracts. The first descriptions of these tracts were the meticulous neuroatlases of 19th-century anatomists that were compiled from ex-vivo brain dissection and lesion studies. These neuroatlases can be used in concert with dMRI to provide researchers with additional information or to validate their findings. Joseph Dejerine and his wife, Augusta Dejerine-Klumpke, were two of the 19th century’s most notable neurologists. Their seminal work, *Anatomie des Centre Nerveux*, meticulously describes a plethora of neuroanatomy; including the trajectories of various fibre bundles. Despite modern technology, current literature predominantly focuses on long association fibres, while very little has been said in the literature about the

short intralobar fibres that they have described. Here, we delineate the results of Dejerine’s dissection of the frontal and occipital fibres and provide the first translation of the detailed description of their trajectories. The Dejerines observe five fibre bundles specific to the occipital lobe: the stratum calcarinum, the vertical occipital fasciculus of Wernicke, the transverse bundle of the lingual lobule of Vialet, and the transverse fasciculus of the cuneus. In comparison, the Dejerines’ description of the trajectories of the frontal lobe fibres is less defined.

Conclusion: Our study bridges the period’s notions about intralobar fibres trajectories with today’s dMRI descriptions. This new perspective contributes towards future research investigating the relationships between structure, function and disease.

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A case report - cerebral venous thrombosis after diagnostic lumbar puncture in a low-risk patient

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Introduction: A previously healthy 30-year old gentleman, with no vascular risk factors, presented with a five day history of fever, rash, inguinal lymphadenopathy and headache. Cerebrospinal fluid analysis revealed elevated opening pressure (40cmH₂O) with lymphocytosis (0.022x10⁹/L) and elevated proteins (627mg/L). A diagnosis of Mediterranean spotted fever was made and he was started on doxycycline with a favourable outcome. He was discharged home but re-presented two weeks later with intermittent episodes of right sided paraesthesia, incoordination and speech disturbance.

Methods: Laboratory tests revealed a normal white cell count (WCC) (9.40x10⁹/L), haemoglobin (15.6g/dL) and CRP (4mg/L). A cerebral computed tomography (CT) scan was performed which showed no abnormalities. An in-patient electroencephalogram (EEG) showed no ictal activity. Cerebral medical resonance imaging (MRI) and venogram was performed and showed changes consistent with bilateral cortical vein thrombosis - this was evidenced by abnormal superficial cortical veins that demonstrated high signal intensity bilaterally on T1 imaging with absent flow voids, the presence of hyperintensities in the cortical sulci on FLAIR sequence, and GRE blooming artefact within the cortical veins on T2 SWI (susceptibility weighted imaging). There was also associated high signal intensity change in the parasagittal frontal cortex of both cerebral hemispheres with restricted diffusion consistent with acute bilateral cortical ischemia. Superior sagittal and transverse sinuses were unremarkable on venogram.

Results: The patient remained well on sodium valproate and rivaroxaban for a total of three months with no further recurrence of symptoms. Repeat MRI and venogram six months later showed no abnormalities. Thrombophilia screen (protein C, S and antithrombin III activity) including genetic analysis (Factor V Leiden, prothrombin fragments, *MTHFR* mutations), anti-cardiolipin antibodies, anti-beta

2 glycoproteins, autoimmune and vasculitic markers (ESR, ANA, ANCA, ENA, Anti-CCP) were all negative. There were no neurologic sequelae on examination.

Conclusion: We describe an atypical case of CVT after diagnostic lumbar puncture – it remains unclear why CVT occurred in a young, male patient with no recognizable prothrombotic risk factors and no administration of intravenous corticosteroids. His symptomatology was also atypical in that there was no appreciable change in the pattern or intensity of his headache after LP – his headache had in fact resolved and he had re-presented with symptoms secondary to focal seizures. This case highlights that although CVT occurs in the extreme minority of cases following LP, the absence of any discernible risk factors should not dissuade physicians from suspecting the diagnosis, especially if a post LP headache evolves in intensity and duration.

P.216

Limbic encephalitis: a case study

S.Pace, M.Vella

Introduction: Limbic encephalitis is an inflammatory process affecting parts of the limbic system which can be autoimmune in origin. Such cases were initially categorised as paraneoplastic but new cases of autoimmune limbic encephalitis are increasingly being recognised where no neoplastic origin is found. This case study follows the diagnosis and management of a patient who presented with typical symptoms of limbic encephalitis, namely faciobrachial dystonic seizures and behavioural changes. Diagnosis was made with detection of the Anti-LGI1 antibody which forms part of the voltage-gated potassium channel (VGKC) complex and the use of imaging via MRI. Management included the use of high dose IVIg and IV methylprednisolone in combination with long term prednisolone and a number of antiepileptics.

Conclusion: The early recognition of such a condition is emphasised in the prevention of irreversible sequela.

P.217

A case of stabbing resulting in Brown-Sequard plus syndrome

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Introduction: We describe the case of a 23-year-old gentleman who was stabbed in the right side of his neck and developed left-sided Brown-Sequard syndrome plus loss of bilateral proprioceptive sensation.

Methods: Information was acquired prospectively and repeat scans were planned on a regular basis post-injury whilst on a regional spinal unit.

Results: MR images showed mild expansion in the C4-5 region of the spinal cord with ill-defined high T2 signal seen within the cord at this level. No definite intermedullary contusion/haemorrhage was identified. There was high STIR signal in the right para-spinal muscles at C5. A C5 lamina fracture was difficult to appreciate - not being seen on XR. MR imaging was performed serially at 7 days, 6 weeks, and 3 months after trauma. High signal

intensity on T2-weighted images was consistent during the 12 weeks after incidence of trauma.

Conclusion: Spinal cord injuries (SCI) following stab wounds are rare. MR imaging is definitely useful for recording and monitoring the pathology of SCI. Motor improvement was noted between admission and discharge ASIA scoring.

P.218

The role of imaging in the diagnosis, grading and treatment of cerebral arteriovenous malformations – a pictorial review

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Introduction: The objectives of this poster presentation are to: -To present the important radiological findings of cerebral arteriovenous malformations -To serve as an educational tool for the radiologist-in-training. Cerebral arteriovenous malformations (AVM) are common vascular malformations associated with a high degree of morbidity and mortality. Despite being associated with a significant risk of rupture, the decision to treat must be weighted against the risks of treatment. The radiologist, who forms part of the multidisciplinary team involved in the decision making, has a fundamental role in the diagnosis, grading and treatment of such lesions. Following the diagnosis of an AVM the other role of imaging is to determine the surgical risk and to identify the risk of future haemorrhage. Grading tools, such as the Spetzler-Martin grading system, may be used to assess the surgical risk on the basis of AVM size, eloquence of adjacent brain and venous drainage. The higher the score the higher the surgical risk. Moreover, the risk of haemorrhage is determined by a number of factors, including previous haemorrhage, size, location and venous drainage of the AVM, and associated arterial aneurysms or venous varices. The decision to actively treat using surgery, endovascular embolization or radiosurgery depends on the total risk conferred by these factors. Low grade lesions are likely to benefit from surgical treatment whilst higher grade lesions are typically managed conservatively.

Conclusion: A number of local cases will be presented to illustrate the imaging findings of AVMs with reference to surgical risk grading to determine the most appropriate therapeutic approach.

P.219

A stepwise approach to a timely intervention in acute ischaemic stroke

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Aim: To describe the typical CT findings in the setting of acute ischaemic stroke -To define the role of ASPECTS (Alberta Score Programme Early CT Score) and the use of perfusion imaging -To discuss how a decision to proceed for thrombectomy is taken.

Background: Non-enhanced cross-sectional imaging of the brain is the mainstay of emergency radiology performed in patients presenting with features suggestive

of ischaemic stroke, primarily to rule out haemorrhage. Hyperacute findings in ischaemia include visualization of the obstructing clot and the presence of resultant parenchymal oedema causing loss of the normal gray-white matter differentiation. Other tell-tale CT findings of acute ischaemic stroke include: -Insular ribbon cortex sign -Vanishing basal ganglia sign -Hyperdense MCA sign -Dens basilar sign. CTA allows for localization of the thrombus and mapping of the main vessels. CT perfusion imaging has been added to our local acute stroke protocol in 2017 and provides the added benefit of distinguishing salvageable areas from regions of dead parenchymal brain tissue, which is imperative in the setting of planning for thrombolysis or clot retrieval as part of the management of acute stroke. Differentiation is based on 3 parameters: Cerebral Blood Flow, Cerebral Blood Volume and Mean Transit Time. The ASPECT score is a reproducible, 10-point quantitative topographic CT grading system used in patients with a middle cerebral artery stroke with early ischaemic changes on pre-treatment CT studies.

Methods: A pictorial review of the early signs of ischaemic change in the brain with corresponding CT perfusion imagery. Based on the ASPECT score, the sub-cortical gray matter and MCA territories are given a -1 point out of 10.0 indicates a territorial infarct in the MCA territory. A score below 8 is associated with a poor outcome post thrombolysis.

Conclusion: Hyperacute signs on CT combined with the validated ASPECT score and post-processing perfusion analysis facilitate the selection of patients that would benefit from a timely interventional approach to ischaemic stroke.

P.220

Banked skull: a case with a 7 year follow-up

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Introduction: In 1920, Kreider reported the first case of preservation of calvarial bone in the left hypochondrium. Autologous calvarial bone graft has been widely accepted as the best and safest method for reconstruction and also provides the best cosmesis.

Methods: We report the case of a 60 year old lady who suffered a left sided stroke seven years previously resulting in a decompressive craniectomy. She had the left parietal bone from her skull banked into her abdomen at the time of craniectomy. However, the banked skull was never used as it was deemed to be too small for the skull defect and a titanium plate was used instead. The patient is wheelchair bound and the banked skull in her right abdomen was bothering her because her right arm was rubbing against it during activities of daily living. She thus wished to have it removed. On examination, the banked skull was palpable on the right side of the abdomen and a CT scan showed it to be in the subcutaneous plane without any associated hernia or infection. Access to it was through the previous incision and dissection down to it revealed that the bone was very well vascularised. It measured 10x12cm and had no capsule surrounding it. Histological examination

showed the most of the bone to be viable although the decalcifying process has hampered interpretation.

Conclusion: This case is clinically significant because it is first hand evidence that bone banked up to 7 years is viable and can still be used for therapeutic purposes.

P.221

Transcranial magnetic stimulation: the new '4 pillar' model of therapy for psychiatric disorders

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Introduction: Transcranial magnetic stimulation (TMS) is fast making headlines worldwide for the treatment of many neuropsychiatric conditions. So far, headway has been made to treat treatment-resistant depression (TRD) with TMS, which received Food and Drug Administration (FDA) approval in 2008. In December 2015, the National Institute for Health and Care Excellence (NICE) issued the TMS guidance number 542, which approved this electromagnetic treatment for TRD. NICE noted "consistently positive outcomes in many studies" and that TMS has "a good safety profile." Besides, NICE also noted that "commentary from patients was positive and described significant benefits to their quality of life, including the advantages, for some patients, of being able to stop the use of oral antidepressant medications". TMS is a safe, painless, effective and natural, evidence-based treatment for patients suffering from severe unipolar affective disorder who do not respond to medication (i.e. they suffer from treatment-resistant severe/major depression). Since the 1980s, many TMS clinics mushroomed worldwide and we are proud to have been the first to introduce this technology in Malta in 2015. We will share our experiences using the '4 pillar' model (psychotherapy, medication, TMS and lifestyle changes) to maximise response and remission rates for depression and anxiety.

Conclusion: The '4 pillar' model yields promising results in treating depression and anxiety fast as seen in our response and remission rates.

P.222

Biobanking for rare kidney diseases

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Introduction: High-throughput screening has greatly improved the way many diseases are diagnosed and treated. For rare kidney diseases however, clinical management remains unsatisfactory. Clinical data and good-quality biological samples from rare kidney disease patients are a powerful resource for basic and clinical research. Biobank networks help researchers overcome the issue of small

sample sizes, which is a typical challenge in rare disease research. The aim of this project was to establish and curate a quality Kidney Disease Biobank within pan-European/global biobank networks.

Methods: Patients with congenital anomalies of the kidney and urinary tract (CAKUT), nephrotic syndrome or antenatal Bartter syndrome, and their relatives were recruited from the renal clinic. EDTA-blood, buccal cell and random urine samples were collected with written informed consent. Data of samples from index cases were aggregated by clinical diagnosis and the entries included in the EuroBioBank and BBMRI-ERIC catalogue of samples for potential biomaterial sharing. Ethical approval was granted by the University of Malta Research Ethics Committee.

Results: So far, 153 participants have been enrolled. The largest sample collection is for CAKUT, with vesicoureteral reflux ($n=10$) and duplex collecting system ($n=10$) constituting the two most prevalent phenotypes. Genetic diagnosis for 10 unrelated Maltese patients with CAKUT is underway.

Conclusion: We have successfully managed to establish the first cohort of rare kidney disease patients at the Malta BioBank. This database will serve as a valuable resource to improve our understanding of rare kidney diseases, and, together with the international community, improve diagnosis, predict risk for progression, and develop personalised therapies.

Disclosures: This project has received funding from LifeCycle (Malta) Foundation through the University of Malta Research Trust (RIDT), and the Endeavour Scholarships Scheme (Malta). The scholarship is part-financed by the European Union - European Social Fund (ESF) under Operational Programme II – Cohesion Policy 2014-2020, “Investing in human capital to create more opportunities and promote the well-being of society.”

P.223

Herpes zoster in children previously vaccinated against varicella

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Introduction: *Herpes zoster* in immunocompetent children following varicella vaccination is a rare event that may be caused by the vaccine-strain varicella zoster virus. We report two children who presented with *Herpes zoster* despite being vaccinated against chickenpox. A previously healthy two-year old girl presented with a 5 day history of a rash on her left elbow, evolving to crops of vesicles on her left hand and upper back, corresponding to the C8 dermatome. The rash was tender to palpation but not pruritic. She was otherwise well and afebrile. She did not have a history of varicella infection and had received one dose of the varicella vaccine around a year before. The second case was a six-year old girl, with a past history of uncomplicated repaired Tetralogy of Fallot, who presented with a one week history of a vesicular rash over her left thigh, extending over the L2 dermatome. The girl was complaining of pruritus in the same area but she denied any pain or burning sensation, and

was otherwise well and afebrile. This girl had also received one dose of the varicella vaccine and she also did not have a history of varicella infection.

Conclusion: *Herpes zoster* was diagnosed clinically in both cases and also confirmed by PCR in the first case. The rash resolved without complications in both girls. Although rare, shingles may still occur in children despite previous immunisation with the varicella zoster vaccine.

P.224

A novel approach to managing aerophagia and gastrointestinal motility disorders in children

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Introduction: Gastrointestinal motility disorders in children encompass an array of conditions relating to abnormal intestinal contractions and which can present with different symptoms and signs including gross abdominal distension and chronic constipation. Management of these conditions is often challenging. In recent literature the use of acetylcholinesterase inhibitors has been proposed as a possible mode of treatment. In this case report we describe the use of pyridostigmine in the management of a child with aerophagia and chronic abdominal distension.

Methods: Patient A is a 12-year old girl with a background history of cerebellar hypoplasia and a mixed ataxic and extrapyramidal motor disorder. She had a longstanding history of gastro-oesophageal reflux and chronic constipation. Her main symptoms were aerophagia and gross abdominal distension. A contrast study had shown distended gas-filled large bowel. Endoscopic examination revealed no positive findings and rectal biopsy was not in keeping with Hirschsprung Disease. The child had been managed with anti-reflux medications and laxatives with no improvement. The child was started on pyridostigmine 1mg/kg in six divided doses in February 2018 and has shown an improvement in abdominal distension and management of constipation on follow up after 6 months. No ill effects have been reported.

Conclusion: This case report highlights the possibility of using acetylcholinesterase inhibitor in gastrointestinal motility disorders as it increases gastric and intestinal motor activity in children with hypo/dysmotility. Pyridostigmine appears to be well tolerated and efficacious but further studies are needed to determine which cohort of patients would benefit from this treatment and if the response seen in this case can be replicated in children with other dysmotility disorders.

P.225

Hypercalcaemia in childhood - an unusual diagnosis

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Introduction: Hypercalcaemia is a rare problem in children, and may be caused by a wide variety of underlying conditions. We describe a ten-year old boy who presented with a three-year history of chronic abdominal pain and constipation. His plasma calcium and parathyroid hormone concentrations were both consistently elevated. Ultrasound examination revealed a solid, hypoechoic and hypervascular nodule posterior to the thyroid gland, which was strongly suggestive of a right parathyroid adenoma. Parathyroidectomy was subsequently planned.

Conclusion: Untreated persistent hypercalcaemia can have profound repercussions on a child's health. Hyperparathyroidism as a cause of chronic abdominal symptoms is likely to be overlooked in children as it is an uncommon condition in the very young.

P.226

Systemic lupus erythematosus in a paediatric patient with C1q deficiency

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Introduction: A 3.8-year old boy presented with a chronic erythematous facial rash, which then extended to the upper chest and abdomen. He also developed alopecia and peripheral vasculitis, with Raynaud's phenomenon. At five years he experienced transient neuropsychiatric symptoms, including dysarthria, ataxia, staring and confusion and, at eight years, generalised tonic-clonic seizures. Over several years he developed hypertension, recurrent mucocutaneous inflammation with oral and cutaneous ulceration, and prolonged tinea capitis and corporis infection.

Results: He had raised anti-nuclear antibody at 1/640 with a speckled ANF pattern, high total extractable nuclear antibody (115U/L), anti-Smith antibodies (129U/mL), and anti-ribonucleoprotein antibodies (113U/mL). MRI showed mild cerebral atrophy, echocardiogram revealed mild left ventricular hypertrophy, pulmonary function tests showed a restrictive defect, electroencephalogram confirmed epileptiform activity, and a skeletal survey showed severely delayed bone age. Impairment of the classical complement pathway was found, secondary to C1q deficiency.

Conclusion: He was treated with hydroxychloroquine, aspirin, amlodipine, sodium valproate and prednisolone, and intermittent courses of intravenous methylprednisolone for severe mucocutaneous disease and cerebral vasculitis. He was totally steroid-dependant and developed marked Cushingoid habitus, severe short stature

and delayed puberty. He showed an excellent response to mycophenolate mofetil (MMF), started age 12 years, with almost complete resolution of his mucocutaneous disease and alopecia. In addition, he requires 6-weekly testosterone for pubertal development, prophylactic azithromycin in view of the C1q deficiency.

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Idiopathic acute liver failure in a six-year old girl

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Introduction: A previously healthy six-year old girl, presented with a two-day history of fever up to 100°F and jaundice, associated with two vomiting episodes, dark urine and pale stool. She was clinically jaundiced with pale conjunctiva, had mild hepatosplenomegaly but no stigmata of liver disease. Over the following days she had daily temperature spikes and remained jaundiced. Hepatomegaly gradually increased to 4 cm. At day 12 general condition deteriorated, and she developed ascites and a right-sided pleural effusion.

Results: On admission, haemoglobin was 8.7g/dL, MCV of 66.6fL, total bilirubin 129mmol/L, direct bilirubin 117mmol/L, GGT 126U/L, ALT 619U/L, AST 523U/L and INR 1.26. The liver indices and INR remained stable over the first week. She had a positive coeliac screen with TTG-IgA >200RU/mL, but serology for viruses (EBV, CMV, hepatitis A, B and C, adenovirus, enterovirus), bacteria (leptospirosis, Rickettsia, Brucella) and protozoa (Leishmania) were negative. A comprehensive autoantibody screen was negative. On day 12 there was a steep rise in bilirubin (413mmol/L), ALT (1565U/L) and INR (3.62).

Conclusion: Despite extensive investigation and an absence of complications such as confusion, bleeding or renal involvement, this girl's condition deteriorated rapidly into acute liver failure. She was given acetylcysteine, fresh frozen plasma and vitamin K, as well as intravenous piperacillin/tazobactam and acyclovir, and transferred to King's College Hospital, London, where she underwent urgent liver transplantation from a living related donor (her mother). She remains well with excellent liver function one year post transplantation.

P.228

Paediatric hemorrhagic stroke - the need for more research

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Introduction: Paediatric stroke is an important cause of death and morbidity. It is defined as the development of clinical signs that indicate disturbances in brain function. This happens due to an inadequate blood supply which can be of two types; ischaemic or hemorrhagic. Ischaemic stroke involves vascular occlusion while hemorrhagic stroke is associated with vascular rupture. In children, there is no predominance in either type of stroke. Delays

in the diagnosis of the disease are common since the clinical presentation varies significantly depending on the age of the child, the type of stroke and on the location of the lesion. Trauma, cardiac disorders, and haematological disorders are common causes of paediatric stroke and it is fundamental to manage these diseases that may lead to hemorrhagic stroke.

Conclusion: Paediatric hemorrhagic stroke is considered to be an important disorder, however a lot remains unknown. Increased information on risk factors, management, treatment and outcomes should be a priority. The guidelines for the management of hemorrhagic stroke are mostly adapted from those of adults and their validity is questionable. Research providing insights on how to improve treatment methods of paediatric stroke is needed. Increased awareness of childhood stroke amongst primary care physicians and the general population is encouraged to improve the diagnosis of the disease. Simply applying the knowledge of adult stroke to the paediatric population is inadequate. The prognosis of paediatric stroke should be improved through further research and improved experience.

P.229

Non operative management in an appendiceal abscess in a child suffering from lethal arthrogryposis with anterior horn cell disease: a case report

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Introduction: Children suffering from lethal arthrogryposis with anterior horn cell disease have a poor life expectancy. We present a rare case of a 4 year old boy suffering from lethal arthrogryposis with anterior horn cell disease who was treated non operatively from an appendiceal abscess and had complete resolution of the disease. After a thorough literature search we found no documented information about the appendiceal abscess management in children suffering from lethal arthrogryposis with anterior horn cell disease. Non operative management of both uncomplicated and complicated appendicitis is well documented in the literature but our case report is of guidance for children suffering from lethal arthrogryposis with anterior horn cell disease.

Conclusion: Non-operative management with antibiotics is an appropriate and a safe treatment option for selected children with acute appendicitis, both uncomplicated and complicated. Patients suffering from mutations in GLE1 express phenotypic features of prominent forehead and micrognathia which could be an anaesthetic challenge to the anaesthetist and thus such cases will benefit from non-operative treatment for complicated appendicitis.

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Tracheoesophageal fistula, multiple congenital diaphragmatic hernias and posterior urethral valves – a unique triad: a case report

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Introduction: Oesophageal atresia (OA), with or without a tracheoesophageal fistula (TOF), congenital diaphragmatic hernia (CDH) and posterior urethral valves (PUV) are congenital anomalies that occur between 1 every 3,500 to 4,500; 1 every 2,000 to 4,000 and 1 every 7,800 respectively. In Malta, excluding associated chromosomal syndromes, OA ± TOF, CDH and PUV have a prevalence of 2.91, 6.41 and 2.91 respectively. The combination of OA with or without TOF and CDH is rare with only 19 cases reported up to 1998. Currently there is no data in the literature of the triad OA ± TOF, multiple CDH and PUV. We report the case of a child who was found to suffer from OA with TOF, PUV and an incidental finding of anterior diaphragmatic and bilateral Morgagni hernias.

Conclusion: In conclusion, we are reporting a new triad of TOF, posterior urethral valves and congenital diaphragmatic hernia, which, to our knowledge, is the first time that they have been found to co-exist in the same patient. Thus, these associated anomalies require a comprehensive assessment and uniform documentation. Awareness of the possibility of multiple association to other pathologies should enable better timing of interventions, better prognosis and a pragmatic counselling of parents to adjust their understanding and expectations.

P.231

Non-typeable Haemophilus influenzae meningitis: a cause for concern?

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Introduction: Meningitis caused by non-typeable Haemophilus influenzae is suggestive of immunodeficiency or an underlying anatomical defect in the base of the skull. We present an adolescent boy who was diagnosed with a fronto-ethmoidal encephalocoele following investigation of meningitis.

Methods: A 14-year-old boy presented with an acute history of fever, headache, photophobia and neck stiffness. His vaccinations were up to date. Lumbar puncture revealed evidence of bacterial meningitis caused by non-typeable Haemophilus influenzae. In view of isolation of an unexpected pathogen, an MRI scan of the brain and blood investigations to exclude an immune defect were requested.

Results: The brain MRI scan showed the presence of a left fronto-ethmoidal encephalocoele with the meningeal sac extending as far down as the top of the left inferior concha. Part of the inferior frontal cortex herniated through the anterior cranial fossa into the nasal cavity. The encephalocoele could be seen through nasal speculum

examination. On further questioning the boy revealed that he had a long standing history of intermittent clear rhinorrhea on the same side as the encephalocoele. All his immune tests were normal. The defect was eventually corrected surgically.

Conclusion: Children presenting with meningitis caused by unusual pathogens should be fully investigated for an underlying cause. If not diagnosed there is a risk of sustaining repeated episodes of meningitis with the associated morbidity and mortality.

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Terminal Ileitis, a rare but significant gastrointestinal complication of paediatric-onset henoch-schonlein purpura (HSP). A case of a 6 year old boy presenting with a purpuric rash and abdominal pain

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Introduction: Henoch-Schonlein Purpura (HSP) is a leukocytoclastic vasculitis, most often occurring in the paediatric population ranging from 4 to 6 years of age. Ninety percent of affected children are less than 10 years of age. Typical characteristics include the classic nonthrombocytopenic raised purpura, arthritis or arthralgia, gastrointestinal and renal involvement. Etiology of HSP is still unclear, however there seem to be a possible link between vaccinations, certain foods, recent febrile illnesses and insect stings which seemingly play a role in the pathogenesis of HSP. Gastrointestinal involvement comprising abdominal pain, vomiting and bleeding per rectum is reported in 50 to 75% of children presenting with HSP. Paediatric-onset HSP cases presenting with terminal ileitis are very rare, with literature mainly covering a small amount of adult -onset HSP complicated with terminal ileitis.

Conclusion: The case of this 6 year old boy serves to highlight that terminal ileitis, masked with clinical features of acute intestinal obstruction, in conjunction with a diagnosis of HSP, is a rare but possible serious complication encountered in paediatric clinical practice. This case also emphasizes that diagnosis of terminal ileitis can be easily overlooked with potential serious consequences, thus recognition of this complication is mandatory when working in the acute Paediatric Emergency setting. Moreover, this rare paediatric case gives us an insight of the sequence of events leading to the timely diagnosis of terminal ileitis in this boy, going into the radiological investigations, management options and subsequent prognosis of this HSP-related clinical complication.

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An unusual case of severe congenital hydrocephalus

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Introduction: We present a case of a newborn female with antenatally-diagnosed severe hydrocephalus and a heterogenous mass in the right frontoparietal lobe, on foetal MRI carried out at 34 weeks gestation. Clinical examination at birth revealed macrocephaly, large fontanelles and widely spaced cranial sutures. Severe hydrocephalus was confirmed on further imaging, with the mass reported previously now described as a large right intraventricular haematoma with underlying encephalomalacia. An external ventricular drain was inserted on day two of life but in view of clinical deterioration and poor prognosis, care was eventually withdrawn and the baby passed away on day seven of life.

Conclusion: In our case, the underlying cause is still undetermined and we await the result of the autopsy. The most likely diagnosis is an arteriovenous malformation or a congenital tumour with associated haemorrhage and obstructive hydrocephalus. The outcome was one of extensive destruction of brain parenchyma with minimal (or no) cerebral tissue visible on imaging. Reported causes of ventriculomegaly include genetic and chromosomal disorders, congenital infections, aqueductal stenosis, cortical malformations, neuronal migration disorders, and structural abnormalities such as Dandy-Walker malformation, agenesis of the corpus callosum and neural tube defects.

P.234

Pentalogy of Cantrell: a rare congenital anomaly

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Introduction: Pentalogy of Cantrell is a rare condition which involves varying degrees of ectopia cordis through a defect in the lower sternum, an anterior abdominal wall defect, as well as deficiency of the anterior diaphragm and diaphragmatic pericardium. We present a case of a newborn male with incomplete ectopia cordis and an antenatally-diagnosed omphalocele. Clinical examination at birth confirmed a large omphalocele containing liver and bowel. An echocardiogram revealed complex congenital heart abnormalities with mesocardia, double-outlet right ventricle with transposition of the great arteries, as well as a large atrial and ventricular septal defect. Further imaging confirmed herniation of the liver through a defect in the anterior diaphragm which extended anteriorly to the heart, as well as the presence of a midline sternal cleft. This constellation of findings confirmed the suspicion of Pentalogy of Cantrell. Karyotype results were normal. Care was withdrawn as a result of severe pulmonary disease, and the baby passed away at 18 days of age.

Conclusion: The prognosis of this rare condition is dependent on the severity of any intracardiac problems,

as well as the degree of pulmonary hypoplasia. Treatment of this complex condition requires multidisciplinary involvement to achieve medical stabilisation prior to staged internalisation of the vital organs, as well as the repair of any associated intracardiac abnormalities.

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Vein of Galen malformation presenting with seizures and congestive heart failure in a newborn

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Introduction: We present a case of a newborn term male with respiratory distress at birth initially attributed to meconium aspiration. He developed signs of congestive heart failure on day 3 of life. A routine ultrasound scan of his brain was abnormal but difficult to interpret. MRI scan carried out on the same day because of clinical seizures revealed an aneurysm of the vein of Galen as well as diffuse changes consistent with hypoxic ischaemic encephalopathy. Management consisted of treatment of his heart failure as well as seizure control. Once stable, he was transferred to a tertiary centre for further management which consisted of embolization.

Conclusion: Vein of Galen malformations (VOGMs) are rare congenital vascular malformations resulting from the development of AV connection between primitive choroidal vessels and the median prosencephalic vein of Markowski, which usually regresses by the 11th week of gestation, and its posterior part joins the internal cerebral vessels and basal veins to form the vein of Galen. High-output cardiac failure in the newborn period is a common presenting feature but persistent pulmonary hypertension of the newborn has also been reported. Mass effects causing progressive neurological impairments may also result as well as obstructive hydrocephalus. Other clinical presentations of VOGM include seizures and developmental delay. Cerebral ischaemic changes are frequent associated findings. Endovascular embolisation is the mainstay of treatment in VOGMs.

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Transcranial magnetic stimulation to treat depression and anxiety - a local study

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Introduction: Transcranial Magnetic Stimulation (TMS) is a safe, painless, effective and natural, evidence-based treatment for patients suffering from severe unipolar affective disorder who do not respond to medication (i.e. they suffer from treatment-resistant severe/major depression). We submit a small longitudinal study comparing the effect of rTMS versus standard treatment in our patients, using the Beck's Depression Inventory and clinical assessments to monitor progress.

Methods: Fifty six patients with an apparent sole psychiatric diagnosis of TRD were referred through

colleagues or social media and volunteered to take part in this study. They completed a self-report Beck Depression Inventory (BDI-II) pre-treatment and at the end of each week. The treatment course which lasted 1-4 weeks, consisted of 15 minute sessions held three times a week.

Results: Sixty eight percent of patients reached remission (BDI-II scores dropped from 29 or more, indicating severe depression, to 13 or less, indicating minimal or no depression) by week 2. Twenty nine percent reported a decrease in symptoms of up to 50% and an improved quality of life by week 4. Three percent did not report any improvement (presumably due to underlying personality issues or response bias). Illness duration did not affect the likelihood of recovery. The treatment was very well tolerated and no side effects were reported. Nobody dropped out and nobody relapsed to date. Some reported a marked decrease in suicidal ideation and improvement in mood, anhedonia and anergia within hours of the treatment but the numbers here are too small to draw reliable conclusions.

Conclusion: Considering that depression will be the leading cause of disease burden by 2030 (WHO). Only 1/3 of treated patients achieve remission after the first antidepressant treatment following standard doses of antidepressants for 6 weeks or more (STAR-D study). The remaining 2/3 are classified as treatment resistant. Failure to respond to two consecutive antidepressants leads to greater reduction in remission rates. TMS offers a safe, effective and natural treatment for depression where only about 30% respond to standard treatment. Our patients have attained response and remission rates in the region of 60% which is way more effective than standard treatment, resulting in significant improvement in quality of life. Efficacy appears to be better than medication and at least at par with or better than ECT for TRD patients, based on our scales and assessments. More research is required in this field to determine for example, the decrease in suicidal ideation (which bears important connotations for crisis admissions vs. community treatment) and the efficacy of using various traditional treatments simultaneously with TMS as happens locally at times.

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Cavum vergae cyst in an eleven year old presenting with psychosis: a case report

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Introduction: Eleven year old child being followed up for Attention Deficit Hyperactivity Disorder presented with a history of psychotic symptoms and occipital headaches.

Methods: An abnormal CT result identified a 2.4 cm midline cavum septum pellucidum et vergae causing early obstructive hydrocephalus secondary to obstruction of the foramina of Monro.

Results: The septum pellucidum separates the lateral ventricles and is made up of two laminae divided by a space during fetal life. Rarely this space persists, resulting in a cavum septum pellucidum (CSP). A cavum vergae (CV) forms if the two laminae remain completely undetached. Research has been focusing on whether enlargement

of these cavities could be attributed to any disease. The septum is responsible for transfer of information as part of the mammalian limbic system therefore, lesions may have cognitive or emotional manifestations by mass effect or by disturbance of the limbic system. Another mechanism by which patients may present is through distortion of the vascular structures causing deep cerebral venous drainage impairment. Cysts may present with signs of raised intracranial pressure or with other symptomatology depending on the structures being compressed by the expanding cyst and the size of it. Compression of important anatomical structures lying within or adjacent to the hypothalamo septal triangle results in neuropsychiatric, autonomic and sensorimotor disturbances. Larger CSPs may be a risk factor for psychotic disorders.

Conclusion: This large structural abnormality may indicate the existence of disturbances and associated deficits in other midline structures and possibly be linked to the onset of psychotic symptoms. However, only when there has been an improvement in psychotic symptoms following treatment of the cyst and the hydrocephalus can an association between the two be made.

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Transcranial magnetic stimulation - facts, fiction and lies

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Introduction: There seem to be some misconceptions about Transcranial Magnetic Stimulation (TMS) among professionals locally. This talk aims to debate any issues and to separate fact from fiction. We aim to show the 'what', 'how' and 'why' of TMS and emphasize the important and life saving role it plays in both crisis and elective clinical psychiatry. Other non psychiatry applications will be discussed. We also aim to dispel lies which are circulating due to lack of up to date knowledge. We will provide the knowledge endorsed by the world authority in the field, the Clinical TMS Society (of which we have been members since our inception in 2015) and by other approved bodies worldwide. Our staff will also talk about how a TMS clinic works.

Conclusion: TMS is an effective evidence-based treatment adjunct both in the psychiatric and non psychiatric setting.

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Why Mater Dei succeeded and Mount Carmel failed so far: the importance of a fully functional 24/7 crisis team

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Introduction: Mater Dei Hospital invested heavily in a top notch emergency service. The idea was to see to patients and channel them along the right clinical path in an efficient and evidence based manner while not stressing the inpatient sectors unnecessarily. They did a fine job.

Can we say the same for mental health? Is Mount Carmel doing things the other way round? The casualty equivalent of mental health is a crisis team. This is conspicuous by its absence. Such teams, nip illness in the bud, gatekeep and process admissions and keep the suicide rate in check. Unfortunately, the mental health emergency service has very limited (if any) funding, resources and staff unlike its physical equivalent. If depression is now the commonest burden inducing illness worldwide (more than heart disease and cancer put together), why this discrepancy? By not focusing on emergency mental health, are we contributing to the stigma? This controversial talk is designed to stimulate discussion and redress this longstanding imbalance between the artificial physical and mental divide. We will also try to show how a fully functional crisis team can really help those who suffer and help support the already strained inpatient and community mental health services.

Conclusion: A crisis team is key to decreasing suicides, unnecessary admissions and mental health morbidity. Through its interaction with other physical and mental health services, it will redress the stark imbalance of service provision and stigma.

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Why we are letting people die by not implementing the National Suicide Prevention Strategy for Malta & Gozo

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Introduction: In Malta and Gozo, some 20-40 males and females die by suicide annually. For each person who completes the act, there are up to 20 trying or contemplating suicide. For every person who self-harms, there are 6 loved ones who are themselves at risk of suicide (65% increased risk), mental illness, marginalization, unemployment and dropping out of education (80% increased risk). What are we doing about this national crisis? Very little unfortunately despite concerns voiced by Malta's oldest and only 24/7 crisis team (Crisis resolution Malta) which has been doing pro bono work in this sector since its inception in 2010. A National Suicide Prevention Strategy can provide an evidence-based framework to stem this preventable tragedy. Drafted in 2015, this evidence-based document is already applied abroad under the endorsement of WHO and other bodies to help people in crisis. If mental health is stigmatised, then suicide is the most stigmatised component of mental health. What are we doing about it? We must act now to stop 'allowing' self-harm and unwittingly perpetuate a transgenerational legacy of pain and suffering. We owe it to our patients, to those who died uselessly by suicide and to their loved ones who are tormented for a lifetime asking, 'why?'

Conclusion: A National Suicide Prevention Strategy is an evidence based tool which will help prevent suicide in Malta and Gozo. It will also prevent related morbidity in suicide survivors and loved ones, decreasing the burden on the individual and the state. Let's stop contributing to the stigma and suffering. Lives are at stake every week. We cannot dilly-dally any longer.

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A rare cause of intervertebral discitis

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Introduction: The authors present a case of a 60-year-old gentleman who presented with severe thoraco-lumbar back pain of recent onset associated with fever. The patient had a significant surgical history, where a month prior to this presentation he underwent multiple abdominal surgeries in view of perforated diverticular disease. These surgical procedures were complicated by abscess formation, bacteraemia and candidaemia.

Methods: On physical examination, the patient was febrile and distressed in view of the back pain. He was haemodynamically stable and there were no neurological deficits. There was thoracic spinal tenderness on minimal palpation.

Results: In view of the patient's history and presentation, intervertebral discitis was suspected and an MRI scan of the whole spine revealed an inflammatory process involving the T7-T8 and T10-T11 discs with associated early para-vertebral abscess formation at T7-T8 level. A bone biopsy was performed and this cultured candida albicans. No bacterial growth was cultured from this biopsy. This patient was managed with fluconazole and was advised to wear a hyperextension brace for pain alleviation. Without effective treatment, this fungal infection leads to vertebral compression and possible spinal cord and neural compression.

Conclusion: Intervertebral discitis is a rare but recognized complication of candidaemia. Its diagnosis requires a high level of clinical suspicion as it has a very insidious course. This case highlights the importance of suspecting fungal spondylodiscitis, not only in immunosuppressed patients but also in those who undergo major surgery, have total parenteral nutrition and are administered broad spectrum antibiotics.

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Audit: Cognitive assessment of older adult patients at medical outpatients at Rehabilitation Hospital Karin Grech

D. Galea, T. Aquilina

Introduction: Abbreviated mental tests (AMT4 and AMT10) and mini-mental score examination (MMSE) are quick cognitive screening tools, which form part of the comprehensive geriatric assessment. The aim of the audit is to determine whether cognitive screening is being carried out for geriatric patients at Medical Outpatients (MOP) and if it is leading to diagnosis of dementia.

Methods: A retrospective study including the first 54 older adult patients attending MOP between 13th and 24th of March 2017 was carried out. Patients' notes were analysed for completion of AMT4, AMT10 and MMSE.

Results: 54 patients were included, with an average age of 77.9 years. 14/54 (25.9%) did not have any cognitive screening and none of them were followed for memory problems. 13/54 (24.1%) had AMT4 done, 5/54 (9.3%) had AMT10 done, 19/54 (35.2%) had MMSE only done, 3/54 (5.5%) had both AMT4 and MMSE. 2/13 (15.4%) had

low AMT4 but no MMSE was carried out. Other AMT4s were normal. 14/22 (63.6%) patients scored <24 on MMSE. 4/14 (28.6%) had established dementia, 4/14 (28.6%) were being followed up for mild cognitive impairment and 5/14 (35.7%) were started on treatment, while 1/14 (7.1%) required further tests prior to initiating treatment.

Conclusion: The majority of older adult patients attending MOP are having cognitive screening. Increased awareness amongst doctors may allow for new diagnosis of cognitive impairment or dementia. This allows for better multidisciplinary team approach to help patients have a good quality of life. Validation of cognitive screening tools in the Maltese language would be beneficial in this regard.

P.243

Comparison of cognitive screening between inpatients and outpatients at Rehabilitation Hospital Karin Grech

D. Galea, T. Aquilina

Introduction: Abbreviated mental tests (AMT4 and AMT10) and mini-mental state examination (MMSE) are quick cognitive screening tools which form part of the comprehensive geriatric assessment. The objective of this audit is to identify any differences and similarities between cognitive screening in the inpatient and outpatient setting at Rehabilitation Hospital Karin Grech (RHKG).

Methods: Data about cognitive screening was obtained from 54 inpatients and 54 patients at the Medical Outpatients (MOP) at RHKG. These were compared so as to identify any possible similarities and differences in the results obtained. Student t-test was used to identify any differences.

Results: 18.5% of older adult inpatients did not have any form of cognitive screening, whereas 25.9% had none at the outpatient setting. There was a significant difference between the number of inpatient AMTs performed compared to those at outpatients (40 versus 20 respectively). AMT10 was only performed at outpatients (in 5 cases). There was no significant difference in the number of MMSEs performed, being 22 in both cases. More inpatients scored low on MMSE compared to outpatients (17 versus 14), though more patients were started on treatment at the outpatients setting (2 versus 5).

Conclusion: Cognitive screening is part of the comprehensive geriatric assessment, which is useful for both inpatients and outpatients. Increased awareness amongst doctors may allow for new diagnosis of cognitive impairment or dementia.

P.244

Audit: Cognitive assessment of older adult inpatients at Rehabilitation Hospital Karin Grech

D. Galea, T. Aquilina

Introduction: Cognitive screening is part of the comprehensive geriatric assessment. The aim of the audit is to determine whether cognitive screening is being carried out on admission for geriatric inpatients at Rehabilitation Hospital Karin Grech (RHKG) and if it is leading to comprehensive assessment and diagnosis of dementia.

Methods: A retrospective audit was carried out including the first 6 patients of all the 9 wards at RHKG. Patients' files were analysed for completion of abbreviated mental test (AMT4) and mini mental state examination (MMSE).

Results: 54 patients were included, with an average age of 81.2 years. 10/54 (18.5%) patients did not have AMT4 or MMSE as part of their cognitive screening. 40/54 (74.1%) patients had AMT4 done on admission. 23/40 (57.5%) had a low score, of which 13/23 (56.3%) patients were followed up with MMSE. 5 patients with normal AMT4 and 4 without AMT4 had MMSE performed. A total of 22/54 (40.7%) MMSEs were performed. 17/22 (77.3%) who had MMSEs done had a low score, <24. 5/17 (29.4%) already had a history of dementia. 2/17 (11.8%) patients were started on treatment during their admission. 10/17 (58.8%) of patients had no treatment started.

Conclusion: Cognitive screening tools may allow for new diagnosis of cognitive impairment or dementia, allowing for better multidisciplinary team approach. There should be more awareness about cognitive screening: AMT4 being conducted on admission, and low scores being followed up by MMSEs. An attempt at validating the MMSE screening tool in the Maltese language would be beneficial.

P.245

Case report: Type 1 Mobitz atrioventricular block in a patient treated with donepezil

J. Sammut, F. Micallef, M.A. Vassallo

Introduction: Dementia is a progressive condition more common in the elderly, with deterioration of many aspects of cognitive mental function. As life expectancy has increased over the years, more people are in the older age group, resulting in an increase in the incidence of dementia. The first line treatment for mild to moderate dementia is an acetylcholinesterase inhibitor such as donepezil. Apart from the most common gastrointestinal side effects, cardiovascular side effects may rarely occur with such treatment. In this report, we describe a case of a patient with dementia who has developed Type 1 Mobitz atrioventricular block while being treated with donepezil, with return to baseline electrocardiogram findings on stopping the drug.

Conclusion: In general, donepezil is well tolerated. However, its side effects can be attributed to the combination of various factors including polypharmacy, metabolic abnormalities, heart disease and diversity in genetic factors. A thorough cardiovascular assessment should be taken prior to, and during, treatment to avoid the potential and serious side effects of this drug on the heart.

P.246

An audit looking at the accessibility and completion of the 'Problem Lists' in St. Vincent de Paul Residence

J. Thompson, Z. Busuttill, K. Zammit, P. Ferry

Introduction: The patient files in St. Vincent de Paul Residence (SVPR) have a paper called a 'Problem List' which

summarises the medical conditions and comorbidities of each patient. This provides a quick background to the patient's problems for all professionals involved in his/her care. The aim of this study is to see how well-completed and accessible these 'Problem Lists' are.

Methods: 350 files were analysed for presence of the 'Problem List', level of completion and location in the file. A questionnaire was also sent out to foundation doctors, who worked at SVPR in that time-period, to analyse their views regarding these 'Problem Lists'.

Results: Out of 350 files, only 41% of them had a 'Problem List' present. Out of these, demographic details were well-completed in 42%, problems were listed in 39%, and 3% included the date of diagnosis. 38.5% of the lists were located in the front of the file. In those files without a 'Problem List', 93.2% had the patient's problems listed in the continuation sheets amongst the doctors' notes. The majority of foundation doctors who completed the questionnaire agreed that it is a useful tool and that they would take the time to fill it in.

Conclusion: This audit shows that the 'Problem List' is not being used appropriately in the majority of the files in SVPR. Our recommendations would be to create a standardised, brightly-coloured 'Problem List' at the front of each file and to increase awareness in order to make it a standard part of every file.

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Vitamin D deficiency in a rehabilitation hospital

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Introduction: Patients who require inpatient rehabilitation stay, after an acute hospitalisation, possess multiple risk factors for vitamin D deficiency. Frequently, these patients are older and medically complex and suffer from reduced mobility and poor nutritional status. The elderly are particularly at risk of vitamin D deficiency due to factors like decreased dermal production of vitamin D following exposure to sunlight because of atrophic skin changes, lower dietary vitamin D content, impaired gastrointestinal absorption, and decreased renal production of 1,25OH₂D. **Methods:** A study was done to assess levels of vitamin D deficiency in older patients in Malta's rehabilitation hospital. The cohort of patients was 60 years old and above. 140 patients had blood levels of vitamin D taken. These results were analysed and compared using SPSS, with further data being collected, including descriptive statistics, co-morbidities and medication levels.

Results: From the 140 patients, 48 were female and 27 male. Mean age was 77.2 years. Mean Vitamin D level was 22.5ng/mL. 84.5% had low vitamin D levels. Low levels of vitamin D were associated with fragility fractures, increasing age, being female and previous falls.

Conclusion: The study showed that the Maltese patients undergoing rehabilitation in hospital have low levels of vitamin D which may affect progress and well

being in these patients. It is suggested that on admission all patients should have vitamin D levels checked and treated accordingly.

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Medical students' views on geriatric medicine as a speciality of choice

C. Tonna

Introduction: An ageing population necessitates the need of trainees in geriatrics.

Methods: A questionnaire, designed to view medical students' interest in geriatrics, was shared amongst 3rd, 4th and 5th year medical students.

Results: Most responses came from 3rd year female students. Only 4% would opt to do an optional attachment in geriatrics. Some 56% fear ageing and 53% are not comfortable dealing with chronicity. Although 80% consider caring for the elderly rewarding and 98% feel that the quality of life of the elderly is important, only 45% consider geriatrics a prestigious specialty. More than half of respondents, 66%, think that medical school is not providing sufficient exposure in geriatrics. Interest among Maltese medical students to pursue geriatrics is lacking, possibly due to either lack of a positive learning experiences or knowledge in managing complex patients. Studies show that after exposure to managing complexities, most students recall the experience as rewarding. Although the results seem distressing, there does seem to be potential for increased interest in geriatrics. Most students consider caring for the elderly rewarding. Thus, innovative education strategies that encompass the social aspect of care and the adaptation of strict guidelines to more individualistic treatment, could improve the situation.

Conclusion: Medical students' attitude towards prospective careers in geriatrics requires immediate attention. There is need for sustained mentoring to attract students to the specialty, in order to expand the geriatric workforce and guarantee optimum medical care for the increasing geriatric population.

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Herpes zoster duplex bilateralis: A case report

W. Sciberras Buhagiar, Ian Baldacchino

Introduction: Varicella zoster virus (VZV) is a neurotropic herpesvirus with two distinct clinical entities, varicella zoster (VZ) and herpes zoster (HZ). In this presentation, a case of an atypical HZ, pathophysiology, prevention and management of VZ and HZ are discussed.

Methods: A literature review on management and prevention strategies of VZV was carried out using Pubmed and Google search engines. The Centres for Disease Control (CDC) and European Medicines Agency (EMA) were referenced directly in view of recent updates in vaccination recommendations. Patient written consent was given to submit pictures and case details of a symmetrical bilateral HZ case.

Results: VZV can result in several complications, the most common being post-herpetic neuralgia. Antiviral therapy is the mainstay of treatment reducing symptom severity and complications. Adjuncts including,

corticosteroids, opioids and topical preparations (capsaicin) can decrease symptom burden. The non-live recombinant glycoprotein E vaccine (RSV) and live attenuated vaccine are currently available for VZV prevention. RSV is recommended by the CDC due to greater efficacy and immune response. The EMA recommends it for patients over 50 years of age.

Conclusion: HZ and VZ are an easily preventable and treatable set of viral illnesses.

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Improving physical function in older adults: Comparison of resistance training versus aerobic exercise

G. Privitera

Introduction: Regular physical activity can help to improve physical function in the older adults. Ability-threatening conditions may be associated with physical inactivity. We are having an increasing percentage of older adults due to advancements in medicine, health status and social policy which have led to an increased life expectancy. Physical function is often defined as the ability to independently carry out activities of daily living. This study aims to address the effectiveness of resistance training *versus* aerobic exercise, to improve physical function in older adults.

Methods: The population (P) addressed in the research question was 'older adults'; this includes adults over the age of 60. The intervention (I) studied was 'aerobic exercise'. This intervention was compared (C) to resistance training. The final outcome observed was 'improved physical function'. A literature search included systematic reviews and randomised controlled trials (RCTs), articles published after 2007, articles available in the English language, articles available in full text, populations of older adults with no contraindications to exercise, studies which research the effects of aerobic exercise *versus* resistance exercise and studies featuring measurements of physical function. Five randomised controlled trials (RCTs) were identified to be relevant to the research question. Five databases were searched: CINAHL Plus with Full Text, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, Science Direct and PubMed. The results were manually screened for eligibility, using the inclusion and exclusion criteria. The CASP Randomised Controlled Trials Checklist was used to appraise the studies identified.

Results: Five key studies were identified, all of which were randomised controlled trials. The results were inconclusive and did not prove resistance training to be more effective in improving physical function, when compared to aerobic exercise. However, a combination of both modes of exercise was suggested.

Conclusion: While it could be concluded that a combination of both interventions would effectively improve physical function in older adults, more studies are required to identify the effects of specific training modes on different components of physical function, to be able to be used as effective treatment in older adults. Implementing evidence-based measures into practice would require

efforts of management, education, research and practice. The most important recommendations include creating frameworks and protocols in order to standardise care and educate physicians, nurses and allied health professionals through a variety of efforts, in order to implement the findings into rehabilitative and preventive practices.

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Streptococcus equi subspecies equi meningitis in an immunocompromised child, Malta - 2017

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Infectious Disease Prevention and Control Unit – Health Promotion and Disease Prevention Directorate, Malta

Introduction: *Streptococcus equi* subspecies *equi* (*S. equi*) is the commonest cause of strangles in horses but a rare infection in humans associated with horse contact. On 13/12/17, we were informed about a suspected case of bacterial meningitis in a 13-year-old immunocompromised male. On 18/12/17, *S. equi* was cultured from the patient's blood. We investigated to identify the source and implement control measures.

Methods: We collected data on risk exposures by telephone interviews. We traced and actively followed up close human and horse contacts by collecting respiratory swabs. Genotyping was performed on positive samples.

Results: The patient suffered from mixed connective tissue disease requiring methotrexate therapy. On 13/12/17, he developed fever, headaches, photophobia and gastroenteritis. He deteriorated rapidly and was hospitalized in intensive care the same day. Epidemiological investigations revealed the child was regularly exposed to a family owned horse and pony and other horses kept on the same premises. Respiratory swabs from the 6 family contacts and horse were negative for *S. equi*. Both nostril swabs from the pony were positive for *S. equi* (subspecies indeterminate). WGS showed that the human and pony isolate were phylogenetically distinct.

Conclusion: Although the source of infection was not confirmed, the likely source was exposure to other horses on the premises. Our findings support previous studies indicating that *S. equi* causes severe infections in humans. Increased awareness is needed for those exposed to horses. Clinicians should consider *S. equi* as an alternative diagnosis for patients presenting with suspected bacterial meningitis and horse contact.

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An outbreak of Salmonella infantis linked to a Turkish establishment, July 2018, Malta

G. Rocco, M. Borg, M.L. Borg, T. Melillo, C. Gauci

Introduction: Salmonella is one of the commonest causative agents of foodborne illness (FBI) in Europe. In 2017, 110[b1] cases of Salmonella were reported to the Infectious Disease Prevention and Control Unit (IDCU). In July 2018, IDCU detected a cluster of cases of *Salmonella infantis* and an outbreak investigation was launched to identify the source and implement control measures.

Methods: Two sporadic cases of *Salmonella infantis* were notified in July. Telephone interviews were conducted

with the cases to gather information on food history and any additional symptomatic contacts. The implicated establishment was inspected by the Environmental Health Directorate (EHD) and environmental/food samples were sent for analysis.

Results: A couple developed gastroenteritis on 27th June, 12 hours after consuming chicken and lamb shavings with couscous and hummus at a Turkish establishment. The female patient was admitted to hospital because she was pregnant and severely dehydrated. The second case developed gastroenteritis on 1st July, 24 hours after consuming kebab shavings and rice from the same establishment. Both confirmed cases required hospitalization. The establishment was found to have suboptimal food safety practices upon inspection. Upon analysis, the hummus, tested positive for *Salmonella infantis*, while the pasta resulted in high Enterobacteria count, indicating poor hygiene. The establishment was ordered to rectify the deficiencies and further legal action was taken.

Conclusion: Cross-contamination due to poor food safety standards and hygiene at this establishment was the likely source of the outbreak. This reflects the importance of reporting and testing suspected cases of FBI by clinicians so that outbreaks are promptly identified and controlled.

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Increase in reported measles cases in Malta in 2018

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Introduction: Measles is on the increase in the EU, with 14,600 cases reported in 2017. In 2018, up till July, 6 confirmed cases of measles were investigated by the Infectious Disease Prevention and Control Unit (IDCU) in Malta.

Methods: Suspected cases were confirmed by measles IgM antibodies test and PCR. Whole genome sequencing was performed on positive samples. IDCU traced close contacts and ensured they were immunocompetent. Nonimmune contacts were given the MMR vaccine. Close contacts were monitored for symptoms and cases were isolated to prevent transmission.

Results: Out of the 6 reported cases, 5 were imported from Ukraine, Sicily and Russia. Two clusters were investigated; one involved 2 siblings who developed measles in Malta after being exposed in Russia, and a cluster of 3 people linked to an imported case from Sicily. In the latter, the index case was infectious whilst on the plane. Countries were alerted of the incident and the passengers were traced and followed up. 9 days following the incident, measles was confirmed in a Maltese passenger on the same flight. Furthermore, a local contact was diagnosed with measles after relatively minor exposure to the index case locally. None of the cases were vaccinated against measles and 2 required hospitalisation.

Conclusion: Malta is at a high risk of more imported measles cases due to the increasing incidence in Europe. It is important to increase awareness about measles to

ensure high vaccine uptake, especially amongst healthcare workers, enhance prompt identification of cases and rapid implementation of control measures.

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Characteristics of sporadic Creutzfeldt-Jakob disease cases in Malta

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Introduction: Creutzfeldt-Jakob disease (CJD) can be one of three forms: sporadic, acquired or genetic due to DNA variations in the PRPN gene. A total of 12 cases of sporadic CJD have been diagnosed between 2012 and 2017. The annual mortality rate has been calculated as 4.69/million, which is considerably high when compared to countries such as the UK (1.59/million).

Methods: Extensive review of patient's clinical records, including electronic patient data was conducted in order to establish possible epidemiological links, clinical data and relevant diagnostic criteria for CJD.

Results: Seven of those affected were men with a mean age of onset at 66.7 years. Illness duration was of 1 month for the largest proportion of patients (n=5), and the longest was 8 months. Mean duration of illness was 2.7 months. Of all those affected, only 3 could be diagnosed as having definite CJD, the rest classified as probable CJD using CDC criteria for classification. Successful lumbar puncture on 3 patients tested positive for protein 14-3-3. Only 3 patients had no history of surgical procedures. Nearly all the patients (n=11) experienced myoclonic jerks and EEG confirmed the diagnosis in all those who had an EEG performed (n=10). Molecular genetic testing for the PRPN gene was done on 6 of the cases and this revealed the same heterozygous c.628G>A mutation in 4 patients.

Conclusion: No epidemiological link could be established for the cases evaluated. Multi-disciplinary involvement must be encouraged to continue tackling this public health concern and establish aetiology for all CJD cases in Malta.

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Why Malta urgently needs a National Suicide Crisis Line

M. Xuereb

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Introduction: In Malta and Gozo, some 20-40 males and females die by suicide annually. For each person who completes the act, there are up to 20 trying or contemplating suicide. For every person who self-harms, there are 6 loved ones who are themselves at risk of suicide (65% increased risk), mental illness, marginalization, unemployment and

dropping out of education (80% increased risk). What are we doing about this national crisis? Very little unfortunately despite concerns voiced by Malta's oldest and only 24/7 crisis team (Crisis Resolution Malta) which has been doing *pro bono* work in this sector since its inception in 2010. The team already mans a 24/7 crisis line (99339966) run by trained professionals in the field, which is already very busy. What we need now is to nationalise it to reach out to more people. A National Suicide Crisis Line can provide an evidence-based framework to stem this preventable tragedy. Despite its good intentions, the Appogg '179' service is flooded by social case calls. It is not uncommon to be left waiting on the line with nobody answering at all-hence the urgent need for a dedicated suicide crisis line.

Conclusion: As happens abroad, a dedicated National Suicide Crisis Line run by trained professionals will help save lives. The present system in Malta is, despite the best of intentions unprepared and not specialised to cater for such crises. Besides, '179' does not always respond to the incoming calls and the responders are not trained professionals in the field. Nationalising 99339966, which is already manned *pro bono* by trained crisis professionals, is a way forward to help stem these preventable tragedies, and minimise morbidity and mortality.

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Environmental risk factors that can lead to disease

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Introduction: Pollution can come from various sources; anthropogenic and natural sources, both of which cause harm to humans, wildlife and the environment itself. However humans cause a disproportionate amount of pollution at a faster rate than it can be eliminated, and so pollution can accumulate in the environment. Diseases and adverse effects from the environment are amongst some of the most common incidents and prevalence of morbidity and death. For the purposes of this essay, four categories of environmental risk factors are taken into consideration: air pollution, heavy metal intoxication, herbicides and insecticides and excess antibiotic use in livestock, and radiation exposure. In each chapter, the sources and accumulation in the environment, transmission to humans and their adverse effects on human health are discussed. In some cases, studies were performed on animal models and extrapolated to human physiology.

Conclusion: This essay has shown that there are many chemicals which can cause harm to humans, even in day to day life. This is why it is of vital importance that doctors take a clear and accurate history of the patient, as clinical symptoms of diseases vary and overlap, and it may be difficult to isolate an individual source of disease. Doing this will increase the prognosis for the patient and for future patients as the disease would be cured before progressing further. This also stresses the need for reducing or removing the sources of radiation in various ways. This can be by public outreach and awareness, to take certain precautions e.g. ventilating rooms, wear sunscreen etc. However, more importantly, policy needs to be introduced

to regulate corporations and manufacturers to limit or ban certain chemicals or malpractices which further exacerbate the accumulation of these sources of disease. To do this, governments need to provide data and evidence of the levels of certain chemicals, especially locally, in which monitoring is still lacking. This will reduce the burden on the health care system to care for other diseases. For air pollution, importance should be placed on cleaner energy sources such as photovoltaic solar panels, wind power and hydropower. This cuts down on harmful emissions to humans and the environment, while heavy metal intoxication prevention should include how to dispose of materials properly and regulate hunting so that ammunition does not accumulate in soil. Herbicides and insecticides should have a relatively low persistence with non-harmful by-products.

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Indwelling pleural catheter versus talc pleurodesis in adults with malignant pleural effusion: a systematic review and meta-analysis

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Introduction: Malignant pleural effusion (MPE) is a common condition which can cause significant distress to patients. Indwelling pleural catheters (IPC) have been widely used in the management of MPE, and have been shown to have similar efficacy and safety profiles to talc pleurodesis (TP). No reviews have yet assessed whether there is any benefit of IPC over TP with regard to patient-centred outcomes.

Objective: To systematically review the available evidence comparing management of MPE with IPC *versus* TP, with regard to perceived dyspnea, quality of life (QoL) and number of days spent in hospital.

Methods: Electronic databases (PubMed, EMBASE and Web of Science) were searched for randomised controlled studies (RCT) comparing IPC with TP in MPE. Included studies were RCTs recruiting adults with symptomatic MPE treated with IPC and having a control group treated with TP. For all trials, one review author extracted the data and assessed for bias. A meta-analysis was performed and standardized mean differences (SMD) were estimated using a random-effects model.

Results: 4 completed trials, involving 347 patients, were included in this review. Meta-analysis showed no statistically significant benefit of IPC over TP with regard to dyspnoea or QoL scores. The median number of days spent in hospital was noted to be lower in the IPC group.

Conclusion: Current evidence suggests that there is no benefit of IPC over TP with regard to improvement in dyspnoea and QoL. However, it was noted that patients treated with IPC spent less time in hospital. Due to the limited number of RCTs available, further large well-designed RCTs are required in order to better compare IPC to TP with regard to such patient-centred outcomes.

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An abnormal finding on chest X-ray

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Introduction: The authors report a case of a 58 year old female, ex-smoker, who was referred to the respiratory clinic with a presumed unresolving airspace shadowing in the right lung. Further evaluation of the shadowing with a CT thorax revealed rib lesions, a pancreatic lesion and multiple liver lesions, making the diagnosis of metastatic pancreatic carcinoma most likely. However, further blood investigations and imaging eventually revealed the cause for the shadowing to be multiple myeloma (MM), since the unresolving shadowing was actually a rib lesion.

Conclusion: Due to the multiple modes of presentation of MM, the physician should have a high index of clinical suspicion and should take MM into consideration in the differential diagnosis of pulmonary and pleural infiltration.

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Recent and future approaches to regulation of oxidative burst: a literature review

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Introduction: Oxidative burst is an essential component of phagocytosis, in which Reactive Oxidative Species (ROS) are produced in order to kill invading pathogens. ROS deficiency has been proven to hinder the body's capability to get rid of harmful pathogens, as seen in chronic granulomatous disease (CGD). Excessive ROS would, on the other hand, result in oxidative stress.

Methods: Various novel NADPH oxidase (NOX) inhibitors will be described. Two of these inhibitors, GKT137831 and GKT136901, have exhibited a high degree of success on NOX1, 4 and 5. VAS3947 acts on all isozymes 2, 3 and 4 of NADPH oxidase, while VAS2870 only has a significant effect on NOX2, and a weaker effect on NOX4 and 5. NOX1 can be targeted to decrease high blood pressure and to reverse atherosclerosis to a certain extent. NOX1 can also be targeted to slow down fibrosis of the liver. NOX4 can be inhibited to treat certain types of osteoporosis, nephropathy and ischaemic strokes. Dual oxidase 2 can be targeted to treat hypothyroidism. CGD, on the other hand, is a disease of insufficiency, and can be treated by stimulating NOX2.

Conclusion: In the upcoming decades, research is going to be conducted to find out even more specific NOX inhibitors. Such a potential could be realised by developing therapeutic antibodies, which would not only have a high specificity but also low toxicity. A promising direction is the development of a therapeutic antibody, which targets the third extracytosolic loop of NOX4.

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A case of postmenopausal hirsutism

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Introduction: A 61-year-old, post-menopausal lady was referred to the endocrine outpatients with a two-year history of hirsutism and elevated serum testosterone. Further enquiry revealed a history of increased libido, weight gain, baldness, generalised pruritus and deepening of the voice.

Methods: On examination the patient was normotensive, with central adiposity and male pattern baldness. A hormone profile revealed a markedly elevated serum testosterone of 18.3nmol/L, androstenedione of 5.3ng/mL (0.35-2.49 ng/mL), and a free androgen index 67% (< 6.6%). Cortisol, prolactin, growth hormone and thyroid function tests were normal. A CT scan of the abdomen and pelvis carried out two years previously had shown a 12.0x15.0mm left ovarian cyst and normal adrenal glands. An ultrasound of the uterus and ovaries was performed but failed to show any pathology (including the previously reported left ovarian cyst). An MRI was later performed and confirmed the presence of a 17.0mm left ovarian mass.

Results: The patient underwent a total abdominal hysterectomy with salpingo-oophorectomy. Histology confirmed the presence of a Leydig cell tumour confined to the left ovary, with no malignant features, deemed as having an excellent prognosis.

Conclusion: Postmenopausal hyperandrogenism is very uncommon, yet it is associated with significant comorbidities and a poor quality of life. Ovarian or adrenal androgen secreting tumours should be considered, especially if there are signs of virilisation and elevated testosterone levels (>5.2nmol/L).

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Impaired glucose tolerance and the pancreas

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Introduction: The pancreas is responsible for the maintenance of glucose in the blood. Defective insulin secretion or loss of cellular insulin receptors may lead to hyperglycaemia which can be either mild, that is, prediabetes, or more severe resulting in Diabetes Mellitus (DM). The aim of this review was to identify pancreatic changes occurring in individuals with Impaired Glucose Tolerance (IGT). Obesity in relation to IGT was explored since both obesity and DM are highly prevalent in the Maltese islands.

Methods: A thorough literature search was carried out on electronic databases from July 2017 to October 2017. The following criteria were used: European studies published from 2010 onwards, involving human subjects and in the English language. Keywords used were: 'impaired glucose tolerance', 'pancreas', 'IGT', 'obesity', 'prediabetes' and

'BMI'. Twelve articles were found to be relevant and were further analysed.

Results: Impaired insulin secretion, action, and also insulin resistance play an important role in the pathophysiology of both T2DM and IGT. The occurrence of prediabetes and DM has also been reported in individuals with obesity, which, accompanied by insulin resistance can also lead to IGT and T2DM. β -cell failure is indispensable in the development of IGT. An abnormal BMI was also found to be an important risk factor for both IGT and T2DM. Another important factor found to be involved in the pathogenesis of IGT was an increase in pancreatic fat due to worsening in glucose metabolism. However, not all literature related to this subject was in accordance with this statement.

Conclusion: The progression from IGT to T2DM, especially in obese individuals, can be prevented through simple lifestyle changes which can ultimately lead to β -cell preservation. Doctors should be encouraged more to identify and focus on individuals with an abnormal BMI who are at risk of developing IGT and other conditions.

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Spinal surgery for Pott's disease – A case study and review

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Introduction: Pott's Disease is a form of extrapulmonary tuberculosis (TB) affecting the spinal column. It is a rare disease, accounting for less than 10% of extrapulmonary TB cases. Malta is a low incidence country with a TB incidence of 7.6 per 100,000 population; of these only 1% will have spinal disease. Most cases seen locally with TB are non-Malta born. We present a case of a 59-year-old missionary worker who presented with thoracic Pott's disease affecting T9-T11, with vertebral body and intervertebral disc collapse resulting in severe pain, gibbous formation (kyphosis) and progressive paraplegia rendering her non-mobile at time of admission. The patient underwent multidrug therapy in-keeping with current guidelines. Also, in view of her presentation and continuing deterioration, she eventually underwent surgery, which involved anterior body reconstruction using vertebral body cage with antibiotic impregnated cement as well as posterior decompression and stabilisation. This was done as a two-staged procedure under the same anaesthesia, with the anterior reconstruction done via a left sided thoracotomy, followed by posterior pedicle screw stabilisation from T8-T12. The patient was transferred to ITU post-operatively and continued to recover well, both from the infective and neurological status and is now completely functional with mild thoracic pain and mobilises with no walking aids.

Conclusion: Surgery for Pott's disease is nowadays relatively rare and this was the first of its kind done locally. The surgical principles and instrumentation are the same as those used when reconstructing the spine for pathological

fracture collapse due to tumours or trauma, the difference in this case being the infective nature of the disease and the long term ongoing medical treatment she required.

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Outcomes in Maltese patients with myeloma undergoing first autologous stem cell transplant at the Royal Marsden Hospital

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Introduction: High dose therapy (HDT) with autologous stem cell transplantation (ASCT) is considered as standard front-line treatment for younger and fit patients with multiple myeloma. The aim of our study is to assess the outcome of Maltese patients with multiple myeloma and related disorders undergoing first ASCT at the Royal Marsden Hospital.

Methods: Patients who underwent induction chemotherapy followed by upfront high dose melphalan ASCT between January 2010 and December 2017 were retrospectively identified. We included patients with a diagnosis of myeloma and solitary or multiple plasmacytomas. Overall survival (OS), time to progression (TTP), time to next treatment (TNT) and transplant-related mortality (TRM) were all measured from the date of ASCT.

Results: Fifty-two patients were included in the study. The median age at ASCT was 61 years (range 28-72 years). Thirty-eight patients (73.1%) were male and 14 patients (26.9%) female. Thirty-four patients (65.4%) received a thalidomide-based induction regimen while 13 patients (25%) were treated with bortezomib-based regimens. There was no TRM. OS at 3 years from transplant was 83%. Twenty-four patients (46.2%) had disease progression at the time of analysis. Median TTP was 33 months (range 1.2-67.9 months) while median TNT was 52 months (range 1.6-71.1 months). Disease progression within one year of transplant was associated with a significantly worse outcome (OS at 3 years 38% vs 93%, median OS 19.5 months vs not reached, $p < 0.001$).

Conclusion: High dose therapy with melphalan followed by ASCT is safe and effective for relatively fit and younger patients. Early disease progression post-ASCT predicts poor outcomes.

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Prognostic impact of baseline absolute monocyte count in classical Hodgkin lymphoma

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Introduction: Tumour-associated macrophages have been associated with shortened survival in patients with classical Hodgkin lymphoma (cHL). The purpose of our study is to verify whether the absolute monocyte count (AMC) at diagnosis is a valid prognostic parameter in cHL.

Methods: Patients with newly diagnosed cHL treated between January 2010 and December 2017 were retrospectively identified. Only patients who had AMC performed at baseline were included in the study. Receiver operating characteristic (ROC) curves and area under the curve (AUC) were used to determine the best cut-off value for the AMC. Cox regression models were used to compare progression-free survival (PFS) and overall survival (OS) based on the AMC at diagnosis.

Results: One hundred and twenty-seven cases of cHL were identified during the study period. Five patients did not have a baseline AMC, therefore, 122 patients were included in the study. The median age was 34 years (range 16-91 years). Sixty-eight patients (55.7%) were male and 54 patients (44.3%) were female. The best cut-off for AMC at diagnosis was $0.80 \times 10^9/L$ with an AUC of 0.70 (95% CI, 0.59-0.80, $p = 0.001$). The PFS at 5 years was 47% with an AMC of $0.80 \times 10^9/L$ or more and 84% with an AMC of less than $0.80 \times 10^9/L$ ($p < 0.001$). On multivariate analysis, the AMC retained prognostic significance for PFS (HR: 2.43, 95% CI, 1.03-5.75, $p = 0.04$). There was no impact on 5-year OS (74% vs 84%, $p = 0.271$).

Conclusion: This study confirms that the AMC at baseline has independent prognostic significance for PFS in patients with cHL.

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Microvascular laser occlusion to the rodent brain causes severe dysfunction to neurons and glia around the periphery of the lesion

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Introduction: Microvascular occlusions are a common feature of the aging brain and increased incidence appears to be correlated to cognitive dysfunction in dementia. Here, we investigate the changes in the response of the neurovascular unit from a peripheral stimulus after vessel occlusion in unaesthetized GFAP-GFP mice. Microvascular occlusions are a common feature of the aging brain and increased incidence appears to be correlated to cognitive dysfunction in dementia. Here, we investigate the changes in the response of the neurovascular unit from a peripheral stimulus after vessel occlusion in unaesthetized GFAP-GFP mice.

Methods: We use in vivo two-photon microscopy to construct maps of cerebral vasculature labeled with Texas red-dextran or FITC-dextran. Neural and glial activity is imaged and quantified after topical incubation of the calcium sensitive dye Fluo-4AM in a cranial window overlying the somatosensory cortex. We use 100-fs duration, of 800-nm tightly focused laser pulses to selectively occlude a specifically targeted arteriole. We monitor intracellular calcium transients in response to an electric stimulus to the hind paw at baseline and immediately after arterial occlusion within a distance of around 100-200µm of the occluded vessel. We use in vivo two-photon microscopy to construct maps of cerebral vasculature labeled with Texas red-dextran or FITC-dextran. Neural and glial activity is imaged and quantified

after topical incubation of the calcium sensitive dye Fluo-4AM in a cranial window overlying the somatosensory cortex. We use 100-fs duration, of 800-nm tightly focused laser pulses to selectively occlude a specifically targeted arteriole. We monitor intracellular calcium transients in response to an electric stimulus to the hind paw at baseline and immediately after arterial occlusion within a distance of around 100-200µm of the occluded vessel.

Results: To characterize the response, we calculate the normalized fluorescence from 7 stimuli for each neuron and astrocyte around the blood vessel. We then compare the amplitude of the average response at baseline to that after occlusion. We find that the average amplitude of the calcium response drops to < 50% of baseline after the occlusion, while no change is observed in controls where no occlusion is induced.

Conclusion: A small vessel occlusion adversely impacts the functionality of nearby neurons and glia. In most cases, the amplitude of the evoked neural and glial response is significantly reduced, and in a few instances the response is negligible. This decrease in neural response could play a role in the loss of cognitive function following micro infarcts in the brain.

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Treatment of moderate to severe Alzheimer's disease (AD) AD with Donepezil or donepezil and memantine; a systematic review with cost analysis

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Introduction: Alzheimer's disease (AD) is a progressive neurodegenerative malady which affects an individual's memory, cognition, behaviour and functionality, causing gradual decline. 3.9% of the world's population over 60 years are currently affected and by 2040, over 81 million people will suffer from AD. Memantine is a N-methyl-D-aspartate receptor (NMDA receptor) antagonist whilst Donepezil is an acetylcholinesterase inhibitor, with both licensed to be used for AD patients.

Methods: Literature was sought from books and articles along with from online databases. All articles had to include all key words; 'Memantine', 'Donepezil' and 'combination therapy'. An additional search used the previous key words along with 'financial costs'. 12 articles were chosen. CASP tools were used to ensure relevance to the topic.

Results: Donepezil monotherapy was beneficial for AD patients but when the disease progressed beyond moderate, addition of Memantine was found to be superior in global clinical status (chiefly cognition, daily functioning, behaviour and clinical global appearance). This was evidenced by a higher score obtained by patients in the NPI, CIBIC-plus and 4D-CI scales. Overall costs were initially increased due to dual drug costs but reduced overall after the first year of treatment, due to less hospitalization and

complications as well as managing more patients in the community.

Conclusion: Although combination therapy did not prolong life, it allowed patients to stay in the community for a longer period resulting in a reduced hospital admission rate. A combination therapy of Donepezil and Memantine improves cognitive function, decreases functional decline and is cost effective after the first year.

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Modelling population pharmacokinetics of lamotrigine in a paediatric population

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Introduction: Lamotrigine (LTG) is one of the newer anti-epileptic drugs used in the treatment of epilepsy as mono or poly-therapy and shows high intra- and inter-individual variability especially in paediatric populations. Modelling population pharmacokinetics aims to identify those factors which cause changes in drug concentrations and the extent of these changes.

Methods: A new selective and accurate high-performance liquid chromatographic method was applied for the determination of LTG and main metabolite LTG-2N-glucuronide (LTG-GLUC) from eighteen Maltese paediatric patients on LTG therapy. A population pharmacokinetic analysis was then performed using nonlinear mixed effect modelling programme, NONMEM®, which included demographic, physiological and genetic data obtained from these patients. Covariate analysis was conducted using stepwise covariate modelling procedure to determine which factors contribute to the variability in LTG clearance.

Results: The final model of LTG clearance was estimated at 1.63L/h and it was found to increase with the co-administration of carbamazepine and in patients carrying the homozygous variant of UGT2B7 C137T>C, C801A>T, and C802T>C. The results also indicated that patients carrying heterozygous variant of UGT2B7 C801A>T were found to have higher LTG clearance than those who are carrying the homozygous variant. Co-therapy with valproate and the homozygous variant of the novel mutant UGT2B7 C1062C>T were found to cause a decrease in LTG clearance.

Conclusion: The use of such population pharmacokinetic models can lead to the improvement of therapeutic outcomes for paediatric populations with epilepsy and can lead to a much needed development of personalised medicine in this area of therapy.

Disclosures: This research was supported by a scholarship provided by the Malta Libyan Cultural Affairs Office.

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