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Malta Medical Journal

MMJ

IX Malta Medical School Conference

The Hilton Malta Hotel, Portomaso, St Julians

3 - 5 December 2015

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Conference Abstract Book

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Medical School

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Malta Medical Journal

Conference Abstract Book

Malta Medical Journal
Volume 27 • Supplement • December 2015

University of Malta Medical School
Mater Dei Hospital, Msida, Malta
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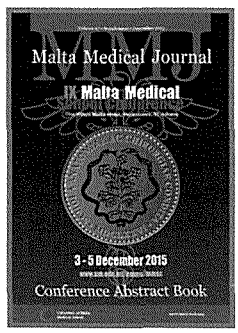

Front Cover

Logo of the IX 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 'SCHOLA ANATOMIAE AC CHIRURGIAE CONDITA MDCLXXVI, meaning 'School of Anatomy and Surgery - Founded 1676'.

IX Malta Medical School Conference

3-5 December 2015

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Foreword

Conference Chairperson

On behalf of the Organizing Committee I am delighted to extend a very warm welcome to all our eminent guests, invited speakers and registrants both local and overseas to the IX Malta Medical School Conference.

This triennial conference has become a regular feature in the Malta Medical School Programme and is now in its 26th year. It is the major academic activity of the Medical School outside the formal teaching programme. It has evolved over the years since its inception in 1989 and its success and popularity have increased due to the tireless work and dedication of various people.

This year's conference will follow the general format of the previous conferences in that it is a compilation of multidisciplinary sessions and plenary lectures. This year over 900 abstracts were submitted, 200 more than in the last edition. This confirms the extent and quality of ongoing academic activity taking place locally in the various disciplines as well as the growing popularity of this triennial event.

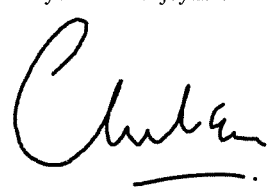
The large number of submissions has made the work of our Scientific Committee, most ably chaired by Professor S Montefort, more arduous than before and it necessitated that we have 6 parallel sessions running concurrently throughout the whole three day programme to give adequate exposure to all our participants. The Scientific Committee have produced a vibrant and exciting scientific programme.

This is my second term as Chairman of the Malta Medical School Conference and once again I was very fortunate to have a dedicated team of colleagues who worked assiduously together over the last twenty months. Their enthusiastic and passionate support has made this event possible. I would like to take this opportunity to thank them all for their sterling work and support throughout.

I must also thank all the Pharmaceutical Exhibitors and Conference Sponsors without whose financial support this event would have been impossible. Invaluable help has also been provided by Ms Zvetlana Zerafa, Conference Secretary, 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.

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.

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



Dr. Raymond Galea
M.D., F.R.C.O.G., Acc. Spec. O&G (Leuv.), Ph.D., K.M.
Chairperson

Foreword

Chairperson, Scientific Committee

I was very pleased to be appointed chairman of the scientific committee of the ninth Malta Medical school conference for the second time running. This me gave the opportunity to continue with the successful format that we had set in the last conference and also allowed me to collaborate with a number of reputable clinicians and scientists forming part of this illustrious committee.

Once again the response to our call for papers was very well received with a record number of submissions – well over 900. This is witness to the wealth of research activity going on in our Alma Mater and the quality of the studies submitted confirms that our Medical School and its members are on the right track. Due to the overwhelming response from the participants we had no option but to increase the number of oral and poster sessions within the scientific programme. A number of oral presentation sessions will be initiated and co-chaired by illustrious guest speakers who are internationally renowned, with a good number of them being fellow Maltese clinicians who have made a name for themselves and our country abroad. The conference will also host six varied plenary lectures delivered by very distinguished speakers who will honour us with presence.

The format of the discussed poster sessions introduced during the last conference was very well received and has been retained as this offers a great chance for our up and coming doctors and their work to get the exposure that they deserve. We are also pleased that work from our sister faculties of Health Sciences and Dentistry have been submitted and will be presented in sessions which are in conjunction with those from the Medical School. Such co-ordinated sessions will lead to increased collaboration in research among the various fields of Medicine.

In conclusion I hope these changes will be to the satisfaction of the majority. I wish all of you three interesting days at this much awaited conference which will hopefully continue running in this successful manner for years to come.

Professor Stephen Montefort
M.D.,Ph.D.(Soton.), F.R.C.P.(Lond.), F.R.C.P.(Edin.),
F.R.C.P.(Glas.), F.A.C.P., F.E.F.I.M., F.C.C.P.
Chairperson, Scientific Committee

Welcome from the Dean

This is ninth edition of the Malta Medical School Conference since 1988. The Conference has been growing from strength to strength with over 900 contributions are being showcased this year. A large majority of these are authored by Maltese researchers.

I am proud of the fact that over the past few years the Faculty of Medicine and Surgery has invested heavily in promoting and encouraging our scientists. This support is not only financial but includes upgrading of facilities. The increase in the number of students following PhD studies within the Faculty is evidence that this strategy is bearing fruit.

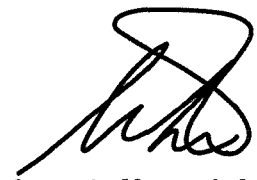
Although we are fortunate to be living in the digital era where communication barriers are virtually non-existent, the need for exposure, the need for discourse and sharing of experience and ideas with our counterparts from around the world, is of primary importance. This was the original purpose of this Conference.

I take this opportunity to warmly greet our international guests and colleagues who have come over specifically to share their vast experience in their respective fields with us. This will ensure that our medical standards remain at par with the best.

Getting together such a large gathering of medical and surgical specialists would not be possible without the unstinting work of our Organising Committee to whom I extend my most sincere thanks. Thanks must also go to all our sponsors without whose backing this triennial Conference would not be possible.

Last, but most assuredly not least, my thanks to the Medical fraternity whose participation and continuous encouragement make such events possible.

I wish the Ninth Malta Medical School Conference every success.



Professor Godfrey Laferla
M.D., 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.)
Dean, Faculty of Medicine and Surgery

Detailed Scientific Programme

Thursday 3rd December

7:30 **Registration**

09:00 – 09:45 **Welcome**
Dr. R Galea
Chairman IX Malta Medical School Conference

H.E. Mary Louise Coleiro Preca
President of the Republic of Malta

Plenary I

Chairpersons: *R Galea*
The nature and nurture of professional excellence
I. Curran

09:45 – 10:15 **Coffee Break and Exhibitors**

Parallel Session 1

10:15-11:30 **Session 1A**
Clinical Pharmacy

Chairpersons: *A Lau, LM Azzopardi*

OP1.01 Contemporary clinical pharmacy practice and education
Alan Lau

OP1.02 Pharmacist-led personalisation of antiplatelet therapy
Francesca Wirth, Graziella Zahra, Robert G Xuereb, Christopher Barbara, Albert Fenech, Lilian M Azzopardi

OP1.03 Clinical implementation of the rheumatoid arthritis medication assessment tool – RhMAT
Louise Grech, Victor Ferrito, Liberato Camilleri, Anthony Serracino Inglott, Lilian M Azzopardi

OP1.04 Assessing the perception and awareness of clinicians on biosimilars
Kathlene Cassar, David Zammit Dimech, Louise Grech, Dustin Balzan, Anthony Cutajar, Paul John Cassar

OP1.05 Chronopharmacology in hypertension – valsartan and amlodipine administration
Sephorah Falzon, Louise Grech, Anthony Serracino Inglott, Lilian Azzopardi

10:15 – 11:30 **Session 1B**
Gastroenterology, Surgery

Chairpersons: *M Vassallo, A Cuschieri*

OP1.06 The role of biomarkers in determining clinical activity in inflammatory bowel disease
Nicholas Paul Delicata, Neville Azzopardi, Pierre Ellul

OP1.07 Upper gastrointestinal malignancy - a losing battle?
Maria Petra Agius, Marc Gingell Littlejohn, Jo Etienne Abela

OP1.08 Columnar-lined oesophagus and oesophageal cancer in Malta - results from the first national patient registry
Rebecca Dalli, John Schembri, Alex Attard, Mario Vassallo, Pierre Ellul, James Pocock, James Degeatano, JoEtienne Abela

OP1.09 Pregnancy outcomes in female patients with inflammatory bowel disease
Stefania Chetcuti Zammit, Mandy Caruana, Konstantinos Katsanos, Gerassimos Mantzaris, Monica Cesarini, Uri Kopylov, Louise Zammit, Godfrey LaFerla, Pierre Ellul

OP1.10 To assess the value of blue dye and radiological contrast tests after major oesophago-gastric and duodenal surgery
Maria Petra Agius, Kristian Micallef, Andre Navarro, Jo Etienne Abela

OP1.11 Cystic lesions of the pancreas: need for local guidelines?
Julia Gauci, Kelvin Cortis, Neville Azzopardi

OP1.12 Temporal trends in the epidemiology, management and outcomes of patients with hepatocellular carcinoma in Malta
James Gauci, Martina Muscat, Jonathan Gauci, Samuel Galea, Martina Wismayer, Richard Pullicino, Kelvin Cortis, Jurgen Gerada

10:15 – 11:30 **Session 1C**
Paediatrics

Chairpersons: *V Grech, S Attard Montalto*

OP1.13 Group B Streptococcal Disease in infants in Malta
Mandy Caruana, David Pace

OP1.14 Body maps and proformas in Safeguarding: ensuring best practice
Kevin Borg, Manjari Tanwar, Mariella Mangion, Deborah Hodes

OP1.15 Additional 2D ultrasound views enhance the detection of congenital heart disease in the second trimester
Maria Anna Zammit, Victor Grech, Miriam Gatt, Simon Attard Montalto

OP1.16 Introduction of a blood-spot screening programme for neonatal thyroid disease: Impact on safety and cost-effectiveness.
Ryan Farrugia, Jelena Martic, Tara Grima, Paul Soler

OP1.17 The clinical burden of Phenylketonuria in a Maltese cohort
Stephen Attard, Simon Attard Montalto

OP1.18 'You have to experience it...to truly understand it' The voices of Maltese parents raising young children born with intellectual disability risks: Emotional needs
Elayne Azzopardi, Jois Stansfield, Julie Marshall

OP1.19 Paediatric Emergency Severity Index and Time of First Medical Contact
Paul Torpiano, David Cini, Paul Soler

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

Chairpersons: *S. Chetcuti, R. Xuereb*

OP1.20 Door-to-balloon time in ST segment elevation myocardial infarction at Mater Dei Hospital
John Bonello, Maria Farrugia, Philip Dingli

OP1.21 Percutaneous Coronary Intervention (PCI) Related Morbidity and Mortality
Elton Pllaha, Matthew Mercieca Balbi, Alice May Moore, Kentaro Yamagata, Sara Xuereb, Matthew Bonello, Karl Camilleri, Richard Apap Bologna, Jeremy Fleri Soler, Robert George Xuereb

OP1.22 Prognostic indicators and risk estimation of ten-year and twenty-year mortality following acute coronary syndrome
Caroline Jane Magri, Roberto Debono, Neville Calleja, Joseph Galea, Stephen Fava

OP1.23 Red blood cell distribution width & myocardial scar burden in coronary artery disease
Caroline Jane Magri, Tan Xiao Tian, Liberato Camilleri, Robert G. Xuereb, Joseph Galea, Stephen Fava

OP1.24 The role of HIF-1α, VEGF and Obstructive Sleep Apnoea in the Development of Coronary Collateral Circulation
Mark Abela, Andrew Cassar, Graziella Zahra, Philip Dingli, Elton Pllaha, Chris Deguara, Stephen Montefort

OP1.25 Closing the audit cycle: Have cardiovascular risk assessment and management in rheumatoid arthritis patients improved?
Rosalie Magro, Kyra Bartolo, Roberto Corso, Malcolm Buhagiar, Nikita Taliana, Andrew Borg

OP1.26 Estimation of Ejection Fraction by Ventriculography vs Echocardiography: A comparative study
Elton Pllaha, Alexander Manche', Richard Pullicino

OP2.21 Post lower segmental caesarean section pain management and modified early obstetric warning system charting
Christabel Mizzi, Karen Sapiano, Glenn Abela, Daniel Farrugia

OP2.22 Introduction of a ventilator associated pneumonia (VAP) prevention bundle
Anne Marie Camilleri Podesta, Carmel Abela, Michael Borg, Peter Zarb, Patricia O'Brien, Deborah Maria Pace

OP2.23 A comparison of local anaesthetic procedures performed at the Plastic Surgery and Burns Unit of Mater Dei Hospital Malta between 2013 and 2014
Edward Muscat, Matthew Borg, Joseph Briffa, Francis Darmanin

OP2.24 Rate of critical care admission and 30-day mortality post-emergency laparotomy in Malta
Elaine Borg, Maureen Bezzina, Andrew Spina, Michael Buttigieg

11:30 - 12:45 **Session 2E**
Anatomy and Cell Biology

Chairpersons: *P. Schembri Wismayer, C. Pomara*

OP2.25 Using an objective morphological analysis to study differentiation induction in acute myeloid leukaemia
Nicola Darmanin, Caroline Camilleri, Jessica Axiak, Sarah Scerri, Stephanie Farrugia, Stephanie Pullicino, Analisse Cassar, Sherif Suleiman, Sonia Patricia Stoica, Pierre Schembri-Wismayer

OP2.26 To fool a factor: the use of decoy oligonucleotides to target transcription factors involved in hair growth
Elena Farrugia, Maria Grazia Grech, Rebecca Zammit, Francesca Rappa, Francesco Cappello, Pierre Schembri-Wismayer

OP2.27 Mononucleate cells from psoriatic patients exhibit altered mitochondrial respiratory activity
Rosella Scrima, Claudia Piccoli, Nazzareno Capitanio

OP2.28 Is there a biomechanical cause for spontaneous pneumothorax?
Aaron R Casha, Alexander Manché, Ruben Gatt, Wiktor Wolak, Krzysztof Dudek, Marilyn Casha, Pierre Schembri-Wismayer, Marie-Therese Camilleri-Podesta, Joseph N Grima

OP2.29 Inducing differentiation of HL-60 cells via a nucleoside analog and 3-bromothiophene
Maria Grazia Grech, Marie Adrienne Zerafa Simler, Stefano Corso, Thomas Gatt, Dale Brincat, Rachid Benhida, Nadine Martinet, Lucienne Gatt, Analisse Cassar, Pierre Schembri-Wismayer

OP2.30 A Hypothesis for Reactivation of Pulmonary Tuberculosis: How Thoracic Wall Shape Affects the Epidemiology of Tuberculosis
Aaron Casha, Liberato Camilleri, Alexander Manché, Ruben Gatt, Daphne Attard, Wiktor Wolak, Krzysztof Dudek, Marilyn Gauci, Christopher Giordimaina, Joseph N Grima

OP2.31 Ultrasound investigation of scalp thickness in a study of male pattern baldness
Ayrton Borg, Joanna Thompson, Jessica Axiak, Caroline Camilleri, Andee Agius, Janice Borg, Gillian Pace Moore, Raymond Galea, Jean Calleja Agius, Pierre Schembri Wismayer

11:30 - 12:45 **Session 2F**
Public Health / Psychiatry

Chairpersons: *C. Gauci, D. Cassar*

OP2.32 Involuntary care and the new Mental Health Act
John M Cachia

OP2.33 Congenital anomalies contributing to neonatal deaths in Malta
Miriam Gatt, Kathleen England

OP2.34 Self-efficacy, self-care and outcomes in persons with diabetes
Sascha Reiff, Natasha Azzopardi Muscat

OP2.35 An income divide? Monthly household income and prevalence of non-communicable disease
Dorothy Gauci, Neville Calleja

OP2.36 Terrorist attacks and the male to female ratio at birth: the troubles in Northern Ireland, the Rodney King riots and the Breivik and Sandy Hook shootings
Victor Grech

OP2.37 Problematic internet use among young people aged 18 to 30 years in Malta: are we worrying too much?
Anna Maria Vella, Richard Camilleri, Marilyn Clark, Janet Mifsud, Mario Mifsud

OP2.38 Cigarette smoking and patients with severe mental illness
Veronica Said Pullicino[1],
James Gauci, Kurt Magri Gatt, Rachel Taylor East, Anton Grech

12:45 - 14:00 **Lunch**

14:00 - 14:45 **Plenary II**
Prof. Thomas D'Hooghe

Chairperson: *Charles Savona Ventura*

14:45 - 15:15 **Coffee Break and Exhibition**

Parallel Session 3

15:15 - 16:30 **Session 3A: Surgery**

Chairpersons: *A.Walthaus, C. Cini*

OP3.01 Transanal total mesorectal excision: the way forward in rectal cancer surgery
Albert Wolthuis

OP3.02 Enhanced recovery after colonic resection at Mater Dei Hospital: a prospective pilot cohort study
Charles Cini, Anthony Pio Dimech

OP3.03 Oesophagectomies in Malta over the past eight years - an analysis of our results
Stephen Micallef Eynaud, *Julian Delicata, Franklin Abela, Benedict Axisa*

OP3.04 Umbilical/paraumbilical hernia repair: A new technique using the Ultrapro[R] Plug
Joseph Anthony Attard, Christine Azzopardi, Alexander Attard

OP3.05 Incidence and odds ratio of appendicitis as a manifestation of colon cancer; a retrospective analysis
Matthew Bonello, Tara Grima, Jonathan Cutajar, Josephine Psaila

15:15 - 16:30 **Session 3B**
Diabetes

Chairpersons: *S. Fava, M. Cachia*

OP3.06 Epigenetics and Type 1 diabetes
Alexia-Giovanna Abela, Duncan Ayers, Stephen Fava

OP3.07 An unrecognized variety of diabetes amongst the Maltese population, MODY
Ian Baldacchino, Lauren Abela, Keith Borg Xuereb, Gillian Pace Moore, Benjamin Thornton, Ruth Caruana, Josanne Vassallo

OP3.08 Diabetes in pregnancy: diagnosis, management, follow up, outcome and complications
Maria Petra Agius, Mark Gruppetta, Josanne Vassallo

OP3.09 Type 2 diabetes, bone and disc height
Rachel Agius, Raymond Galea, Stephen Fava

OP3.10 A national major amputation database for Malta
Kevin Cassar, Jesmond Attard, Daniel Schembri, Shawn Meilak, Maria Abela, Marcette Cassar, Francesca Muscat

OP3.11 Predictors of diabetic nephropathy
Miriam Giordano Imbroll, Daniele Agius Lauretta, Trevor Tabone, Stephen Fava

OP3.12 Prediction of insulin resistance in Type 2 diabetes mellitus using routinely available clinical parameters
Caroline Jane Magri, Joseph Galea, Stephen Fava

15:15 - 16:30 **Session 3C**
Molecular Sciences II

Chairpersons: *G. Grech, C. Saliba*

OP3.13 Predictive genetics: the Maltese familial breast/ovarian cancer genetic screening programme
Jeanesse Scerri, Ritienne Debono, Christian Saliba, Godfrey Grech, Christian Scerri

OP3.14 CIP2A expression is upregulated in triple-negative breast cancer
Shawn Baldacchino, Laura Wastall, Christian Saliba, Thomas A Hughes, Valerie Speirs, Godfrey Grech

OP3.15 Novel molecular classifiers of basal-type subset in breast cancer patients
Shawn Baldacchino, Christian Saliba, Jean Paul Ebejer, James DeGaetano, Christian Scerri, Godfrey Grech

OP3.16 Molecular classifiers of breast cancer patients using multiplex assays
Christian Saliba, Shawn Baldacchino, Maria Pia Grixti, Vanessa Petroni, Robert Gauci, James DeGaetano, Anthony Fenech, Christian Scerri, Godfrey Grech

OP3.17 Isolation and characterization of Cancer Stem Cells from Malta patients with breast cancer.
Riccardo Di Fiore, Christian Saliba, Rosa Drago Ferrante, Daniela Carlisi,
Giovanni Tesoriere, Godfrey Grech, Christian Scerri, Renza Vento

OP3.18 Differential expression of breast cancer signature genes following rapamycin treatment
Vanessa Petroni, Anthony G Fenech, Christian Saliba, Marie Therese Camilleri Podesta, Shawn Baldacchino, Godfrey Grech

OP3.19 The distribution and prevalence of HPV genotype in Maltese women diagnosed with CIN 3 and cervical cancer
Edward Falzon, Graziella Zahra, Charlene Busuttil, Christian Saliba, Godfrey Grech, James Degaetano

15:15 - 16:30 **Session 3D**
Dentistry, Infectious Diseases, Microbiology

Chairpersons: *J. Camilleri, B. Ellul*

OP3.20 The local reponse to the 2014 Ebola epidemic in West Africa
Charles Mallia Azzopardi, Tonio Piscopo, Claudia Fsadni

OP3.21 Novel tricalcium silicate cements: not just common cements
Maria Xuereb, Francois Paul Sorrentino, Denis Damidot, Josette Camilleri

OP3.22 A comparison of the microbiological flora in the oral cavity of type II diabetes mellitus *vs* non-diabetic adult dental patients
Gabrielle de Gray, Neville Calleja, Christopher Henry Barbara

OP3.23 Effects of steam, ethylene oxide, UV and alcohol sterilization and disinfection techniques on chemical and physical properties of selected dental filling materials
Cher Farrugia, Glenn Cassar, Vasilis Valdramidis, Josette Camilleri

OP3.24 Use of levofloxacin and piperacillin-tazobactam for empiric treatment of lower respiratory tract infections in Mater Dei Hospital: are we too trigger-happy?
Andrea Falzon Parascandalo, Michael Angelo Borg

OP3.25 Outcome of Mantoux screening in children in Malta: does BCG vaccination matter?
Ruth Farrugia, David Pace

OP3.26 Evaluating Fosfomycin as an alternative treatment for infections caused by highly resistant OXA-48 enterobacterial isolates in a Mater Dei hospitalized patients.
Nina Nestorova, Paul Caruana, Robert Cassar, Rosann Zammit Cassar, Elizabeth Ann Scicluna

15:15 - 16:30 **Session 3E**
Family Medicine, Public Health

Chairpersons: *P. Sciortino, D. Vella Baldacchino*

OP3.27 House visits in general practice: a cross sectional survery
Lorna Attard, Jurgen Abela

OP3.28 Health record documentation by doctors in a primay health care setting; a local audit
Adrian Mifsud, Andrea Luca Fenech, Anthony Livori

OP3.29 Use of lumbosacral spine radiographs in primary health care centre
Sean Francalanza, Glorianne Pullicino, Paul Sciortino, Philip Sciortino

OP3.30 Mental health in youth
John M Cachia

OP3.31 University of Malta SAHHTEK survey: results from the pilot study
Sarah Cuschieri , Fatemah Abdullah, Bader A Ali, Gary Bonnici, Yimeng Zhang, Anthony Cini, Christopher Barbara, Neville Calleja, Josanne Vassallo, Julian Mamo

OP3.32 Maternal age at delivery in Malta over the past 15 years
Miriam Gatt, Neville Calleja

OP3.33 It's not all about time: factors implicated in food choices among Maltese mothers
Elaine Dutton, Lynn B Myers

15:15 - 16:30 **Session 3F**
Rheumatology, Nephrology

Chairpersons: *B. Coleiro, E. Farrugia*

OP3.34 Fluid prescription in acute medical admissions
Jonathan Gauci, Stephanie Attard, Kyra Bartolo, Anthea Brincat, Justine Camilleri, Nicholas Paul Delicata, Darlene Muscat, Karen Anne Cassar

OP3.35 Treatment of psoriasis with biologic agents in Malta
Liam Mercieca, Michael J Boffa, Eileen Clark, Lawrence Scerri, Susan Aquilina

OP3.36 Monitoring of patients with systemic lupus erythematosus in local practice
Erika Cefai, Bernard Coleiro, William Camilleri, Edith Sciberras, Andrew Borg

OP3.37 Vaccination rates in adults with autoimmune inflammatory rheumatic diseases and the patients' perspective on their infection risk
Rosalie Magro, Marilyn Rogers, Franco Camilleri

OP3.38 The outcome of kidney transplantation in anti-neutrophil cytoplasmic antibody associated vasculitis
Jesmar Buttigieg, Dana Kidder, Lorna Henderson

OP3.39 Incidence of end-stage renal disease requiring renal replacement therapy in the Maltese islands
Ian Baldacchino, Sarah Bezzina, Garbiella Balzan, Daniel Debattista, Emanuel Farrugia

OP3.40 Management, referral and outcomes of acute kidney injury
Lara Delicata, Maria Angela Grima, Roberta Callus

16:30 - 18:00 **Poster Session 1**

P1 **Obstetrics**
Chairpersons: *A. Scerri, J. Thake*

P2 **Paediatrics**
Chairpersons: *D. Pace, R. Parascandolo*

P3 **Cardiology**
Chairpersons: *A. Cassar, O.Aquilina*

P4 **Molecular Sciences**
Chairpersons: *B. Ellul, G. Grech*

P5 **Surgery**
Chairpersons: *M. Schembri, C. Cini*

P6 **Microbiology, Dentistry**
Chairpersons: *C. Cordina, N. Nestorova*

Reviews and Case Reports: P.*001- P.064*

Friday, 4th December

09:45 - 11:00 **Session 4C**
Infectious Disease, Microbiology

Chairpersons: *B. Ellul, C. Mallia Azzopardi*

OP4.13 An outbreak of sexually transmitted infections (STIs) in the MSM (men who have sex with men) population in Malta
Valeska Padovese, Donia Gamoudi, Alexandra Gauci Farrugia, Lawrence Scerri

OP4.14 Analysis of changes in antiretroviral therapy regimens in the cohort of HIV seropositive patients followed up at the infectious diseases clinic
Lisa Micallef Grimaud, Daniela Mallia, Tonio Piscopo, Charles Mallia Azzopardi

OP4.15 As sessment of antiretroviral drug resistance mutations in HIV seropositive patients in Malta.
Lisa Micallef Grimaud, Ramon Casha, Daniela Mallia, Tonio Piscopo, Charles Mallia Azzopardi

OP4.16 Adherence to the European association for the study of the liver (EASL) and American association for the study of liver diseases (AASLD) guidelines in the management of hepatitis B
Anette Portelli, Ramon Casha, Tonio Piscopo, Charles Mallia Azzopardi

OP4.17 Prioritizing the need for treatment of chronic hepatitis C patients in a methadone dispensing clinic in Malta.
Moses Camilleri

OP4.18 Does continuous positive airway pressure influence respiratory infections in patients suffering from obstructive sleep apnoea?
Kyra Bartolo, Liam Mercieca, Richard Pullicino, Rodianne Abela, Sean Apap Mangion, Julian Cassar, Matthew Zammit, Christine Gatt, Peter Fsadni, Stephen Montefort

OP4.19 Trends in meticillin-resistant Staphylococcus aureus (MRSA) bacteraemia, at Mater Dei Hospital, Malta; the importance of root cause analysis to drive improvement strategies.
Andrea Falzon Parascandalo, Elizabeth Anne Scicluna, Rodianne Abela,
Karl Galea, Claire Farrugia, Ermira Tartari Bonnici, Deborah Xuereb, Noel Abela, Simeone Zerafa, Michael Angelo Borg

09:45 - 11:00 **Session 4D**
Neurosciences

Chairpersons: *G. Rizzolatti, G. Digiovanni*

OP4.20 Acute ischemic injury of astrocytes
Robert Fern, Mario Valentino, Sarah Elwood

OP4.21 Pathogenesis of psychiatric disorders: role of redox dysregulation
Luigia Trabace, Stefania Schiavone

OP4.22 Detection and analysis of real-time behavioural sequences of social interaction in rats
Maurizio Casarrubea, Fabiana Faulisi, Aurora Cudia, Dario Cancemi, Maurizio Cardaci, Magnus S Magnusson, Filippo Caternicchia, Arcangelo Benigno, Giuseppe Di Giovanni, Giuseppe Crescimanno

OP4.23 In vivo imaging and monitoring astrocytes in health and disease
Mario Valentino, Robert Zammit, Christian Zammit, Jasmine Vella, Richard Muscat

OP4.24 Modelling spinal muscular atrophy in Drosophila: a fruitful approach?
Ruben J. Cauchi

OP4.25 Implication of inwardly-rectifying K channels in the pathogenesis of autism
Maria Cristina D'Adamo, Elena Ambrosini, Federico Sicca, Filippo Maria Santorelli, Mauro Pessia

OP4.26 Specific or synergistic effects of deep brain stimulation of subthalamic nucleus and L-dopa on TMS-evoked cortical reactivity in Parkinson's disease patients
Alessandro Stefani, Giacomo Koch

09:45 - 11:00 **Session 4E**
Orthopaedics

Chairpersons: *R. Gatt, T. Azzopardi*

OP4.27 Pre-operative intravenous fluid hydration in elective total knee and total hip replacement patients and the effects on peri-operative complications
Alexia Farrugia, Maximilian Mifsud, Massimo Abela

OP4.28 Hi p fracture mortality among osteoporotic patients
Sarah Cuschieri , Stephan Grech , Ray Gatt

OP4.29 Comparison of the total care pathway for neck of femur fractures between Mater Dei Hospital, Malta and Barnet Hospital, London UK
Stephan Grech, Sarah Cuschieri

OP4.30 Delirium and its management in hip fracture patients
Joanna Grech, Caroline Galdes, John Cordina

OP4.31 Mortality following hip fracture in Malta
Yimeng Zhang, Sandra Distefano, Neville Calleja, Kathleen England

OP4.32 Biochemical predictors of low bone mineral density and fracture susceptibility in Maltese postmenopausal women
Melissa Marie Formosa, Angela Xuereb-Anastasi

09:45 - 11:00 **Session 4F**
Molecular Sciences III

Chairpersons: *A. Xuereb, R. Formosa*

OP4.33 Aspirin impairs the carnitine shuttle pathway in redox-compromised yeast cells: implications for cancer chemoprevention and Reye's syndrome
Gianluca Farrugia, Christian Saliba, Jelena Pistolic, Vladimir Benes, Neville Vassallo, Godfrey Grech, Joseph J. Borg, William H. Bannister, Rena Balzan

OP4.34 Probing the structure and tumour-suppressor properties of manganese superoxide dismutase
Rosalin Bonetta, Gary James Hunter, Anthony Fenech, Chi Trinh, Therese Hunter

OP4.35 The interferon regulatory factor 5-RelA interaction targets inflammatory genes in macrophages
David George Saliba, Irina A Udalova, Hayley L Eames

OP4.36 Amiloride induces alternative splicing of the PP2Acα mRNA in haematopoietic cell lines
Stephanie Gauci, Christian Saliba, Shawn Baldacchino, Anthony Fenech, Godfrey Grech

OP4.37 The effect of endoluminal treatment with c-fos oligonucleotide antisense on the expression of c-fos mRNA in human saphenous vein
Joseph Galea

OP4.38 Serum amyloid A in chronic obstructive pulmonary disease
Anne Marie Bonello, Anabel Sciriha, Stephen Lungaro-Mifsud, Stephen Montefort, Bridget Ellul, Godfrey Grech, Anthony G Fenech

OP4.39 Dichloroacetate induces morpho-functional alterations and selective degradation of mitochondria in cells from oral squamous cell carcinomas
Vitalba Ruggieri, Francesca Agriesti, Tiziana Tataranni, Carmela Mazzoccoli, Claudia Piccoli

11:00 - 11:30 **Coffee Break and Exhibition**

Parallel Session 5

11:30 - 12:45 **Session 5A**
Gynaecology

Chairpersons: *A. Cameron, C. Savona Ventura*

OP5.01
Alan D Cameron

OP5.02 A retrospective observational study of the causes and treatment of recurrent early pregnancy loss
Heidi Gauci Grech, Mark Formosa

OP5.03 Awareness of the human papillomavirus (HPV) and HPV vaccines
Bettina von Brockdorff, Lilian M Azzopardi, Anthony Serracino Inglott

OP5.04 The role of cytokines in cutaneous aging during menopause
Marika Borg, Jean Calleja-Agius

OP5.05 Serum cytokines in Maltese women with miscarriage
Christina Xerri, Edith Said, Jean Calleja-Agius

11:30 - 12:45 **Session 5B**
Respiratory

Chairpersons: *G. Cremona, M. Balzan*

OP5.06 C
OPD as a multisystem condition
George Cremona

OP5.07 Predictors of inhaler technique in asthma and COPD
Kyra Bartolo, Michael Pace Bardon, Emma Louise Schembri, Simon Mifsud, Darlene Muscat, Rachelle Asciak, Michael Sullivan,Stephen Montefort, Martin Balzan

OP5.08 An audit on the effect of a hospital oxygen therapy guideline on prescription and administration of oxygen therapy
Rachelle Asciak, Maria Ciantar, Julia Tua, Caroline Gouder, Valerie Anne Fenech, Stephen Montefort

OP5.09 Watching over the lung nodule
Jonathan Gauci, Elizabeth Cassar, Christabel Mizzi, Dillon Mintoff, Richard Pullicino, Mauro Sacco, Kay Vanhear, Andrea Vella Baldacchino, Adrian Mizzi, Stephen Montefort

OP5.10 Association between obstructive sleep apnoea and atopy in Malta
Caroline Gouder, Peter Fsadni, Jonathan Gauci, Claire Vella, Simon Gouder, Claudia Fsadni, Christopher Deguara, Stephen Montefort

11:30 - 12:45 **Session 5C**
Nephrology, Vascular Surgery

Chairpersons: *J. Farrugia Agius, K. Cassar*

OP5.11 Bacterial flora and peritoneal dialysis related infections in Malta
Angela Borg Cauchi, Jesmar Buttigieg, Marilyn Rogers, Mario Pio Vella, Joseph Farrugia Agius, Louis Buhagiar, Emanuel Farrugia

OP5.12 Incidence of dialysis-requiring acute kidney injury in the Maltese islands
Ian Baldacchino, Sarah Bezzina, Garbiella Balzan, Daniel Debattista, Emanuel Farrugia

OP5.13 Haemodialysis adequacy at the renal unit
Maria Bugeja, Jesmar Buttigieg, Paul Glynn, Joseph Farrugia Agius, Mario Pio Vella, Louis Buhagiar, Emanuel Farrugia

OP5.14 Is surveillance of native arteriovenous fistulae required in the Maltese haemodialysis population?
Chris Gauci, Paul Bezzina, Kevin Cassar

OP5.15 Endovascular abdominal aortic aneurysm repair in Malta
Ian Said, Francesca Theuma, Adrian Mizzi, Kevin Cassar, Louise Reichmuth, Nathania Bonanno

OP5.16 Recurrent varicose veins following surgical treatment in the Maltese population
Daniela Cassar, Pierre Demicoli, Frances Zarb, Kevin Cassar

OP5.17 Preliminary results of radiofrequency vein ablation programme at Mater Dei Hospital
Ian Said, Kevin Cassar

11:30 - 12:45 **Session 5D**
Haematology, Oncology

Chairpersons: *S. Laspina, A. Gatt*

OP5.18 Survival after lung cancer surgery in Malta
Aaron Casha, Malcolm Buhagiar, Rachel Vella Critien, Katia Muscat, Liberato Camilleri

OP5.19 Personalized medicine: EGFR and ALK genotyping of lung adenocarcinomas in Malta
Jeanesse Scerri, Maria Mifsud, Malcolm Buhagiar, Dorianne Buttigieg, Allison Cordina, Catherine Grima, Claude Magri, Nick Refalo, James DeGaetano, Christian Scerri

OP5.20 Use of targeted therapies in advanced and metastatic non-small cell lung cancer - our local experience.
Donika Metaraku, Maria Mifsud, Stephen Brincat, James Mark Debono

OP5.21 Modulating regulatory T cells for treatment of cancer
Oriana Mazzitelli, Mark Farrugia, Pierre Schembri Wismayer, Byron Baron, Analisse Cassar, Lucienne Gatt, Christian Saliba

OP5.22 Androgens are involved in regulation of growth and differentiation in hepatocellular carcinoma cells in vitro
Francesca Agriesti, Tiziana Tataranni, Carmela Mazzoccoli, Vitalba Ruggieri, Rosella Scrima, Olga Cela, Giuliana Villani, Cristoforo Pomara, Nazzareno Capitanio, Claudia Piccoli

OP5.23 Survival data on acute myeloid leukemia in Mater Dei Hospital
Asterios Giotas, Mark Grech, David James Camilleri, Alex Gatt

OP5.24 Does dose intensity of chemotherapeutic agents have any effect on survival or relapse in patients with high grade B-cell lymphoma?
Melanie Cutajar, Thomas Borg Barthet, David James Camilleri, Alexander Gatt

11:30 - 12:45 **Session 5E**
Pharmacology

Chairpersons: *R. Ellul-Micallef, J. Mifsud*

OP5.25 Gentamicin prescription at Mater Dei Hospital: are guidelines followed?
Anthony Pio Dimech, Francesca Spiteri, Peter Zarb, Michael Angelo Borg

OP5.26 Safety and tolerability of omalizumab in Malta
Caroline Gouder, Rachelle Asciak, Stephen Montefort

OP5.27 Investigation into the genetic and functional relevance of the association of rs1247 7314 with pulmonary function
Godwin M Grech, Godfrey Grech, Roger Ellul-Micallef, Ian Hall, Anthony G Fenech

OP5.28 Pharmacogenetic aspects of thiopurine methyltransferase in Maltese individuals
Sarah Tarhuni, Pierre Ellul, John Schembri, Godfrey Grech, Anthony G Fenech

OP5.29 The validation of a guideline algorithm for the antibiotic treatment of infected lower limb wounds or ulcers.
Claudine Farrugia, Michael A Borg, Janet Mifsud

OP5.30 Pharmacoepidemiology of epilepsy in a paediatric neurology clinic
Anne-Marie Scerri, Doriette Soler, Neville Calleja, Patricia Vella Bonanno, Janet Mifsud

OP5.31 The Belief about Medicines Questionnaire (BMQ) in the Maltese language
Ingrid Gatt, Neville Calleja, Charles Briffa, Robert Horne, Maria Cordina

11:30 - 12:45 **Session 5F**
Surgery

Chairpersons: *G. LaFerla, J. Etienne Abela*

OP5.32 Red cell transfusion: Is one better than two?
Denise Borg Aquilina, Dorianne Attard, Alicia Dimech, Nathan Mark Edwards, Gabriel Galea, Daphne Gatt, Rosanne Scerri, Stefan Laspina

OP5.33 A closed cycle audit of coagulation screen requests of patients admitted to the Emergency Department at Mater Dei Hospital
Alicia Dimech, Nathan Mark Edwards

OP5.34 Launching and running "SA Learn" - a safety alerting system for learning at Mater Dei Hospital.
Miriam Dalmas, Lilian Azzopardi, Emma Manduca, Dustin Balzan, Corinne Ward, Carmel Abela

OP5.35 Prophylactic use of antibiotics in inguinal hernia repair
Samuel Anthony Galea, Charles Cini

OP5.36 Appendicitis in the paediatric population: outcomes at Mater Dei Hospital
Ramona Camilleri, Colin Mizzi, John Cauchi

OP5.37 Bariatric surgery in Malta - a taste of our results
Stephen Micallef Eynaud, Franklin Abela, Julian Delicata, Benedict Axisa

12:45 - 14:00 **Lunch**

14:00 - 14:45 **Plenary IV**

Chairperson: *S Chetcut*

Percutaneous treatment of aortic stenosis, current state and future directions

14:45 - 15:15 **Coffee Break and Exhibition**

Parallel Session 6

15:15 - 16:30 **Session 6A**
Psychiatry

Chairpersons: *S. Zammit, D. Cassar*

OP6.01 Psychotic experiences in adolescents: causes and consequences
Stanley Zammit

OP6.02 Trends and patient characteristics of suicides in Malta
Elena Marie Felice, Ethel Felice, Marie Therese Camilleri Podesta, Dolores Gauci, Kathleen England, Neville Calleja, Lydia Grixti, Charlene Bondin, Sephora Santucci

OP6.03 A case control and follow up study of 'Hard to Reach' young people who also suffered from multiple complex mental disorders
Nigel Camilleri, Dorothy Newbury-Birch, Paul McArdle, Deborah Stocken

OP6.04 Mental health problems in medical students at the University of Malta. A *longitudinal study*
David Cassar, Mary Anne Lauri, Josef Lauri

OP6.05 A snapshot of child and adolescent inpatient psychiatric services in Malta: uptake and implications for future services
Anton Grech, Sally Jane Axiak

15:15 - 16:30 **Session 6B**
Pharmaceutical Sciences

Chairpersons: *F. Wirth, M. Attard Pizzuto*

OP6.06 pH and steroid orthoester hydrolysis
Nicolette Sammut Bartolo, Theresa Hörnemann, Victor Ferrito, Janis Vella, Anthony Serracino-Inglott

OP6.07 Development of a greener selective acylation method for steroids
Darren Cioffi, Anthony Serracino-Inglott, Nicolette Sammut-Bartolo, Victor Ferrito, Janis Vella, Lilian M Azzopardi

OP6.08 Waste management in pharmaceutical processes
Shirley Tabone, Anthony Serracino Inglott, Lilian Azzopardi

OP6.09 Factors affecting the concentration of ciprofloxacin in ischaemic tissue
Janis Vella, Maria Vella, Kevin Cassar, Lilian M Azzopardi, Anthony Serracino-Inglott, Godfrey LaFerla

OP6.10 Design and optimisation of novel structures for the management of Alzheimer's disease
Neil John Bugeja, Claire Shoemake

OP6.11 Optimisation of novel selective cyclooxygenase-2 inhibitors using resveratrol analogues as lead molecules
Clarissa Caruana, Claire Shoemake

OP6.12 Design of novel non-steroidal structures capable of antagonism of the oestrogen related receptor alpha for the management of breast cancer.
Keith Muscat, Claire Shoemaker

15:15 - 16:30 **Session 6C**
Cardiology, Cardiac Surgery

Chairpersons: *J. Galea, A. Borg*

OP6.13 Audit of heart failure treatment in patients with an ejection fraction less than 50% on echocardiography
Amy Christine Chircop, Maria Bonnici, Alice Moore, Herbert Felice, Andrew Cassar

OP6.14 Predictors of outcome following myocardial perfusion scan
Caroline Jan e Magri, Dillon Mintoff, Ramona Camilleri, Malcolm Mintoff,
Julian Cassar, Robert George Xuereb, Stephen Fava, Joseph Galea

OP6.15 Uptake of unhealthy habits among Maltese grown-up congenital heart disease patients
Carl Camilleri

OP6.16 Outcomes of transcatheter aortic valve implantation in Malta
Andrew Cassar, Elton Pllaha, Alexander Manche, Albert Fenech, Robert George Xuereb

OP6.17 Haematological parameters in a trial of perceval and mitroflow aortic valve implantation
Aaron R Casha, Stephanie Santucci, Liberato Camilleri, Kentaro Yamagata,
Joseph Galea, Alexander Manché

OP6.18 Long-term survival after aortic valve replacement: a twenty-year relative survival study
Alexander Manche, Liberato Camilleri, Dorothy Gauci

OP6.19 Galectin-3 levels in aortic stenosis patients
Andrew Cassar, Daniela Cassar Demarco, Graziella Zahra, Stephen Fava, Joseph Galea

15:15 - 16:30 **Session 6D**
Medical Education

Chairpersons: *P. Mallia, T. Piscopo*

OP6.20 Comparison of Extended Matching Questions and Short Answer Questions when testing student health professionals
Neville Calleja

OP6.21 Psychometric properties of the UMKC-SOM Climate of Professionalism instrument.
David M Mangion

OP6.22 Peer teaching in anatomy: does it really work? A cross-sectional, retrospective survey.
Andee Agius, Neville Calleja, Christian Zammit, Richard Pullicino, Christian Camenzuli, Roberta Sultana, Jean Calleja Agius, Cristoforo Pomara

OP6.23 The impact of the annual August trainee changeover on cardiac surgical outcomes in a single UK institution.
Edward Joseph Caruana, Samer Nashef

OP6.24 Cardiac surgical training is safe for patients.
Edward Joseph Caruana, Samer Nashef

OP6.25 Evaluation of a teaching programme in an acute medical unit
Jonathan P Mamo

OP6.26 Beware email invitations to submit a paper!
Justine Bugeja, Victor Grech

15:15 - 16:30 **Session 6E**
Neurology, Medicine

Chairpersons: *J. Aquilina, N. Refalo*

OP6.27 Assessing frailty and anaesthetic risk in the older patient
Christine Debattista, Neville Aquilina, Peter Ferry

OP6.28 The use of enoxaparin in medical admissions to prevent hospital-acquired venous thromboembolism (VTE)
Nicholas Paul Delicata, Justine Camilleri, Jonathan Gauci, Darlene Muscat, Anthea Brincat, Stephanie Attard, Kyra Bartolo, Robert Camilleri, Karen Anne Cassar

OP6.29 An audit on testosterone therapy in adult males with androgen deficiency.
Josephine Bigeni, Mark Gruppetta, Yanica Vella, Matthew Zammit, Clayton Micallef, Maria Mifsud, Josanne Vassallo

OP6.30 Detailed epidemiology and radiological geometric assessment of pituitary macroadenomas: a population based study
Mark Gruppetta, Josanne Vassallo

OP6.31 A local study on patient knowledge on the use of botulinum toxin in neurological disorders
James Gauci, Maria Alessandra Zammit, Darren Sillato, Beatrice Farrugia, Maria Mallia

OP6.32 An audit of respiratory assessment and non-invasive ventilation management in motor neurone disease
Jonathan P Mamo

OP6.33 Male infertility at the male urology infertility clinic, Mater Dei Hospital Malta
Martha Anne Zammit, Gregory Philip Apap Bologna, Andrew John Mercieca, Jean Calleja-Agius

15:15 - 16:30 **Session 6F**
Surgical Oncology

Chairpersons: *J. Degatano, C. Magri*

OP6.34 Thyroid aspiration cytology: a three year correlation study with histopathology
Roderick Busuttil, Jonathan Galea, Mario Taliana, James DeGaetano, Alexandra Betts

OP6.35 Personalized medicine: KRAS genotyping of colorectal adenocarcinomas in Malta
Jeanesse Scerri, Malcolm Buhagiar, Maria Mifsud, Dorianne Buttigieg, Allison Cordina, Catherine Grima, Stephen Brincat, Claude Magri, James DeGaetano, Christian Scerri

OP6.36 Cost comparison of oral capecitabine versus intravenous 5-fluorouracil/folinic acid in cancer based treatment
Lorna Marie West, Alison Brincat, Joseph Nicholas Sciberras, Rachel A. Micallef

OP6.37 Cost implications of current dose rounding in high cost parenteral anti-cancer treatment and potential cost savings with a 5% dose rounding
Alison Brincat, Joseph Nicholas Sciberras, Lorna Marie West, Ian Rapa

OP6.38 Uptake of unhealthy habits among Maltese grown-up congenital heart disease patients
Maryanne Caruana, Victor Grech

OP6.39 Assessing the quality and completeness of request forms in the histopathology department
Adriana Grech, Michelle Ceci, James Degaetano

OP6.40 The efficacy of lymph node fine needle aspiration cytology
Jason Attard, Jonathan Galea, Alexandra Betts

16:30 - 18:00 **Poster Session 2**

P7 **Gynaecology**
Chairpersons: *M. Formosa, J. Mamo*

P8 **Gastrointestinal medicine**
Chairpersons: *J. Pocock, J. Gerada*

P9 **Pharmacy**
Chairpersons: *L.Grech, J.Vella*

P10 **Endocrinology & Diabetes**
Chairpersons: *M. Gruppetta, S. Vella*

P11 **Surgery, Anaesthesia, Orthopaedics**
Chairpersonss: *P. Zammit, S. Sciberras*

P12 **Medicine**

Chairpersons: *P. Ellul, M. Vella*

Reviews and Case Reports: P.*065 - P.130*

Saturday, 5th December

08:00 **Registration**

9:00 - 9:45 **Plenary V**

Chairperson: *Dr George Galea*

Parallel Session 7

09:45 - 11:00 **Session 7A**
Resipratory Medicine and Rehabilitation

Chairpersons: *S. Singh, J. Micallef*

OP7.01 Pulmonary rehabilitation - the evidence, the challenges and the use of technology
Sally Singh

OP7.02 An observational study of obstructive sleep apnoea in Malta
Darlene Muscat, *Paul Torpiano, Matthew Mercieca Balbi, Peter Fsadni, Stephen Montefort*

OP7.03 A local perspective on risk factors and short term outcomes in community-acquired pneumonia
Caroline Gouder, Michael Borg, Donia Gamoudi, Marija Agius, Nadia Gamoudi, David Farrugia, Josef Micallef

OP7.04 Pulmonary rehabilitation in pulmonary fibrosis patients - benefits of a 12 week programme
Anabel Sciriha, Stephen Lungaro-Mifsud, Rachelle Asciak, Darlene Muscat, Caroline Gouder, Simon Gouder, Peter Fsadni, Josianne Scerri, Liberato Camilleri, Stephen Montefort

OP7.05 The effects of pulmonary rehabilitation (PR) on inflammatory markers in stable chronic obstructive pulmonary disease (C OPD) patients
Anabel Sciriha, AnneMarie Bonello, Stephen Lungaro-Mifsud, Josianne Scerri, Liberato Camilleri, Bridget Ellul, Anthony Fenech, Stephen Montefort

09:45 - 11:00 **Session 7B**
Public Health

Chairpersons: *M. Mackee, J. Mamo*

OP7.06 The political economy of health: preparing a new generation for a changing world
Martin Mackee

OP7.07 Mental health literacy - what we don't know, we fear!
Miriam Camilleri, Natasha Barbara

OP7.08 Pilot testing international diabetes definitions
Sarah Cuschieri, Janice Abela, Tiziana Farrugia, Matthew Scicluna, Ayrton Borg, Ryan Camilleri, Russell Bonnici, Angeline Sapiano, Ritianne Buhagiar, Julian Mamo

OP7.09 Teenage delivery rates in Malta
Miriam Gatt, Nicholas Vella-Laurenti, Neville Calleja

OP7.10 Life expectancy, mortality and elections: are elections bad for our health?
Elaine Claire Lautier, Natasha Azzopardi-Muscat, Kathleen England, Neville Calleja

09:45 - 11:00 **Session 7C**
Nephrology, Urology

Chairpersos: *E. Farrugia, J. Sciberras*

OP7.11 Catheter-related peritoneal dialysis infections in Malta
Angela Borg Cauchi, James Farrugia, Michael Borg

OP7.12 Seasonal variation in the peritoneal dialysis related infections in Malta
Jesmar Buttigieg, Angela Borg Cauchi, Marilyn Rogers, Emanuel Farrugia, Stephen Fava

OP7.13 A Maltese perspective on the microbiological prevalence, pathogenicity, distribution and metamorphosis of antibiotic susceptibilities of uropathogens over the past years
Edward Calleja, Andrew Sammut, Patrick Zammit

OP7.14 A re-audit of the management of acute infective admissions to Mater Dei Urology Unit
Tiziana Pirotta, Karen Sapiano, Gerald Busuttil

OP7.15 Nephrolithiasis, stone composition, meteorological conditions and seasons. Is there any connection?
Jesmar Buttigieg, Stephanie Attard, Ruth Galea, Alex Carachi

OP7.16 Adverse events following intravesical Bacillus Calmette-Guérin therapy in Mater Dei Hospital, Malta
Gerald Busuttil, Luke Zammit, Christine Debattista

OP7.17 Quality of informed consent for elective transuretheral resection of the prostate (TURP) in Mater Dei Hospital
Keith Pace, Petra Mallia

09:45 - 11:00 **Session 7D**
Obstetrics

Chairpersons: *R. Galea, Y. Muscat Baron*

OP7.18 Demographic changes Impacting obstetric practice in Malta: a review of 61,336 births
Ramona Camilleri, Miriam Gatt, Yves Oscar Muscat Baron

OP7.19 Who gets pre-eclampsia in Malta?
Andee Agius, Miriam Gatt, Neville Calleja, Roberta Sultana, Rena Balzan

OP7.20 The first 100 cycles
Jean Calleja Agius, Mark Brincat, Mark Sant, Olivianne Cassar, Johann Craus, Max Dingli, Heidi Gauci Grech, Josephine Xuereb

OP7.21 Advanced maternal age and pregnancy outcome – a review of 39,683 births
Mandy Caruana, Miriam Gatt, Yves Oscar Muscat Baron

OP7.22 Maternal weight gain in pregnancy
Silvaine Marie Dalli, Theresia Anne Dalli, Estelle Abela, Isabelle Saliba

OP7.23 Risk factors analysis as a diagnostic aid for the diagnosis of gestational diabetes mellitus
Johann Craus, Charles Savona-Ventura, Josanne Vassallo

OP7.24 Thyroid dysfunction in pregnancy – a pilot analysis of a Maltese cohort
Katia Vella, Mark Formosa, Sandro Vella

09:45 - 11:00 **Session 7E**
Neurology, Neurosciences

Chairpersons: *J.A. Aquilina, R. Muscat*

OP7.25 Pathophysiological mechanisms of absence seizures
Vincenzo Crunelli

OP7.26 A critical role for serotonin 2A (5-HT2A) and 2C (5-HT2C) receptors in modulating experimental absence seizures
Giuseppe Di Giovanni

OP7.27 Transient modulation of olfactory information processing by the brainstem dorsal raphe nucleus
Szabina Furdan, Magor L Lőrincz

OP7.28 Impairment of synaptic homeostasis in Parkinson's disease: a high-density EEG study in different stage of the disease
Salvatore Galati

OP7.29 Guillain-Barré syndrome in Malta
Marilyn Rogers, James Gauci, Malcolm Vella, Maria Mallia

OP7.30 A retrospective cross-sectional analysis of CT brain scans in elderly patients presenting with acute confusion at the emergency department
Julian Sammut Alessi, Anna Spiteri, Richard Apap Bologna, Sarah Darmanin, Joel Pollacco

OP7.31 Recurrent cerebrovascular events in the Maltese population
Kurt Magri Gatt, Sean Mizzi, Maria Mallia

09:45 - 11:00 **Session 7F**
Plastic Surgery, Breast Cancer Surgery

Chairpersons: *F. Darmanin, G. Caruana Dingli*

OP7.32 Breast cancer patients diagnosed by national breast screening programme
Sarah Ellul, Kay Vanhear, Ramona Camilleri, Gordon Caruana Dingli

OP7.33 Timeframes in the management of new case breast cancer patients undergoing surgery with intention to treat in Malta in 2014: a retrospective analysis
Daniela Magri, Joseph Debono, Gordon Caruana Dingli, Danika Marmara'

OP7.34 Pre-operative axillary ultrasound staging in breast cancer surgery
Keith Sacco,
Kirsten Schembri, Shawn Baldacchino, Elaine Borg, John Agius, Joseph Debono

OP7.35 Bilateral breast reduction surgery at Mater Dei Hospital: analysis of physical and psychological symptoms using the BREAST- Q
Juanita Parnis, Duncan Aquilina, Matthew Borg, Francis Xavier Darmanin, Joseph Emanuel Briffa

OP7.36 Improving skin graft meshing
Daphne Attard, Aaron R Casha, Ruben Gatt, Joseph N Grima

OP7.37 A review of cutaneous squamous cell carcinoma excisions: a 5 year follow-up study
Matthew Borg, Tara Grima, Juanita Parnis, Duncan Aquilina, Francis Darmanin, Joseph Briffa

OP7.38 Audit of the introduction of a see-and-treat clinic in the Plastic Surgery and Burns Unit, Mater Dei Hospital
Kurt Magri Gatt, Matthew Borg, Gary Magri Gatt, Victoria Rizzo, Joseph Briffa

12:15 - 13:45 **Poster Session 3**

P13 **Respiratory Medicine and Infectious Disease**
Chairpersons: *B. Caruana Montaldo, C. Fsadni*

P14 **Geriatrics, General Medicine**
Chairpersons: *A. Fiorini, A. Borg*

P15 **Psychiatry, Public Health**
Chairpersons: *D. Cassar, C. Gauci*

P16 **Pharmacology**
Chairpersons: *A.G. Fenech, L. West*

P17 **Imaging**
Chairpersons: *A. Samuel, K. Saliba*

P18 **Haematology, Oncology**
Chairpersons: *D.J. Camilleri, C. Magri*

P19 **Neurosciences**
Chairpersons: *G. Rizzolatti, V. Crunelli*

Reviews and Case Reports: P.131 – P.204

13:45 - 14:00 **Closing Ceremony**

Guest Speakers

Prof. Alan D. Cameron
Consultant Obstetrician and Honorary Professor of Fetal Medicine
The Ian Donald Fetal Medicine Centre, Queen Elizabeth University Hospital, Glasgow

Prof. Stanley Chetcuti
Associate Professor, Internal Medicine
Eric J. Topol Collegiate Professor of Cardiovascular Medicine
Director, Cardiac Catheterization Laboratory
Co-Director, Structural Heart Program
University of Michigan Cardiovascular Center

Prof. George Cremona
Professor of respiratory medicine, University of Milan
Head of respiratory medicine and pathophysiology, Istituto scientifico universitario San Raffaele

Dr. Ian Curran
Assistant Director of Education & Professional Standards
UK General Medical Council
Professor of Innovation & Excellence in Healthcare Education
Queen Mary University of London
Honorary Senior Research Associate, University College London

Prof. Sir Alfred Cuschieri
Professor of Surgery, Scuola Superiore Sant'Anna, Pisa
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ORAL PRESENTATIONS

OP1.01

Contemporary clinical pharmacy practice and education

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Pharmacy practice in the United States has undergone major transformation since the 1960's. Pharmacists now have many new roles focusing on the patient pharmacotherapy in different patient care settings. The responsibilities of pharmacists have been extended from products and dispensing towards rational pharmacotherapy aimed to attain the most optimal outcomes. Clinical pharmacists are now commonly practicing in interdisciplinary teams in collaboration with physicians and other health professionals to assure that the most appropriate medications are prescribed. In addition, counselling and education are provided to patients and their family members/ care givers to enhance treatment compliance. An abundance of literature is available to demonstrate the value and cost-effectiveness of many innovative clinical pharmacy services and programs in enhancing the outcomes of different patient populations. These new patient-centered roles are increasingly embraced by pharmacists in many parts of the world. There is a concurrent transformation of pharmacy education for equipping pharmacists to attain the competencies needed for these new patient-centered roles, commonly through a doctor of pharmacy (Pharm.D.) degree program (entry-level or post-baccalaureate). The focus of the curriculum is shifted from emphasis in pharmaceutical sciences towards clinical practice where pharmacotherapy and disease management constitute a substantial portion of the degree program. Experiential education becomes essential in helping the students to acquire clinical skills and judgement. Clinical pharmacist preceptors serve as role models to teach students in applying therapeutic knowledge to patient care in collaborative team-based practice environment.

OP1.02

Pharmacist-led personalisation of antiplatelet therapy

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Introduction: Pharmacists should strive to take a leading role in the clinical implementation of pharmacogenetics to personalise antiplatelet therapy. The aim was to compare a novel point-of-care (POC) and two robust laboratory-based assays to identify presence of the CYP2C19 *2 allele in patients prescribed clopidogrel therapy.

Methods: After obtaining informed written consent, patients undergoing percutaneous coronary intervention were recruited. CYP2C19 *2 allele genotyping was performed with the POC Spartan™ RX system (Spartan Bioscience) and the laboratory-based TaqMan® (Life Technologies) and GenID® RDB 2070X (AID Diagnostika GmbH) assays. Patients were divided into non-carriers of the *2 allele, carriers of one *2 allele or carriers of two *2 alleles. Comparison between assays was undertaken.

Results: Out of a total of 34 patients, 25 were male and mean age was 66 years. With the POC assay, 21 patients were non-carriers, 12 were carriers of one *2 allele, and 1 was a carrier of two *2 alleles. With both laboratory-based assays, 21 patients were non-carriers and 13 were carriers of one *2 allele, however no patients were identified as carriers of two *2 alleles. Agreement in results between the POC and laboratory-based assays was 97% (κ=0.939, p=0.000).

Conclusion: All three assays are reliable for pharmacist-led genotyping. The POC assay has a faster turnaround time, requires minimal training and is non-invasive, however the tests are more expensive. The mismatched result does not impact personalisation of antiplatelet therapy since an alternative to clopidogrel is recommended for carriers of one and two *2 alleles.

Disclosure: University of Malta's Faculty of Medicine and Surgery Dean's Initiative, Technoline Ltd., Scientech Ltd., E.J. Busuttil Ltd., Malta Heart Foundation, AID Diagnostika GmbH, Orme Scientific Ltd., LEVO Laboratory Services Ltd.

OP1.03

Clinical implementation of the rheumatoid arthritis medication assessment tool – RhMAT

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Introduction: The RhMAT is a medication assessment tool designed to analyse pharmacotherapy adherence to rheumatoid arthritis evidence based guidelines. The aim of the study was to implement the innovative RhMAT in a clinical setting.

Methods: Rheumatoid arthritis patients regularly attending Mater Dei Hospital who were older than 18 years, and able to understand Maltese or English were eligible to participate. The University of Malta Ethics Committee approval and the patients' consent was obtained. The study was run between January and December 2014. The RhMAT was completed using patients's medical notes and patient interviews. Inter rater reliability was assessed using Cohen's Kappa in 13 patients. The overall RhMAT adherence rate achieved as well as separate adherence rates for each section in the RhMAT were calculated.

Results: A total of 78 patients participated in the study. During pilot testing, interreliability results gave Kappa value as 0.916 with a p value of < 0.05. During the study phase the average overall RhMAT adherence score was 82. A score <75%, determined as high adherence rate, was achieved in 81% cases (n=63). A score 51% 74% (intermediate) adherence rate was achieved in 18% of the cases (n=14). A high adherence rate score was achieved in 10 out of 11 subsections included in the RhMAT.

Conclusion: The overall RhMAT high adherence rate achieved indicates that rheumatoid arthritis patients are being managed in accordance to international guidelines. The RhMAT was useful in identifiying gaps to established guidelines thereby enabling the clinical pharmacist and clinicians to further improve the quality of service offered.

OP1.04

Assessing the perception and awareness of clinicians on biosimilars

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Introduction: The introduction of biosimilar infliximab on the Maltese National Health System (NHS) presented new challenges to clinicians. The aim of this study was to assess the perception and awareness of NHS prescribers on biosimilars.

Methods: The perception and awareness of clinicians

on biosimilars was assessed using the questionnaire developed by the Alliance for Safe Biologics Medicines. The questionnaire and three reminders were forwarded by email to prescribing clinicians.

Results: A total of 132 prescribers participated in the study giving a 14% response rate. Approximately 34% prescribed biosimilars. Out of the total respondents 6% consider themselves very familiar with the concept of biosimilars. About 47% were unaware that biosimilars may not always be licensed for all the indications as the originator products, despite both having the same international non-proprietary name. Around 27% answered that they prescribe by generic name irrespective of whether the drug is a biologic or not. Further, 36% believe that a patient can be safely started on either medicine; however 56% do not agree that these medicines could be safely switched during treatment.

Conclusion: The local overall awareness (6%) on biosimilars is much less than that achieved in Europe where an average of 22% of prescribers considered themselves very familiar with biosimilars. Although prescribing of biologics is regulated by Subsidiary Legislation 458.59 "Prescribing and Dispensing requirement rules", local prescribers are unaware that biosimilars should be prescribed by brand name. This study highlights the need for increased awareness on biosimilars in order to better understand biosimilars and improve patient safety.

Acknowledgements: Michael Reilly, Executive Director, Alliance for Safe Biologics Medicines

OP1.05

Chronopharmacology in hypertension – valsartan and amlodipine administration

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Introduction: Chronopharmacology in hypertension management aids clinical decision making on the best administration times of antihypertensive drugs to achieve optimum circadian blood pressure (BP) control. The study aimed to investigate the effect of morning versus evening administration of valsartan and amlodipine on BP.

Methods: Patients suffering from essential hypertension who were prescribed once daily valsartan (n=21) or once daily amlodipine (n=8) participated in the study. The patients' ambulatory blood pressure was monitored twice, 7 days apart. Each patient was initially asked to take their antihypertensive medication at 8.00am for 7 days then cross over to evening administration at 20.00 for another 7 days.

Results: The mean systolic BP (SBP) and diastolic BP (DBP) readings following both morning (123.91/77.94mmHg) and evening (121.31/76.06mmHg) valsartan administration were lower than the 140/90mmHg target. Compared to morning administration, evening valsartan dosing resulted in nonsignificantly lower BP (p>0.05 MannWhitney) during the early morning and day time periods but significantly lower BP (p<0.05 MannWhitney) during the night. Mean whole day BP following both morning (126.23/77.35mmHg) and evening (127.75/78.71mmHg) amlodipine dosing were lower than the 140/90mmHg target. Compared to evening dosing, morning amlodipine administration resulted in nonsignificantly lower BP (p>0.05 MannWhitney) during the day time period, almost significantly lower BP at night (p=0.065 Mann Whitney) and non significantly (p>0.05 MannWhitney) higher BP during the early morning.

Conclusion: Valsartan and amlodipine were effective for 24 hour BP control irrespective of their dosing time. Different administration times of both drugs had different effects on circadian BP and further studies are required to sustain the results.

OP1.06

The role of biomarkers in determining clinical activity in inflammatory bowel disease

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Introduction: Faecal calprotectin, released by intestinal neutrophils, is elevated in intestinal inflammation. This test is useful in the diagnosis of inflammatory bowel disease (IBD). ESR and CRP are the commonest serum markers used locally, to detect inflammation and clinically active disease, even in the absence of gastrointestinal symptoms. The aim of this study was to compare the predictive value of ESR, CRP and faecal calprotectin in patients with newlydiagnosed IBD.

Methods: Patients with newlydiagnosed IBD between January 2013 and August 2014 were included. Faecal calprotectin, ESR and CRP were assayed at the time of diagnosis. An ESR of >23mm/hr in adults (>16 years) and >13mm/hr in children (<16 years) was considered elevated. A CRP >10mg/L and a faecal calprotectin >50mg/L were considered as positive in both populations.

Results: 70 patients (43 females; 27males) with a mean age of 30.6 (475 years) were recruited. 42 had Crohn's disease, 25 had ulcerative colitis and 3 had indeterminate IBD. Faecal calprotectin was elevated in all cases. The ESR was elevated in 40% of cases and CRP in 20% of cases. There was no statistical difference between the adult and paediatric population.

Conclusion: These results demonstrate that ESR and CRP are poor markers of intestinal inflammation, compared to faecal calprotectin. This data suggests that all IBD patients should have faecal calprotectin measured at outpatients rather than ESR and CRP to assess clinical activity even in the absence of gastrointestinal symptoms.

OP1.07

Upper gastrointestinal malignancy a losing battle?

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Introduction: To prospectively audit an upper gastrointestinal cancer referral practice and to assess disease stage and post-intervention outcome.

Methods: From January 2013 to July 2015, 48 all-comers were recruited (34 males/15 females, mean 70 years, age range 3290 years, followup range 6 to 52 months). The lesions were distributed as follows: 20 eosophageal (17 adenocarcinomas, 1 squamous cancer, 1 GIST and 1 myxoid sarcoma), 13 junctional (12 adenocarcinomas, 1 squamous cancer), 12 gastric (8 adenocarcinomas, 3 GISTs, 1 rhabdomyosarcoma), and 3 duodenal (2 adenocarcinomas, 1 GIST).

Results: Twenty-seven patients were treated with curative intent - 11 oesophagectomies, 12 gastrectomies, 2 EMR's, 2 partial duodenectomies. All had R0 resections. Five patients had an unfavourable outcome. Four of these developed early metastatic and nonrecurrent disease. One patient died 3 weeks postoperatively from failure to thrive and heart failure after emergency subtotal gastrectomy for exsanguination (30-day all cause mortality of 4%). Twenty patients were treated palliatively. Despite favourable imaging after neoadjuvant treatment, 4 patients had "openshut" laparotomy due to metastatic disease. One patient was treated with chemoradiation only after developing CT detectable

disease while on neoadjuvant chemotherapy. In total, 14 patients were treated with endoprosthetic stents, 2 patients had palliative partial gastrectomy, 1 patient had an emergency gastroenterostomy after failed duodenal stent deployment. 30- day all cause mortality after primary palliative intervention was 30%.

Conclusion: More than half of this unselected group of patients had, or developed, incurable disease within 12 months of diagnosis. Although post-elective resectional mortality is very low, early mortality after palliative procedures is surprisingly high.

OP1.08

Columnar-lined oesophagus and oesophageal cancer in Malta: results from the first national patient registry

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Introduction: Oesophageal adenocarcinoma (OAC) is not considered to be a common pathology in Malta but accurate data are lacking. This study is a preliminary assessment of the prevalence of columnar-lined oesophagus (CLO) and associated neoplasia.

Methods: Patients with endoscopically identified CLO equal to or longer than 1cm, were enrolled into a prospective longitudinal cohort study. Endoscopic assessment of the oesophageal mucosa was carried out using advanced adjuncts. Subjects were assigned a Prague classification. Seattle protocol biopsies with additional samples from visible lesions were taken.

Results: In the period January 2012 to August 2015, a total of 119 subjects were enrolled, 77 males and 42 females, with mean age 58 years (range 1994, SD 16.4). The mean circumferential CLO segment length (C) was 2.2cm with the mean mucosal (M) length being 3.4cm. Eighty five subjects (71%) had short segments. Nine subjects were of Northern European extraction and longer segments were commoner in this subgroup (p=001). Prevalent low grade dysplasia was identified in 2 subjects, high grade dysplasia in 1, T1a OAC in 6 and invasive OAC in 19. Specialised intestinal metaplasia (SIM) was identified in 86 subjects and its presence was positively associated with segment length (p=0.014), benign stricture (p=0.010) and neoplasia (p=0.004).

Conclusion: This is the first study addressing CLO and OAC in this country. Short segments appear to constitute the predominant indigenous phenotype, whereas immigrant Northern Europeans are more likely to have long segments. Prevalent invasive cancer is commoner than non-invasive disease. Surveillance is being implemented in order to counter this trend.

OP1.09

Pregnancy outcomes in female patients with inflammatory bowel disease

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Introduction: Inflammatory Bowel Disease (IBD) affects patients during their childbearing years. With the progress and development of newer IBD treatments patients are increasingly likely to consider having children.

Methods: Female IBD patients were recruited from 5 different centres in Europe. They were interviewed through a prospective questionnaire.

Results: 233 patients were recruited (mean age 40; SD±11.9). 85.5% patients had ulcerative colitis (UC). 224 pregnancies were recorded. 63.8% patients became pregnant before the diagnosis of IBD. A younger age at IBD diagnosis was associated with a higher number of pregnancies (p<0.006). 1.7% of patients stopped medications on their own accord. Medications were stopped by the doctor in 13.9%. Additional medications were used in 3.9% of pregnancies. 54.0% of pregnancies were unplanned, with a higher rate in those who were pregnant after being diagnosed with IBD (p<0.0001). 8.6% of patients reported fertility issues. 9% of patients had an IBD exacerbation during pregnancy. Delivery was by caesarian section in 30.8% and by vaginal delivery in 69.2% and was influenced by underlying IBD in 12.0%. Delivery was uncomplicated in the majority of patients (92.0%). Mean birth weight was 3.34kg (1.90 – 4.70kg; SD±0.395). Most newborns (94.6%) were healthy. There were no correlations between the use of disease modifying drugs and neonatal adverse outcomes. 29 miscarriages were reported. Only 54.4% of IBD patients breastfed their infants.

Conclusion: Pregnancy outcomes appear to be favourable in IBD patients. There still remains a lower breast-feeding rate amongst IBD patients when compared to non IBD European data.

OP1.10

To assess the value of blue dye and radiological contrast tests after major oesophago-gastric and duodenal surgery

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Mater Dei Hospital

Introduction: To assess the value of blue dye and radiological contrast tests after major oesophago-gastric and duodenal surgery

Methods: Twenty-eight patients (18 males:9 females, mean age 68yrs) undergoing major oesphageal, gastric and duodenal surgery in a single surgical firm were recruited in a prospective study. Oral blue dye and contrast swallow examinations were routinely performed on the 5th to 7th post-operative day to assess for anastomotic and suture/staple line integrity, prior to allowing oral intake. The clinical progress, inflammatory marker profile and outcome of the leak tests were recorded.

Results: Twelve patients had oesophagectomy (2 3-stage, 5 2-stage, 4 trans-hiatal), 1 patient had trans-thoracic oesophageal diverticulectomy, 13 patients had gastrectomy (2 total) and 2 patients had duodenectomy. Twenty-two patients had a smooth recovery with a favourable inflammatory marker trend. Their leak tests were negative. Six patients had a stormy post-operative period. Leak tests were positive in 2 patients (1 neck anastomosis leak managed conservatively and 1 thoracic leak treated with percutaneous drainage and oesophageal stent). Three patients developed sepsis from post-operative pneumonia. One patient developed duodenal stump dehiscence after emergency subtotal gastrectomy for a bleeding lesser curve cancer. This latter patient died in hospital from intractable congestive heart failure

Conclusion: Patients undergoing major oesophago-

gastric and duodenal surgery are unlikely to have anastomotic or suture/staple line dehiscence if their 7th day postoperative clinical and marker progress on a nil-by-mouth regimen is smooth. Leak tests may be unnecessary in this group of patients. An unfavourable progress is associated with leakage in 50%.

OP1.11

Cystic lesions of the pancreas: need for local guidelines?

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Introduction: The increased availabilty of magnetic resonance imaging (MRI) has resulted in more frequent detection of pancreatic cystic neoplasms (PCN). PCN are classified into intraductal papillary mucinous neoplasms (IPMNs; subclassified into main duct (MD), branch duct (BD) and mixed type (MT)), mucinous neoplasms (MCN), serous cystadenomas and solid papillary neoplasms. IPMNs and MCNs carry the highest risk of malignant transformation; international guidelines recommend resection of all MDIPMN and MCN with further stratification of risk by endosonography in BDIPMN.

Methods: We conducted a retrospective study on all CLPs reported on MRI between July 2014 and May 2015.

Results: 53 PCNs were identified; 48 IPMNs (43 BD-IPMN, 4 MTIPMN,1 MDIPMN) and 5 MCNs. BDIPMNs were commoner in the pancreatic head (59%); 84%<2cm and 16% 23cm in diameter. 53% underwent MR surveillance; the rest were not followed up. The MDIPMN was 2.5cm in diameter, arose in the body and underwent surgical resection. 3 MT-IPMNs arose from the pancreatic head, 3 were 13cm while 1 was >3cm. 25% were surgically resected, 25% underwent MR surveillance; the rest were not followed up. MCNs were located in the body or tail and were larger in size (80% >3cm; 20% 23cm). 40% were surgically resected; the rest underwent MR surveillance.

Conclusion: Local management of MDIPMN and MCN is consistent with international guidelines with fit patients undergoing surgical resection. Management of BDIPMNs is less consistent; they should undergo risk stratification to determine which patients would benefit from surgery or surveillance. Our situation differs due to the local unavailability of EUS.

OP1.12

Temporal trends in the epidemiology, management and outcomes of patients with hepatocellular carcinoma in Malta

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Introduction: Chronic liver disease (CLD) and hepatocellular carcinoma (HCC) are increasing worldwide. We studied such temporal trends locally in particular HCC.

Methods: HCC patients diagnosed radiologically or pathologically between January 1995 – March 2015 in Malta were enrolled. Patient names were cross checked with local cancer registry. Patient demographics and management were obtained from medical notes.

Results: 116 patients (70% males) were diagnosed with HCC in the study period. Mean incidence between 2008 – 2011 and 2012 – 2015 was 7.75 and 14 new cases/year respectively. Data collection was only possible in 40 patients. Mean age at diagnosis was 64 (range 35 – 90). Liver cirrhosis was present in 77.5% (Child A 51.5%). Alcohol (25%) and fatty liver (22.5%) were the commonest causes of CLD. Alphafetoprotein was elevated in 62.5%. HCC presented mainly in the right liver lobe (60%), as solitary lesion (70%) or multifocal lesions (20%), with a mean size of 5.3cm (range 0.8cm – 19cm). 35% of HCC cases were referred for liver transplant, 27.5% received TACE, 27.5% palliative care, 5% RFA and 5% liver resection. Of the ones who died, mean interval between HCC diagnosis and death was 1.6 years. All cause mortality for HCC cases diagnosed between 2008 – 2010 and 2011 – 2013 was 90% and 59% respectively.

Conclusion: The incidence of HCC in Malta is alarmingly rising; twice higher in recent years as compared to previous, owing to rising CLD and better imaging techniques. Mortality rate has however improved by 30%, owing to earlier diagnosis and better treatment options.

OP1.13

Group B Streptococcal disease in infants in Malta

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Introduction: Group B Streptococcus (GBS), an important cause of neonatal sepsis, causes early onset GBS disease (EOGBS) within <7 days of life or late onset GBS (LOGBS) disease from 7 days 3 months of life. The primary objective of this study was to describe the disease burden of infantile GBS disease in Malta.

Methods: All babies from 0–3 months of age who had GBS isolated from the blood and/or cerebrospinal fluid from December 2008 July 2014 were identified. Data on demographics, laboratory investigations and outcome were collected.

Results: Over the 5½ year study period, 25 babies had confirmed GBS disease. EOGBS occurred in 72.0% (incidence: 0.79/1000 livebirths), and 28.0%, had LOGBS (incidence: 0.31/1000 livebirths). All infants with EOGBS developed symptoms within their first 24 hours of life compared to a mean age of 12.6 days for LOGBS. Vaginal rupture of membranes was documented in all births. In EOGBS 12% had neutrophilia and a first mean C-reactive protein (CRP) of 14.4. In contrast 28.57% with LOGBS had neutrophilia and a first mean CRP of 54.6. A lumbar puncture was only done in 22.2% of infants with EOGBS compared to 85.7% in LOGBS. Infants with EOGBS received intravenous antibiotics for a mean of 11.5 days compared to 13.7 days in LOGBS. Out of all cases of GBS sepsis, 12% developed neuro developmental problems and 12% died.

Conclusion: Our study shows a high burden of EOGBS disease in Malta. Local guidelines on the prevention and treatment of GBS sepsis in infants are needed

OP1.14

Body maps and proformas in safeguarding: ensuring best practice

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Introduction: Assessment of maltreated children should be conducted with the same degree of thoroughness

and attention as any potentially life threatening medical condition. Inadequate documentation has been a recurrent theme of serious case reviews. We aimed to assess the availability and quality of both safeguarding proformas and body maps in four inner city trusts in London and in the general hospital of Malta.

Methods: A prospective quality improvement audit was carried out incorporating the safeguarding proforma and body maps provided by the Royal College of Paediatrics and Child Health (RCPCH) as the reference standard. We identified the proforms and body maps in the various hospitals and asked their designated doctors and/or paediatric trainees to discuss the strengths and weaknesses of each.

Results: All hospitals had body maps available however there was variation in their quality and accessibility. The majority had unnecessary artistic lines and were either too small or did not fit into the margins. Some had vital body parts missing. Only one trust had a safeguarding proforma that was readily accessible and utilised. All responding trainees agreed that safeguarding proformas and body maps are useful.

Conclusion: Simple and readily available body maps and proformas can help the busy clinician when dealing with safeguarding cases. Unnecessary artistic lines on body maps can be confusing and misleading when interpreting the findings. A simple and basic updated set of body maps was devised along with an aide-memoire based on RCPCH safeguarding proforma. This should be uploaded onto each hospital's intranet and reaudited after six months.

OP1.15

Additional 2D ultrasound views enhance the detection of congenital heart disease in the second trimester

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Introduction: The antenatal detection of Congenital Heart Disease (CHD), the most common type of congenital malformation, is very low. Yet antenatal detection
leads to better prenatal care, and may significantly reduce neonatal morbidity and mortality. It may be improved by the introduction of additional scanning views to the anomaly 2D ultrasound scan carried out routinely in Malta.

Methods: The study included 600 randomly selected women of all ages in their second trimester (18 to 24 weeks), who attended Mater Dei Hospital for a routine antenatal anomaly ultrasound scan. These women were scanned using (1) the conventional 4-chamber view (4CV), plus additional views, including (2) the left outflow tract, (3) the right outflow tract, (4) the 5-chamber view and (5) the 3-vessel view. The composite scan including all 5 views was named the 'extended cardiac ultrasound examination' (ExCUSE). Scanning was performed by using a Siemens SONOLINE G50 Ultrasound Machine (Model number: 7474922) and C52 Curvilnear Transducer (Seriel number: AJ86436).

Results: From these 600 patients, 11 had abnormal results of which 7 were picked up using ExCUSE scanning whilst the remaining 4 were also picked up on the 4CV. Most of these mothers have yet to deliver such that the antenatal diagnoses have yet to be confirmed clinically and by echocardiography.

Conclusion: Although fetal heart anomalies detected on antenatal ExCUSE scanning need to be confirmed, extra ultrasound scan views can improve the pickup rate for CHD.

OP1.16

Introduction of a blood-spot screening programme for neonatal thyroid disease: impact on safety and cost-effectiveness.

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Introduction: Disorders of thyroid gland in the newborn are relatively common. Failed or delayed treatment of thyroid disease in the neonatal period may have severe repercussions on child development. It is therefore routine to screen for thyroid disease in the neonatal period. In Malta Cord Thyroid Screening (CTS) is performed using blood samples collected at birth from the umbilical cord while most countries have adopted delayed bloodspot (DBS) testing obtained between days 5-10 of life. This study assesses the impact of a potential introduction of DBS thyroid testing on the safety and costeffectiveness of newborn thyroid screening.

Methods: Data on CTS was collected retrospectively from April 2013-April 2015. A literature review was carried out to investigate the safety of DBS programmes. The economic implications of both systems were assessed by computing the costs involved, including disposables, reagents, machinery, manpower and the added costs of recalling and resampling any false results.

Results: 7496 newborns were screened at birth. 1748 (23%) of CTS were falsely positive for hypothyroidism and 3 gave false negative results. Sensitivity and specificity of CTS were 25% and 77% while for DBS 97.5 and 99%. A DBS programme was shown to be potentially cheaper to run.

Conclusion: Comparison of the two screening methods revealed an alarmingly high rate of recall (false positives) for the CTS. The low sensitivity of CTS is reason for serious concern. DBS testing is shown to improve safety and cost-effectiveness with the added advantage of supporting future additions to the neonatal biochemical screening programme.

OP1.17

The clinical burden of phenylketonuria in a Maltese cohort

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Introduction: Phenylketonuria (PKU) is a rare metabolic disorder comprising a number of different enzyme deficiencies. In Malta, dihydropteridine reductase (DHPR) deficiency appears to be more common than phenylalanine hydroxylase deficiency (classical PKU), and is associated with greater and long term neurodisability.

Methods: The clinical burden including any medical complications such as epilepsy, developmental delay and need for healthcare support was obtained by trawling case files of all patients with PKU over an 18 year period, 1998-2015.

Results: Six cases, 5 with DHPR deficiency and one with classical PKU were identified. This gives a prevalence of DHPR of approximately 5.5 per 10^5, in keeping with the reported high carrier rate of 3.3%.The absence of newborn PKU screening in Malta resulted in a late diagnosis from 5-23months (apart from two siblings of an index case diagnosed at birth). Three children had a 'classical' PKU phenotype but all six patients had cognitive-developmental delay, motor abnormalities and required a 1:1 learning assistant at school. Five had behavioural issues and dystonia, whilst three had microcephaly and epilepsy. Medical issues were compounded by problems in providing and adhering to strict low-phenylalanine diets and, in those with DHPR, the regular provision of neurotransmitter and co-factor supplementation.

Conclusion: PKU patients in Malta create a disproportionate demand on health services and will not be

unable to lead an independent existence. A comprehensive overhaul of the care provided to these children is required, starting with the introduction of newborn screening, followed by effective dietary and pharmaceutical provision at all times.

OP1.18

'You have to experience it...to truly understand it'. The voices of Maltese parents raising young children born with intellectual disability risks: emotional needs

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Introduction: Exploring Maltese parents' experiences and needs whilst raising an 'at risk' child to develop an intellectual disability (ID) act as a foundation for the provision of family-centred early intervention services in such a way that is beneficial for the whole family. The study aimed to explore the experiences and needs of Maltese parents of young children born with biological risks for ID.

Methods: A qualitative crosssectional design was adopted using interpretative phenomenological analysis (Smith et al., 2009). Semistructured interviews were conducted with a purposive sample of thirty seven sets of parents, whose children were 0;6, 2;0, 3;6 and 5 years of age. All ethical considerations and permissions were sought and respected.

Results: Analysis identified six superordinate themes: 'experiencing is true understanding', 'family functioning', 'info -emotional cycle', 'micro-system socio cultural framework', 'service-needs-resource cycle' and 'experiential challenges'. This paper focuses on 'experiencing is true understanding' and its respective subthemes. Findings shed light on the lack of empathy that parents perceived, as well as feelings of shock that impacted and transformed their lives, throughout their child's first five years of life.

Conclusion: The parents described a fundamental change in their lifestyle as a result of their experiences. Implications suggest a need for parent-to-parent support and specialised psychological services to support parents' emotional needs, that should initiate from birth and/or the newsgiving period. Recommendations involve changes in health services policy and provision, which could reduce the reported level of parents' stresses, increase service satisfaction and longterm outcomes. Further recommendations to enhance the education of Maltese health professionals are also identified.

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OP1.19

Paediatric emergency severity index and time of first medical contact

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Introduction: The Paediatric Accident and Emergency (A&E) service covers all patients under 16 years of age presenting with medical complaints. Cases are triaged by the Emergency Severity Index (ESI) in order to allow doctors to review patients depending on priority. The aim of this audit was to assess whether Paediatric A&E waiting times abide by the ESI recommendations.

Methods: All patients reviewed at the Paediatric A&E Department over a 12day period (n=314) were included. For each patient, time registered at A&E, time triaged at A&E, time for first medical contact, time of transfer/admission, and time of senior review where applicable were recorded.

Results: The majority of patients (138) presented with ESIlevel 3 complaints (44%), with 69 presenting at ESI2 (22%) and 4 at ESI1 (1.3%). All ESI1 patients were seen immediately, while the average waiting times for ESI2, 3, 4 and 5 were 40.43, 49.27, 37.58 and 31.19 minutes respectively. According to ESI recommendations, average waiting times for ESI level 1, 3, 4 and 5 were appropriate, though those for ESI2 were not. Of these, 13 patients (22.4%) were seen within the recommended 15 minutes waiting time.

Conclusion: On average, patients presenting with an ESI level 2 complaint were not seen within the recommended time frame. One potential cause for this is the overtriaging of patients by inexperienced triage nurses, and the authors recommend further investigation into this and other possible causes for delays.

OP1.20

Door-to-balloon time in ST segment elevation myocardial infarction at Mater Dei Hospital

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Introduction: The European Society of Cardiology Guidelines(ESC2012), Guidelines for management of acute myocardial infarction in patients presenting with STsegment elevation recommend a door-to-balloon-time of <60 minutes.

Methods: Prospective collection of STEMI patients presenting at Mater Dei Hospital between October'13-January'14 was carried out. Data was collected from casualty registration forms and catheterization-suite reports. Door-to-balloon time was calculated from registration time (A&E), to time of 1st balloon inflation (catheterization-suite reports). Outcome was assessed by ST-resolution in 1 hour, 1 day and presence of new Qwaves.

Results: 54 patients were diagnosed with STEMI within the collection period. 1 patient died post-thrombolysis, had no data available. Data was collected from 53 patients (mean age:62.2, range:33-81); (M:75.47%). 51.85% of patients were brought by ambulance and only 25% had MRXECG taken. 69.81% of patients underwent PCI (percutaneous coronary intervention), 7.54% thrombolysed, 22.64% were managed conservatively. Average door-to-balloon-time was 139.19minutes (median:112). 56.8% of patients were registered during 'OfficeHours' (08:00-17:00): average door-to-balloon time was 134.29minutes (median:97). The remaining 43.2% had a door to-balloon-time of 140minutes (median:115.5). 18.9% of PCIs were done within the recommended time-window of <60 minutes, 13.5% within 60-90minutes, 37.8% were done within >120minutes. In patients who underwent PCI, >50% resolution of STelevation on day1 was recorded in 86.49%, 100% in patients who underwent thrombolysis, in 36.36% treated conservatively. New Q waves were recorded in 45.95% of patients who underwent PCI, in 25% treated with thrombolysis and in 27.27% treated conservatively.

Conclusion: The average door-to-balloon-time at MDH was greater than recommended by ESC. Further analysis of patient flow is required to address this clinical issue.

OP1.21

Percutaneous coronary intervention (PCI) related morbidity and mortality

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Background: Evaluation of safety and effectiveness of PCI and drug eluting stents is important in device approval and their clinical use. Clinical outcomes is an important parameter in the understanding of human subjects' exposure to drug device products.

Objective: To assess morbidity and mortality related to PCI in Catheterisation Suite, Mater Dei Hospital.

Method: We assessed retrospectively 745 PCI procedures between June 2012 and 2013 with a follow up period of 1 year. The primary endpoint was rate of death and CVA 1 year after the indexed PCI. Secondary endpoints included procedure related complications such as bleeding and transfusion requirements, acute or chronic kidney injury and instent restenosis and thrombosis.

Results: Seven hundred and fourty five (n=745) PCI procedures were analyzed. The mean age was 63 years with a male preponderance of 78%. Most procedures were elective PCIs (n=562) followed by primary PCIs (n=165) and ad hoc PCIs (n=18). The large majority of patients had no Creatinine levels taken pre or post procedure. Access site complications included pseudoaneurysms. 30 patients had an US groin for a suspected pseudo aneurysm (4% of cohort). Management of pseudoaneurysms was mainly conservative. Only two (2) patients (0.27%) suffered a CVA post procedure. A total of 62 PCI procedures (8.9%) out of 692 PCIs performed suffered some form of in-stent restenosis. A total of 38 patients (5.1%) died within 1 year of procedure.

Conclusion: PCI is a lifesaving procedures with a high benefit-to-risk ratio.

OP1.22

Prognostic indicators and risk estimation of ten-year and twenty-year mortality following acute coronary syndrome

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Introduction: We sought to identify independent predictors of mortality at 10 years and 20 years following admission with acute coronary syndrome (ACS) and to generate risk equations using baseline characteristics.

Methods: Patients hospitalized with ACS from December 1990 till June 1994 were recruited and followed up through 31st December 2012. Univariate analysis followed by Cox regression analysis was performed to identify independent predictors of mortality at 10 and 20 years. Cox models were consequently used to develop risk equations to predict mortality at 10 and 20 years.

Results: The study followed 881 patients for 10 years and 712 patients for 20 years. Using Cox regression analysis, 20-year all-cause mortality was associated with acute myocardial infarction (AMI) in the index admission, age, and diabetes mellitus (DM). Twenty-year cardiovascular disease (CVD) mortality was associated with AMI in the index admission, age, DM, and total cholesterol levels, while 20-year cardiac mortality was associated with AMI in the index admission, female sex, age, DM and history of coronary artery disease. 10-year all-cause mortality was associated with age and DM. Similar results were obtained for both 10 year CVD mortality and cardiac mortality whereby both age and DM were significant predictors. Risk equations were generated.

Conclusion: Using a significant cohort of ACS patients with very long follow-up period, risk equations for all-cause, cardiovascular and cardiac mortality for patients with ACS at 10 and 20 years were generated. If validated, these novel risk equations will help in improving longterm outcome following ACS.

OP1.23

Red blood cell distribution width & myocardial scar burden in coronary artery disease

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Introduction: Red blood cell distribution width (RDW) is a novel independent marker of cardiovascular disease, including heart failure, coronary artery disease and myocardial ischaemia. The aim of the study was to investigate a possible relationship between RDW and myocardial scar burden, as assessed by a MIBI viability scan. A secondary objective was to assess for an association between RDW and left ventricular ejection fraction (LVEF).

Methods: The study comprised 123 subjects known to suffer from ischaemic heart disease who underwent a myocardial viability scan between June 2008 and July 2014. Haemoglobin, mean corpuscular volume, RDW, platelet count, mean platelet volume (MPV), estimated glomerular filtration rate, fasting blood glucose, liver and lipid profiles were evaluated for all patients. The extent of myocardial scarring and LVEF were noted. Data were analysed using IBM SPSS Statistics 22.0. Univariate followed by multivariate analyses were performed to assess for independent predictors of myocardial scarring & LVEF respectively.

Results: The mean age of the study population was 63.5 years; the majority of the subjects were males. The median LVEF was 31% & median percentage of myocardial scarring was 8.7%. Multivariate analyses revealed that RDW, HDL-cholesterol and alanine transaminase were independent predictors of myocardial scarring while RDW, MPV, total cholesterol and gamma-glutamyl transpeptidase were independent predictors of LVEF.

Conclusion: Increased RDW is an independent predictor both of myocardial scar burden and impaired left ventricular function in subjects suffering from coronary artery disease.

OP1.24

The role of HIF1α, VEGF and obstructive sleep apnoea in the development of coronary collateral circulation

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Introduction: Intermittent hypoxia (IH) in obstructive sleep apnoea (OSA) confers cardioprotection by enhancing coronary collateral circulation (CCC) development, decreasing

myocardium vulnerability to hypoxia and ischaemia. The main objective was to assess whether hypoxia inducible factor1α (HIF1α) and vascular endothelial growth factor (VEGF) play a role in the development of CCC in patients with OSA.

Methods: A total of 44 patients with reported collaterals on angiography were selected as cases, with 21 patients not having a CCC recruited as controls. All patients underwent ambulatory polysomnography to test for the presence of OSA. Blood samples for HIF1α and VEGF levels were taken. The development of CCC was classified according to the Rentrop Score.

Results: This study failed to confirm a relationship between the development of CCC and the presence of OSA ([absence/presence, p=0.47], [severity, p=0.44], [mild/moderate versus moderate/severe, p=0.27] and [AHI, p=0.21]), with a nonsignificant odds ratio of 2.17±1.61 (p=0.21). HIF1α increased with increasing Rentrop Score (p=0.04), but was not related to the presence or absence of OSA. However, HIF1α levels in moderate/severe OSA were positively correlated with Rentrop Score (p=0.02), while no/mild OSA patients showed no correlation. VEGF levels did not differ significantly with Rentrop Score or OSA severity.

Conclusion: This is the first study to date that links OSA, CCC, and plasma HIF1α and VEGF levels. Significantly, augmented HIF1α in moderate/severe OSA patients might be an important mediator in the development of CCC, but not in patients with no/mild OSA.

Disclosure: ELISA kits (2000 euros) funded by the Malta Medical School.

OP1.25

Closing the audit cycle: have cardiovascular risk assessment and management in rheumatoid arthritis patients improved?

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Introduction: The aim of the audit was to determine whether the cardiovascular risk assessment and management of patients with rheumatoid arthritis (RA) is in concordance with the EULAR guidelines.

Methods: An audit was carried out retrospectively on 91 RA patients by collecting data on a two year period (August 2010 to July 2012). The results of this audit were then disseminated through the rheumatology department and a form for cardiovascular risk assessment in RA was implemented. The audit was repeated on 107 patients by collecting data on a two year period starting from January 2013.

Results: Documentation of cardiovascular risk factors over a two year period improved from the first to the second audit: weight from 27.5% to 52.3%, BMI from 0% to 10.3%, smoking status from 72.5% to 93.5%, blood pressure from 72.5% to 92.5%, blood glucose from 72.5% to 97.1% and lipid profile from 54.9% to 96.3%. Documentation of smoking cessation advice improved from 15.8% to 41.1% and advice on other lifestyle changes improved from 14.3% to 18.7%. Moreover calculation of DAS28 over a one year period improved from 20.9% to 51.4%. The cardiovascular risk assessment form was used in 15.0%. The documentation of lifestyle advice was significantly higher (p<0.001) in the group of patients in whom the form was used. The same applies for documentation of weight (p<0.001), height (p<0.001), BMI (p<0.001) and DAS28 (p<0.001).

Conclusion: Cardiovascular risk assessment and management improved through raising awareness of its importance in the rheumatology department and the implementation of the cardiovascular risk assessment form.

OP1.26

Estimation of ejection fraction by ventriculography *vs* echocardiography: a comparative study

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Background: Ejection Fraction (EF) is used to assess cardiac systolic function. Healthy individuals have an EF of 50%-65%. EF estimation can vary with the modality used to calculate it. It is readily measured noninvasively with echocardiography and invasively during ventriculography. EF contributes to risk assessment in the EuroSCORE and Parsonnet scoring systems.

Aim: To compare the estimation of EF with ventriculography vs. transthoracic echocardiography in patients referred for cardiac surgery.

Methods and Results: 100 consecutive patients underwent a ventriculogram before referral for cardiac surgery. 94 patients underwent some form of cardiac surgery. Radiographers calculated EF by tracing the outer border of the cardiac silhouette during ventriculography and a single cardiologist (blinded to this result) measured EF during transthoracic ECHO (TTE) using the biplane Simpson's method. The investigations were performed before surgery with no recorded acute event between the two investigations. The interval between the two investigations ranged from 0 days to 82 days with a mean of 25.4 days. In the majority of cases the ventriculogram overestimated EF when compared with TTE. The difference in overestimation was more evident in those patients with EF on ventriculogram greater than 50%. In patients with lower EF there was a closer comparable result between ventriculogram and echocardigram. Thus altering the preoperative risk stratification score.

Conclusion: Ventriculography overestimates EF when compared with TTE, mainly due to ventricular extra systoles followed by compensatory pause during which the ventricle may overfill and the tracings of ventriculograms do not include papillary muscles and trabeculae, resulting in further possible errors.

OP1.27

Research access and involvement among Maltese doctors – a cross sectional study

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Introduction: Access to medical journals, research involvement and statistical knowledge are paramount in holistic clinical training and evidence-based practice.

Methods: An online survey was sent via the Medical Association of Malta newsletter and 187 doctors responded (52.41% females, mean age 31.1 years). Participants were divided in 4 groups: Foundation Programme doctors (FP) (53.55%), Basic and Higher Specialist Trainees (BST/HST) (25.14%), Resident Specialists and Consultants (RS/Cons) (13.66%) and Family Doctors (FD) (7.65%).

Results: 44.81% of respondents reported having read over 25 medical papers while NICE guidelines, PubMEd and the Cochrane library where accessed over 10 times by 55.19%, 66.12%,respectively. All respondents (n=187) access online journals with 29.51% also referring to hard copies. The major motivator for access was availability of free articles (25.14%) while expensive subscriptions (77.05%) was the main deterrant especially for the FP group. 19.13% conducted

more than 5 clinical audits while 8.20% conducted any other form of research. 24.59% presented medical research more than 5 times and 6.56% wrote at least 1 research paper out of which 75.00% managed to publish at least once. 66.67% were currently working on a research project. The mean score out of a 10-point Likert scale regarding confidence in utilising statistical tools and presentation skills was 4.67 with the highest mean (6.23) being in the RS/Cons group.

Conclusion: The study suggests that access to medical journal databases would increase research and evidence-based involvement among doctors.

OP1.28

ePortfolio for postgraduate medical training: the Malta experience

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Introduction: The ePortfolio is a dynamic, educational tool that records and facilitates the management of clinical and personal development through reflective learning. It exhibits the trainees' efforts, progress and achievements in one or more areas thus improving medical postgraduate training by enhancing the learning experience of our trainees and trainers.

Methods: Several foreign training institutions have their own training ePortfolio and in most countries this is speciality specific. The Malta Postgraduate Medical Training Centre (MPMTC) also felt such a need locally. A European Social Fund application was submitted and funding to create a local ePortfolio for all the medical specialities was awarded in October 2012. The software was developed over the last 30 months and was officially launched on the 24th April 2015.

Results: One hundred and fifty three (43.7%) trainees and 102 trainers have registered on the system in the first four months. After 3 months using the ePortfolio a 26-point satisfaction questionnaire is circulated electronically to the trainees. This shall be repeated after 6 months and after a year so as to gauge user satisfaction and so the MPMTC will be in a better situation to develop further the ePortfolio.

Conclusion: The local ePortfolio has been very well adopted by the various medical specialities, auguring well for the future. The overall satisfaction of the trainees who are already using it has been very positive (93% of respondents) expressing their satisfaction with the system. It is also helping to improve further the training programmes of the various specialities.

Disclosure: This project was co-funded by the European Union Social Fund (ESF).

OP1.29

Is foundation training in Malta and the United Kingdom truly equivalent?

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Introduction: The Malta Foundation Programme was launched in 2009 as an affiliate of the United Kingdom Foundation Programme. We sought to compare the experiences and achievements of University of Malta Medical School graduates having undertaken foundation training in the UK or Malta.

Methods: A structured questionnaire was circulated online to doctors having completed their foundation programme in August 2014 or 2015. Unpaired t test and Pearson's Chi-squared tests were used for statistical analyses.

Results: 31 doctors, 71% (n=22) male, participated in the study. 55% (n=17) underwent foundation training in Malta. Respondents from Malta and UK Foundation Programmes rated their clinical (6.7±1.6 vs 6.5±1.8, p= 0.69) and academic (5.6±2.2 vs 4.8±2.2, p=0.33) experiences similarly; whilst also reporting comparable educational value of their daily roles (3.3±2.0 vs 4.3±2.1, p=0.19), and work-life balance (5.1±2.4 vs 5.8±2.2, p=0.40). Doctors trained in Malta scored less in terms of objective academic achievements (4.6±2.5 vs 7.4±3.0, p< 0.01), but reported similar degrees of clinical skill acquisition (independent in 3.4±1.7 vs 4.5±2.3 of 11 skills, p=0.14). There was no difference in entry into desired basic specialty training programme (94% vs 77%, p=0.17) immediately post foundation training.

Conclusion: Our study largely demonstrated that Maltese medical graduates derive the same experience from the foundation programme irrespective of the location in which training is undertaken.

OP1.30

Are medical graduates able to perform basic practical procedures?

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Introduction: In 'Outcomes for Graduates', the General Medical Council identifies diagnostic and therapeutic procedures in which all medical graduates should be competent. We sought to evaluate the extent to which newly-qualified doctors were familiar with these skills at the start of their employment, whilst assessing perceived influences.

Methods: Year one doctors at the Malta Foundation School submitted voluntarily to a structured questionnaire. Unpaired t test and Pearson's Chi-squared tests were used for statistical analyses comparing Maltese (MG) to international medical graduates (IMG).

Results: 71 foundation doctors 32% (n=23) male, 82% (n=58) MGs – participated in the study. Overall, doctors reported being fully independent in only 2.5±2.6 of 12 skills identified the difference between MGs and IMGs not reaching statistical significance (p=0.0735). MGs had performed fewer skills under supervision (4.9±2.8 vs 7.9±3.3, p=0.0009). Doctors rated their preparedness to perform the skills required of them as house officers poorly (MG vs IMG, 2.0±0.9/5 vs 2.9±0.9/5, p=0.0010). 97% (n= 69) of all new doctors felt that there should be more emphasis on clinical skills in medical school, with 93% (n=54) of MGs and 39% (n=5) of IMGs reporting that technical skills acquisition was largely self-directed. 94% (n=67) of respondents reported often or always struggling for opportunities to practice clinical skills.

Conclusion: Current skillstraining in medical school fails to achieve the competence required of junior doctors. There is need for further emphasis and facilitation of opportunities in this regard.

OP1.31

End-of-Life decisions by doctors: a national crosssectional survey on views and experiences.

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Introduction: The study aimed to describe and quantify EoL (end-of-life) care locally.

Methods: A national crosssectional survey of all doctors

registered in Malta

Results: Response rate was 39.7%. 31.2% received no training in palliative medicine and had been practicing for 19.72 years (95% CI: 18.38 – 21.07). 86% declared that their religion was important in EoL care. 48.6% (44.4% disagreed, 17.4% neutral) agreed that high quality palliative care nearly removes all requests for euthanasia. 60.4% agreed (23.9% disagreed; 15.7% neutral) that physicians should aim to preserve life. On average, in the previous 12 months, respondents cared for 10.55 EoL patients (95% CI: 8.45 – 12.64). 31.4% of doctors withdrew or withheld treatment in the care of these patients. 49.2% had intensified analgesia at EoL with the possibility of hastening death. 5.9% had sedated patients at EoL. Lastly, 88.8% doctors would never consider euthanasia. Significant correlation ($p < 0.05$) was observed between considering euthanasia, previous practice of sedation and importance of religion. A thematic analysis of comments highlighted the importance of the topic, feeling uncomfortable in EoL care, the religious aspect of care, lack of legal framework and the challenge of symptom control. There was considerable variation between specialties.

Conclusion: Most doctors are against euthanasia. There is a strong sense of guidance by their religion in EoL care. A substantial number of doctors took important EoL decisions.There is variation between specialties on the approach to EoL care. Doctors need guidance – legal and moral – on this subject.

OP1.32

An art and medicine experiential learning laboratory in the Middle East to measure interdisciplinary problem-solving

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Introduction: The research objective was to understand how art and medical students can benefit from interdisciplinary problem solving and critical thinking skills in order to improve their respective professional practices.

Methods: The PIs from Weill Cornell Medical College in Qatar and the Virginia Commonwealth University in Qatar developed a one semester workshop-based course in Qatar exploring the connections between art and medicine. Students (6 art / 6 medicine) collaboratively designed and built an art installation and wrote a final art project proposal. To measure the student experience of interdisciplinarity, the PIs used a mixed methods qualitative / quantitative study design involving psychometric tests and observational ethnography, including specifically: pre and postcourse semi-structured audio interviews, pre-test / post-test psychometric instruments (Budner Scale, Torrance Tests of Creativity, etc.), observational field notes, and videography.

Results: In pre-course interviews, no medical student was able to make a sustained conceptual link between medicine and art. All art students however recognized design as an element in medical technology and hospital design. Students had remarkably similar stereotypes of each other's field of study. Students frequently voluntarily self-segregated themselves during activities. Philosophical and artistic insights into the human body emerged as a prominent theme in both art and medical student post-course interviews and final projects.

Conclusion: The research will provide insight on how different fields in a Middle Eastern context can share critical /analytical thinking tools to refine their own professional practices.

Disclosure: VCUQ University funded the research, approved for human subjects research by HMC/WCMCQ, JIRB #1400158.

OP1.33

The elicitation of Jung's shadow in Star Trek

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Introduction: This essay outlines Jung's concept of the shadow, a powerful and usually negative subconscious archetype, and will scrutinise the abundant manifestations of the shadow in Star Trek.

Methods: The influence of the shadow in Star Trek will be examined

Results: It will be shown that the shadow is diametrically opposed to the principles of the United Federation of Planets which include Aristotlean moral virtue ethics, Kantian deontological principles, existentialism, Aristotlean friendship of goodness and the encouragement of an epicurean lifestyle. The shadow's role is therefore that of the evil Manichean counterpart to the principles of the Federation, and this powerful opponent is always individuated and reintegrated into the psyche, or banished or destroyed or isolated after the protagonists understand it and come to terms with it.

Conclusion: The continual resurfacing of the shadow serves as a constant that we retain primitive and barely controllable animal vestiges of our ancient past under our civilized veneer.

OP1.34

Nacetylaspartate (NAA) induces neuronal differentiation: a possible escape from neuroblastoma tumor

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Introduction: Neuroblastoma, the most common extracranial solid tumor of childhood, is thought to originate from undifferentiated neural crest cells. N acetylaspartate (NAA) is the second most abundant metabolite present in the central nervous system (CNS) and its levels are changed in a wide array of CNS disorders. Decreased levels of NAA, associated with loss of neurons or mitochondrial dysfunction, are found in neuroblastoma tumor.

Methods: SHSY5Y neuroblastoma cells were treated with increasing doses of NAA (2,4,8 and 16 mM) for 72h and cell viability was assessed by MTS assay. The gene expression profile induced by 4mM NAA treatment in SHSY5Y cells was examined using the ILLUMINA array technology. Apoptotic and differentiating effects of 4mM NAA treatment for 72h were evaluated by flow cytometric analysis. The levels of proteins involved in the apoptotic pathway and differentiation were measured by Western Blotting.

Results: NAA treatment in SHSY5Y neuroblastoma cells has elicited morphological and neuronal differentiating effects evident with the neurite outgrowth and increased expression of specific differentiating markers: microtubule-associated protein 2 (MAP2) and tyrosine hydroxylase (TH). Exposure of cells to NAA has induced activation of apoptotic

pathway, associated to decreased levels of Bclxl and survivin and increased levels of p53, p21 and p27 proteins. Moreover, NAA treated SHSY5Y cells have proved to be more sensitive to the chemotherapy drugs, cisplatin and 5fluorouracil, when compared to the untreated control.

Conclusion: To our knowledge, this is the first study to demonstrate the neuronal differentiating effects of NAA.

OP1.35

Effects of tumour suppressor gene 101 perturbation on T cell synaptic ectosomes and B cell activation

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Introduction: The immunological synapse (IS) is the major structure formed during the contact between a T cell and B cell during antigen presentation. The IS is composed of a central accumulation of T cell receptors (TCRs) surrounded by an adhesive ring. Our group has recently demonstrated release of TCR enriched extracellular microvesicles into the centre of the IS by plasma membrane budding in a process that is dependent on the tumour susceptibility gene 101 (TSG101). We refer to these structures as synaptic ectosomes.

Methods: We employed TSG101 knockdown and supported planar lipid bilayers (SLB) followed by total internal reflection microscopy for imaging of molecular species in the IS. Current efforts are directed and identifying RNA species in synaptic ectosomes by RNAseq.

Results: We demonstrate a concentration of CD40L and RNA species in the centre of the IS, which could serve as messages to the B cells. Using the staphylococcal enterotoxin B (SEB), we show that TCRs can be transferred from T cells to autologous B cells in a superantigen dose dependent fashion. By employing the SEB system, B cell activation will be assessed by CD69, CD83 and CD86 flow cytometry following TSG101 perturbation in T cells.

Conclusion: TCR microvesicles are transferred in an antigen dose dependent manner to B cells and we expect that this transfer will be required for full responses by B cells. B cells that receive the vesicles will have a competitive advantage. If these expectations are supported by the results we will explore the possibility of using microvesicles as adjuvants.

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OP1.36

Camptothecin analogues and sirtuin inhibitors induce differentiation of HL60 acute myeloid leukaemia cells in vitro.

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Introduction: Acute myeloid leukaemia (AML) is the commonest acute leukaemia in adults which results from a block in the normal differentiation pathway of myeloid leukaemic (ML) cells in bone marrow. This ultimately leads to the proliferation of these cells which are unable to undergo the normal process of terminal differentiation and eventual apoptosis. Numerous studies have demonstrated the successful therapeutic effects of all-trans retinoic acid in treating the M3 French-American-British (FAB) subtype of AML, also referred to as acute promyelocytic leukaemia (APL), by inducing differentiation of the ML cells. This study sought to identify chemicals which induce differentiation of HL60 ML cells, AML cells of the M2 FAB subtype, in vitro similar to the differentiation resulting from the exposure of APL cells to all-trans retinoic acid.

Methods: HL60 ML cells were incubated in the presence of a number of chemicals at varying concentrations. The response of the cells to the chemicals after three and five days was assessed using the reduction of nitroblue tetrazolium (NBT) normalised to cell number by dimethyl thiazolyl diphenyl tetrazolium (MTT) assays.

Results: It was found that various chemicals in the categories of camptothecin analogues and sirtuin inhibitors greatly increased the differentiation of HL60 ML cells in vitro when compared to controls.

Conclusion: Being effective inducers of the differentiation of HL60 ML cells, camptothecin analogues and sirtuin inhibitors may potentially be used as differentiation therapy for AML of the M2 FAB subtype.

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OP1.37

Investigation of antimicrobial activity of restorative materials in relation to material properties and methods used for antimicrobial activity assessment

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Introduction: Dental decay is caused by various factors including bacteria and sugary foods which over time results in destruction of tooth tissue. Thus investigation of antimicrobial properties of materials used to restore teeth is considered clinically relevant since materials with antimicrobial properties would theoretically reduce incidence of secondary/ recurrent decay. Properties of dental materials, as well as additives to dental materials may affect the antimicrobial activity. This study aims to assess whether antimicrobial activity of currently used commercial restorative materials are related to physical and chemical properties of the material.

Methods: Seven restorative materials Chemfil Superior®, Spectrum®, Heliobond®, Ionoseal®, Dyract Extra®, Smart Dentine Replacement (SDR)® and Biodentine® were investigated. Material characterization by scanning electron microscopy, energy dispersive spectroscopy, Xray diffraction analysis, Fourier transform infrared spectroscopy and pH analysis was carried out. Antimicrobial activity assessed using an agar diffusion test and biofilm accumulation test.

Results: The material, aging and presence of barium in the materials were the key factors affecting antimicrobial testing results. Biodentine after immediate mixing and Ionoseal aged for 6 weeks resulted in an inhibition indicating antimicrobial activity. Significantly higher McFarland readings were observed in the presence of barium when using materials Ionoseal, Dyract and SDR at the 24hour ageing.

Conclusion: Properties of materials affect results of antimicrobial testing but this may not reflect the antimicrobial potential of the material in question, as material properties may affect results of tests used. Further assessment of methodologies used for antimicrobial testing is required, since not all data can be extrapolated clinically.

OP1.38

Multiscale genomic, transcriptomic and proteomic analysis of colorectal cancer cell lines to identify novel biomarkers

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Introduction: Resistance to colorectal cancer (CRC) therapies is a significant cause of treatment failure. We used an in vitro model to identify novel therapeutic targets, explain mechanisms of carcinogenesis and resistance to therapy, and ultimately aid patient stratification for therapy.

Methods: A panel of 15 CRC cell lines was profiled by comparative genomic hybridisation, gene expression profiling, reverse phase protein array analysis, and chemosensitivity assays with respect to 5fluorouracil, oxaliplatin, and BEZ235. As proof of concept, fluorescence in situ hybridization and automated quantitative protein analysis were employed to investigate a candidate biomarker in a CRC patient cohort (n=118).

Results: Integration of frequently amplified regions with gene expression data resulted in 47 significantly correlated genes, suggesting that at least 7% of the genes found in the frequently gained regions might be regulated, at least in part, by copy number changes. 20/47 of these genes were associated with treatment responses; for example, PDCD6 was differentially expressed with respect to all three treatments. The FISH scores of TRIB1 (a frequently amplified gene and candidate biomarker) and MYC (r^2=0.783, p=0.0001) were highly correlated, consistent with coamplification.

Conclusion: This multiscale analytical approach generated candidate predictive biomarkers for responses to important CRC therapies. This approach is valuable for understanding the mode of action of different treatments and guiding personalised therapy. We also show, for the first time, that TRIB1 is coamplified with MYC in a proportion of CRCs and may be an attractive target for intervention in this group of patients.

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OP1.39

Mutational analysis of c-KIT and PDGFRA in GIST cases diagnosed locally

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Introduction: The pathogenesis of most gastrointestinal stromal tumours (GISTs) is associated with activating mutations of the proto-oncogene tyrosine kinase KIT (c-KIT). Activating mutations are also found in the homologous tyrosine kinase platelet-derived growth factor receptor α (PDGFRA). Accurate diagnosis of GIST is essential due to the availability of targeted therapy. Immunohistochemistry (IHC) for CD117 (c-KIT receptor) is routinely performed in the diagnostic workup, however, it does not provide complete sensitivity, as there are nearly 5% of GISTs that are CD117 negative. The aim of this study was to identify cKIT and PDGFRA mutations present in GIST cases diagnosed locally.

Methods: Fifty-two formalin-fixed, paraffin-embedded sections from 47 GIST patients diagnosed in the last 14 years were retrieved from the archives of the Histology Section, Pathology Department, Mater Dei Hospital. Haematoxylin and eosin staining and CD117 IHC were performed to guide laser microdissection of tumoural tissue. DNA was isolated following standard protocols. Polymerase chain reaction (PCR) was used to amplify exons 9, 11, 13, and 17 of the c-KIT gene and exons 12 and 18 of the PDFRA gene followed by sequencing analysis.

Results: Positive CD117 immunostaining was present in 95.7% of the cases. All of the c-KIT mutations identified (76.0%) were found in exon 11 while the PDGFRA mutation identified (2.2%) was present in exon 12. The c-KIT missense mutation Val560Asp was atypically present at a very high frequency (54.3%).

Conclusion: Mutational analysis can confirm diagnosis of GIST especially in CD117-negative suspect cases, can provide prognostic information and has the ability to predict therapy outcomes.

OP1.40

CYP2C19 loss-of-function *2 allele and coronary in-stent restenosis

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Introduction: The CYP2C19 *2 allele is associated with reduced response to clopidogrel which may increase the risk of stent thrombosis after percutaneous coronary intervention (PCI). This allele has recently been linked with peripheral and vertebral artery in-stent restenosis (ISR). The aim was to determine whether there is an association between *2 allele carrier status and coronary ISR.

Methods: Two-hundred and fifty-two patients undergoing PCI were recruited by non-probability sampling. CYP2C19 *2 genotyping was performed and patients were divided into carriers and non-carriers of the *2 allele. Eighty-two patients had a history of PCI with stent deployment and were further divided into patients who presented with angiography-confirmed ISR at time of recruitment and those who did not. The association between *2 allele carrier status and coronary ISR was assessed.

Results: Of the 82 patients, 65 were male, mean age was 65 years, and 29 presented with ISR at time of recruitment. Twenty-two patients were carriers and 60 were non-carriers of the *2 allele. Twelve of the 22 carriers and 17 of the 60 non-carriers presented with ISR. Eight of these 12 carriers and 5 of these 17 non-carriers presented with ISR within 1 year despite maintenance clopidogrel therapy. The difference between proportions was statistically significant (p<0.05).

Conclusion: Results indicate a positive association between *2 allele carrier status and coronary ISR. These findings need to be confirmed by larger prospective studies and may open up new possible explanations of the pathophysiology of coronary ISR and implications of genotyping with clopidogrel use.

Disclosure: University of Malta's Faculty of Medicine and Surgery Dean's Initiative, Scientech Ltd., E.J. Busuttil Ltd., Malta Heart Foundation

OP2.01

Diagnostic-therapeutic imaging through nuclear medicine: still discovering the egg of Columbus?

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Over the past two decades, nuclear medicine (NM) has undergone extraordinary and exciting growth with the development of positron emission tomography (PET), coupled with CT, and new approaches in targeted radionuclide therapy. These developments have been reached by implementing new PET tracers, new therapeutic agents, new technologies but also redirecting prior methodologies such as the revision of image interpretation criteria or the amusing use of data for calculation of new quantitative parameters. In point of fact, nuclear medicine has already opened the door for personalized medicine by offering realistic solutions, especially in oncology, neurology, and cardiology. It is amazing to consider that we can detect by PET radiopharmaceuticals both the glycolytic metabolism of a tumour and its replicative rate stratifying patients who may benefit from tailored therapies. Accordingly, the daily use of new volumetric parameters or upgraded assessment criteria allow clinicians to weigh up the prognostic value of whole metabolic tumour burden rather than the "hottest" metabolic pixel. A volumetric representation of the metabolic charge seems to acquire a prognostic significance when tumour has dimensionally progressed and metastasized giving an incremental risk of event per unit increase. New neurological PET tracers hold great promise since capable to image beta amyloid plaques before Alzheimer disease arises. Recently, attempts to estimate coronary flow reserve with single photon computed tomography tracers have been made to obtain, with non-invasive methods, data for quantitative functional assessment of coronary artery disease. From a therapeutic point of view, the use of radionuclide labelled agents that specifically permit us to diagnose disease in individuals and use identical or closely related agents to treat these diseases symbolizes the new NM frontier, the so-called theranostic. To conclude, the combination of diagnosis and therapy still constitutes the quintessence of nuclear medicine which is able to offer either high technology and simple methodology.

OP2.02

CT examination of the abdomen and pelvis as a first-line investigation for iron deficiency anaemia – a study of local practice and diagnostic outcome

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Introduction: Assessing the usefulness of a CT abdomen-pelvis as a first line investigation in patients presenting with iron-deficiency anaemia (IDA).

Methods: 114 patients (mean age: 76years) who had a CT abdomen-pelvis as a first investigation for IDA between August 2014 and July 2015 were included retrospectively. Patients investigated initially with endoscopy, a different imaging modality or who were not fit to undergo endoscopy were excluded.CT findings were categorized into one of five diagnoses below.

Results: 14 patients(12.3%) were diagnosed with a colorectal malignancy,12 of which underwent colonoscopy after the CT. All colonoscopy findings matched the CT findings. 14 patients(12.3%) were diagnosed with diverticular disease. Further investigation by endoscopy was recommended by the radiologist in 9 cases(7.9%). Two of these patients underwent endoscopy which showed findings that cannot be appreciated with standard CT. 8 patients(7%) were diagnosed with other pathologies arising from the small bowel, renal and gynaecological system. 69 patients(60.5%) had normal CT findings. 19 of these patients proceeded to endoscopy, which demonstrated findings that couldn't be appreciated by a standard CT. Three patients had normal endoscopy. 4% of patients with a normal CT, refused endoscopy,12% are awaiting endoscopy and/or CTC whilst 56% had no further investigations performed.

Conclusion: CT demonstrated a possible cause for IDA in 31.6% of patients.Whereas GI endoscopy remains the recommended initial investigation in patients with IDA, CT offers an alternative test which is well tolerated by patients. In these special circumstances,more advanced imaging modalities,such as CTC, should also be considered given their increased sensitivity and specificity in the detection of colonic lesions.

OP2.03

Adequacy of ultrasound-guided fine needle aspiration (FNA) of thyroid nodules

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Introduction: Ultrasound guided FNA (US FNA) has been proven to be superior to palpation-guided FNA of thyroid nodules in terms of inadequate samples, sensitivity, specificity, positive and negative predictive values and accuracy. Literature review reveals that the reported rate of inadequate samples (Bethesda Category I) from US FNA of thyroid nodules ranges from 6% to 30%. The aim of this audit was to compare the diagnostic yield of local US FNA of thyroid nodules with that reported in the literature.

Methods: Retrospective analysis of US FNA of thyroid nodules carried out at the Medical Imaging Department (MID) of Mater Dei Hospital (MDH) over a 12 month period included over 200 FNAs. Data collection was carried out using RIS, PACS and iSOFT and included patient demographics and history of past US FNA, number of FNAs with positive cytology and non-diagnostic yield, US room, radiologist, referrer and whether the procedure was recommended by radiologist.

Results: A total of 236 FNAs were carried out. 74% of patients were female and 33.5% of procedures were carried out in patients aged 60-69 years. The majority had not had FNA before. 8.1% of FNAs were non-diagnostic. Only 36.4% of FNAs were recommended by radiologists and only 54.2% of patients were referred by ENT surgeons or Endocrinologists.

Conclusion: The diagnostic yield of FNAs at MID (MDH) is excellent when compared to that reported in literature. Increasing experience of performing radiologist improves diagnostic yield.

OP2.04

A study of the efficacy of axillary ultrasound in nodal staging in symptomatic breast cancer

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Introduction: The aim of this study is to monitor the ability to accurately predict axillary nodal metastasis by using standard breast imaging and FNA or core biopsy.

Methods: Symptomatic breast cancer patients who presented to Agatha Breast Unit since February 2015 were recruited to the ongoing prospective study. Patients who refused, were unfit for the recommended modality of treatment, were diagnosed with *in-situ* carcinoma, recurrent breast cancer, received primary hormonal therapy

or neoadjuvant therapy, were excluded from the study. All patients underwent routine physical examination, axillary ultrasonography, preoperative core biopsy/FNA of radiologically suspicious axillary lymph nodes and surgical axillary staging. Morphologic criteria of lymph node were measured by the radiologist performing the imaging. Demographics and histological reports were accessed through iSOFT.

Results: 23 female patients, average age of 65.6 years were recruited. In 47.8% (11 patients) the axilla was found to be radiologically suspicious. FNA was carried out in 30% (7 patients) whilst core biopsy was carried out in 39.1% (9 patients). 43.4% (10 patients) were diagnosed with metastatic axillary disease preoperatively and underwent axillary node clearance therefore avoiding a second operation. 2 patients (8.7%) required a second operation for axillary clearance despite no suspicious morphologic ultrasound criteria. Sensitivity of axillary ultrasound in nodal staging on its own is 81.25% whilst specificity is 57.14%. Sensitivity of axillary ultrasound in nodal staging in combination with FNA/core biopsy is 83.33% and specificity is 100%.

Conclusion: Ultrasonography in combination with FNA/core biopsy is superior to ultrasonography on its own for pre-operative treatment planning.

OP2.05

Outcomes of endovacsular treatment of critical ischaemia in the Maltese population

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Introduction: Critical ischaemia of the lower limb is associated with high risk of limb loss and mortality. Endovascular intervention is one of the main treatment options. The aim of this study was to determine the outcomes of patients with critical ischaemia treated endovascularly.

Methods: All patients presenting with critical ischaemia to one vascular surgeon at Mater Dei Hospital between 2009 and 2014 inclusive and referred for endovascular treatment were included. Data was collated prospectively in a vascular database. The intervention type and success of intervention were recorded. The main outcomes including death, limb loss, minor amputation, open bypass surgery and complications were recorded.

Results: 849 interventions were performed.(470 ulcers, 305 gangrene and 74 rest pain). 1,089 vessel segments were treated with the vast majority being infra-inguinal vessels (439 SFA, 309 popliteal, 249 calf arteries, 6 CFA) and the rest supra-inguinal (43 CIA and 43 EIA). 739 patients (87%) underwent successful angioplasty +/ stenting. 40 (4.7%) were only partially successful. 70 (8.2%) were unsuccessful. There were 3 deaths (0.35%) all due to complications arising from retroperitoneal bleeding. Over a mean follow up period of 37 months, 141 patients underwent infra-inguinal bypass surgery (16.6%) and 95 required major amputation giving a limb salvage rate of 88.9%.

Conclusion: The success rate of endovascular treatment (87%) and the low complication rates observed compare very favourably with results reported in the literature. This is despite the fact that the cohort of patients studied included only patients with critical ischaemia and the majority of interventions were in the distal arteries.

OP2.06

Physician and pharmacist perception on risks associated with potential antibiotic prescribing by pharmacists

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Introduction: Improving antibiotic use, driven by a multidisciplinary team, achieves a better clinical outcome by reducing harm to patients and decreasing potential for the emergence of antibiotic resistance. The aim was to assess physician and pharmacist perception on the risks associated with potential antibiotic prescribing by pharmacists.

Methods: Two questionnaires, one directed to physicians and the other to pharmacists, were developed as tools to quantify the potential risk of pharmacists prescribing antibiotics. The Delphi technique was adopted to validate both questionnaires.

Results: Out of 180 physicians who answered the questionnaire, 36% regarded pharmacists as being competent to treat common infections, 38% have no opinion and 26% think pharmacists are not competent at all. Fusidic acid cream or ointment is regarded as being very appropriate to be prescribed by pharmacists by 22% of physicians. Sixty-eight percent (n=120, N=177) of physicians do not favour pharmacist prescribing rights. The main reason given is that pharmacists are not qualified to clinically examine patients (78%). Out of 207 pharmacists who answered the questionnaire, 51% rated themselves as being competent to treat common infections, 33% have no opinion, whilst 16% claimed that they do not feel competent. Seventy-seven percent (n=157, N=204) of pharmacists agree that they should start prescribing a limited number of antibiotics since pharmacist prescribing would increase recognition of the role of pharmacists as members of the healthcare team (65%).

Conclusion: A collaborative approach between medical practitioners and pharmacists should be evaluated as a possible national structure towards achieving better antibiotic prescribing.

OP2.07

Pharmacist prescribing

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Introduction: This study presents a framework for local pharmacist prescribing. Locally, pharmacists are not yet authorized to prescribe.

Methods: Different pharmacist prescribing models and conditions for which local pharmacists are willing to prescribe were reviewed. Guidelines for pharmacist prescribing in the local hospitals, along with guidelines for managing oral anticoagulation, hypertension and diabetes were formulated. Validation of the guidelines was conducted by an expert panel; consisting of physicians and pharmacists. Three case studies, one on each of the three conditions identified, were designed and disseminated to the expert panel, for determining differences between pharmacist and physician prescribing.

Results: The pharmacist prescribing guidelines were developed based upon an American model: collaborative drug therapy management. The guidelines for the management of oral anticoagulation, hypertension and diabetes were developed based upon internationally recognized guidelines, followed locally. Monitoring sheets for the three conditions and a pharmacist patient profile have been included.

Such guidelines were validated by the expert panel and recommendations provided were incorporated. From the case studies, no differences were noted for the management of diabetes and oral anticoagulation. For hypertension, differences in prescribed drug therapy were mostly attributed to misdiagnosis by both pharmacists and physicians. When correct diagnosis was established, similar treatment was prescribed.

Conclusion: The validation panel have concluded that the guidelines are clear, practical and easy to implement. All experts have agreed that pharmacists should start prescribing oral anticoagulants, antihypertensives and antidiabetic medication. It can be concluded that once correct diagnosis is established by physicians, pharmacist prescribing is safe in all three conditions.

OP2.08

Drug induced effects and hospital admissions

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Introduction: The objectives were to investigate the occurrences of drug induced effects, to identify the drug related hospital admissions and to classify them into different categories depending on the medication error that occurred.

Methods: Data collection was carried out at Mater Dei Hospital where patient files of five selected firms were seen on the post admitting days. A Data Collection Form was used to compile patient information namely drug history, current medication and cause of admission. Patients admitted due to a Drug Induced Effects were interviewed through the use of a questionnaire. All the data collected was inputted into SPSS in order to carry out statistical analysis.

Results: From the 333 patient files that were seen, 54 were identified to be due to drug induced effects. 23 of these cases were found to be due to cardiac drugs, the majority being antihypertensive medications. Diabetic drugs were the second most common drugs associated with drug induced effects. 21 of the drug induced cases were patients between 70 and 89 years, making this the most common age group followed by the 50-69 year age group (18 patients).

Conclusion: The main types of Medication Errors have been identified to be prescribing error, improper dose error and compliance error. Patients who were taking two to four medications having similar side effect profiles were found to be at a greater risk of developing drug induced effects. This analysis shows that pharmacists could liaise with prescriber to contribute towards preventative action.

OP2.09

A crosssectional analysis of drug-drug interactions retrieved from the medications of patients on presentation at an outpatient hospital pharmacy

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Introduction: Significant drug-drug interactions (DDIs) are preventable and may give rise to serious adverse effects with associated increase in morbidity and mortality.

Methods: A crosssectional analysis was conducted on out-patient prescriptions at Mater Dei Hospital (MDH) over a month to assess the prevalence and clinical significance of DDIs. Screening for interactions was done using Stockley's and Medscape Interaction Checker. Logistic regression determined the odds ratio for the association of DDIs with the number of medication prescribed. Oneway MANOVA was applied to determine whether mean differences between the results of the two reference checkers were significant.

Results: A total of 651 medications were prescribed in the cohort (n=167) with a mean number of 3.90 medications per patient. A total of 173 and 209 DDIs were identified using Stockley's and Medscape respectively. The prevalence of DDIs was significantly associated with 3 or more concurrent medications (p<0.001, 95%CI 1.633.89). In all, 87 patients (52%) were identified with Stockley's and 96 patients (57%) were identified through Medscape with a potential DDI prescribed. The difference in observed interactions with the two checkers was statistically significant (p<0.001).

Conclusion: Significant DDIs can be prevented at MDH if pharmacists are routinely involved in screening prescriptions for DDIs prior to patients' discharge. A standardized procedure for screening prescriptions should also be adopted to maximize DDI capture.

OP2.10

Pharmacist intervention in medication reconciliation during transfer of care

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Introduction: Medication reconciliation is the accountability of medications taken by the patient before and after a transition across care settings. The aims were to classify discrepancies found between medication histories and to determine pharmacist intervention in medication reconciliation.

Methods: Five consultant physicians were chosen from Mater Dei Hospital and from the Gozo General Hospital and 20 patients from each firm were interviewed. Ethics approval was granted from the University Research Ethics Committee. The Best Possible Medication History (BPMH) was obtained by the investigator (TF) through interviews. Comparison was carried out between the BPMH and the history obtained by the admitting healthcare professional.

Results: Ninety-two interviews were held, 52 of which were medical patients and 40 of which were surgical patients. The investigator identified 612 medications compared with the 508 medications identified by the non-pharmacist. Out of 112 discrepancies identified, 104 are omissions while 5 are due to incorrect dose and 3 are due to incorrect drug.

Conclusion: The investigator identified more medications than the non-pharmacist in each type of medication. This shows a more detailed medication history was taken by the pharmacist, prompting the patient to remember specific medication.

OP2.11

Association of medicinals to sleep apnoea

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Introduction: Obstructive sleep apnoea (OSA) is a sleep breathing disorder involving multiple episodes of upper airway collapse during sleep leading to oxygen desaturation and sleep fragmentation. The aims of this study are (i) to evaluate the relationship between the presence of OSA according to severity and the use of commonly used therapeutic agents and (ii) to determine the effects of commonly used medications on the continuous positive airway pressure therapy.

Methods: Patient medical records (N=2,688, n=183, confidence level=95%, confidence interval=7%) that underwent

the sleep study between 2009 and 2013 were collected over an eight-month period from the Sleep Laboratory Department at Mater Dei Hospital using a random sampling technique. The data collected includes body mass index, gender, age, Epworth sleepiness score, drug history and apnoea hypopnoea index. Likelihood ratio chi square test, paired samples t-test and multinomial logistic regression were the statistical tools used for the data analysis.

Results: One hundred and seventy (92.9%) patients of the 183 patients (131 males, 52 females) were diagnosed with OSA including, 45 (24.6%) with mild, 43 (23.5%) with moderate and 82 (44.8%) with severe. Angiotensin II receptor antagonists (p=0.022), sulphonylureas (p=0.050), insulin therapy (p=0.040) and nonbenzodiazepine sedating agents (p=0.037) were found to be associated with the presence of OSA.

Conclusion: It is demonstrated that the more severe OSA is, the more pharmacological therapies are being used. Screening for OSA is beneficial for treating OSA in itself but it also could provide a better outcome in the treatment for other comorbidities such as hypertension.

OP2.12

Formulary for non-British National Formulary (BNF) cited items

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Introduction: A formulary is a continually updated list of medication with related information and used to solve problems which may arise with drug therapy.
Maltese healthcare professionals use the BNF as the main source of reference for medicinal products. However, a number of products which are available on the local market are not listed in the BNF. The Maltese Medicines Handbook (MMH) is designed to include these products.

Methods: The products authorised in Malta but not listed in the BNF are identified by comparing the list published yearly by the Medicines Authority to the BNF. A draft version of the formulary is published. The evaluation of the formulary is conducted through questionnaires which are distributed to healthcare professionals. Data gained from these questionnaires is used to analyse the utility of the fourth edition of the MMH. An online version of the formulary is launched

Results: The latest list published by the Medicines Authority consists of 4665 entries. When compared to the BNF it was found that 2988 preparations are found in the BNF while 1659 have their trade name, active ingredient or both not found in the BNF. From these 1659 entries, 1321 medicinal products have their active ingredient present but the trade name is not the same while 338 medicinal products have neither their active ingredient nor the trade name in the BNF

Conclusion: The number of products included in the 2015 MMH has increased from 578 to 1659 since the 2012 version of the MMH

OP2.13

Environmental risk factors for chronic respiratory diseases

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Introduction: Outdoor and indoor air pollution affects respiratory health, causing an increase in the prevalence of respiratory symptoms/diseases and of mortality, both in children and in adults. Rapid industrialization and urbanization have increased air pollution and, consequently, the amount of exposed people.

Methods: Thorough research in PubMed on epidemiological studies performed in recent decades.

Results: Exposure–response relationships for outdoor pollutants, especially particulate matter, were shown: short-term exposure, due to acute increase in air pollution, may cause premature mortality and increase hospital admissions for exacerbations of chronic obstructive pulmonary disease (COPD) or asthma; longterm cumulative health effects of chronic exposure comprise an increase in mortality and morbidity for respiratory diseases and impaired development of the lungs in children. There is consistent evidence that exposure to indoor pollutants increases the risk of several respiratory/allergic diseases. The environmental tobacco smoke is associated with increased risk of acute respiratory or irritation symptoms, chronic respiratory illnesses and lung function reduction. Biomass fuels represents an important risk factor in low-income countries for acute respiratory illness morbidity and mortality, especially in children and women. Building dampness and mould are associated with increases in respiratory and asthma-related health outcomes. Finally, exposure to VOCs are related to respiratory/allergic effects.

Conclusion: Epidemiological studies suggest that air pollution plays a remarkable role in the exacerbation and in the pathogenesis of chronic respiratory diseases. The support of healthcare providers and the general community for public health policy aimed at improving outdoor/indoor air quality through programs for abating/reducing pollutant emissions is necessary.

OP2.14

Impact of school characteristics on children's respiratory health

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Introduction: School indoor air quality (SIAQ) is important since children spend most of their time outside home within the school environment. The aim of this study was to investigate school characteristics and their impact on the health of the children.

Methods: A total of 191 pupils in the 9 to 11 year old age group were assessed using health questionnaires, spirometry, nasal lavage, exhaled carbon monoxide and environmental tobacco smoke urinary biomarkers. School building characterization and traffic counts were performed.

Results: Cumulative (32.98%) and current wheezing (17.8%) were in keeping with ISAAC Malta data. Southern located schools had the highest prevalence of current wheezers (OR 3.77, p=0.012), rhinoconjunctivitis (OR 3.59; p=0.003) and nasal ECP levels (p<0.001). Small openable window areas increased rhinitic symptoms (OR 3.14; p=0.016). Classes facing roads had increased current wheezers (OR 2.27, p=0.03) and exhaled carbon monoxide (eCO) levels (p<0.001). Dust on flat surfaces in classrooms was associated with wheezing (OR 5.23, p=0.001). Proximity to power plants increased current wheezers (OR 5.89; p=0.001) who had impaired spirometry (p=0.003). Asthma symptoms (OR 5.25, p=0.001) and elevated eCO levels (p<0.001) were associated with fuel storage facilities near schools. Current wheezing was significantly associated with the number of light and heavy vehicles passing near the school (p<0.001). The presence of smokers at home was significantly associated with urinary cotinine and 3 HC (p<0.001).

Conclusion: School building characteristics in Malta

have a direct and significant impact on the respiratory health of children Disclosure: This study was funded as part of the SINPHONIE Project approved by DG SANCO

OP2.15

An increase in the severity of rhinitis and a reduction in severity of wheezing and eczema in 12 to 15 year old Maltese children over two decades (ISAAC Malta)

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Introduction: The International Study of Asthma and Allergies in Childhood (ISAAC) is the largest standardised worldwide epidemiological research programme ever undertaken on allergies in children. The severity of a condition is a good measure of disease burden. The aim of our study was to investigate the current prevalence and severity of childhood allergic conditions in Malta, and analyze time trends by comparing the results with data obtained from previous phases of the ISAAC study in 1995 and 2002, in which Malta participated.

Methods: The same validated standardized ISAAC questionnaire and protocol was used.

Results: Data was obtained from 3263 '12 to 15yearolds' in 16 randomly sampled secondary schools over 2013 and 2014. 46.6% were boys while 53.4% were girls. Data from our study shows that in this age group, the prevalence of wheezing and rhinitis has significantly decreased, while that of eczema has plateaued. Our results indicate a rise in severity of rhinitis and a reduction in severity of wheezing and eczema in Maltese 12 to 15 year old children over the last two decades.

Conclusion: The substantial disease-related morbidity rhinitis produces needs to be ameliorated through better management of this condition and further research in this area.

OP2.16

RESPIRA project: binary logistic regression model for 9 respiratory questions comparing 2 urban with rural areas in Sicily and Malta

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Introduction: To compare 3 areas one urban, one industrial with one rural using binary logistic model.

Methods: Responses from 11-14 year-old children from Gela (n=545), 3 small rural villages (n=551) both in south Sicily, and Malta (n=854) were entered into a binary logistic regression model, for 5 asthma related questions, and 4 rhinitis related questions in order to exclude known predictors, and search for geographical difference. Rural areas were the reference area.

Results: Family history of allergy, humidity or mould in the bedroom and respiratory infection in the first year of life predicted all 9 responses. Male gender and living in Malta and Gela predicted all asthma related symptoms. Living in Gela predicted nose and eye symptoms. For diagnosed asthma, Malta OR 6.08 (95%CI: 3.71-9.98, p=0.001), Gela 1.87 (95%CI: 1.17-3, p=0.01), male gender 1.58(95%CI: 1.182.12, p=0.002), family history 1.49 (95%CI: 1.12-1.99, p=0.007), respiratory infection 1st year of life 5.9 (95%CI: 4.28-8.14, p=0.001), humidity/moulds bedroom 1.45 (95%CI: 1.07-2.22, p=0.19). For rhino conjunctivitis Malta 1.15 (95%CI: 0.76-1.74, p=0.5), Gela 1.59 (95%CI: 1.11-2.28, p=0.012), Male 0.88 (95%CI: 0.67-1.15, p=0.35), FH 2.15 (95%CI: 1.63-2.82, p=0.001), respiratory infection 1st year of life 1.81 (95%CI: 1.34-2.44, p=0.001) humidity/moulds 1.7 (95%CI: 1.21-2.38, p=0.002). Furthermore smoking in pregnancy predicted wheeze ever 1.54 (95%CI: 1.05-2.27, p=0.38), wheeze 12 mth 2.07 (95%CI: 1.28-3.36, p=0.003). Pet ownership predicted wheeze ever 1.31 (95%CI: 1.02-1.69, p=0.038) and exercise wheeze 1.79 (95%CI: 1.04-3.09).

Conclusion: After excluding known covariates living in Malta and Gela is a risk factor for asthma, while Gela is a risk for nasal and eyes symptoms compared to rural Sicily. This indicates other local environmental factors.

Disclosure: RESPIRA Project: 85% EU funded Italia-Malta

OP2.17

RESPIRA project: the chemical fingerprint of outdoor PM2.5 in Malta

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Introduction: RESPIRA study has indicated that living in Malta is a risk factor for asthma related symptoms.

Aim: To determine the chemical profile of PM2.5 in Malta, and compare with reference values.

Methods: Using FAI pumps at 10l/min for 48hr, samples were collected on Teflon and Quartz filters from 6 schools and 46 homes in Malta. Total ICPMS measurement (residual+extracted), X ray Fluorescence, and thermo-optical methods (TO) were used for analysis by CNR in Rome. All data in ng/m^3, mean, (1st to 3rd quartile)

Results: Higher than reference values: (TO): Elemental Carbon Mean 1513(620-1946) ng/m^3, Organic Carbon 848(319-1149). Using ICPMS, Fe 99.3(33.6-154.6), Vanadium 7.14(2.1-9.0), Ni 5.0(1.9-5.7), Cu 12.2(2.35-8.28), Zn 24.16(10.9-28.2). Lower than reference: $SO4^{++}$ 1621(446-2449), Nitrate 382(178-446), $NH4^{+}$ 504(170-687), Ba 3.52(0.85-3.7), Arsenic 0.37(0.19-0.42), Sn (0.16-0.56), Cd 0.62(0.15-0.88), Sb 0.99(0.27-0.1.08), Rb 0.55(0.23-0.86). No difference: Pb 5.54(1.87-6.54), Mn 2.57(1.40-3.56), Sr 1.84 (0.19-3.04). Using XRF and higher Ca 1241-744(466-1494), Al 127.6-112.8(93-178.6), Si 44.4-37.8(25.2-51) K 244 (109.3-249.5), Na 382-361 (183-487) Cl 252 (64.8-393). Total PM2.5 in microg/m^3 41.1(13.9-57.7).

Conclusion: The chemical fingerprint of PM2.5 probably reflects combustion of low sulphur crude oil product by cars and power plant, mixed with background soil and marine salt.

Disclosure: RESPIRA Project: 85% EU funded Italia-Malta

OP2.18

Auditing anaesthetic techniques and their complications with a special emphasis on post dural puncture headaches in central delivery suite in Mater Dei Hospital

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Introduction: The aim is to quantify the frequency of regional techniques in obstetrics at Mater Dei Hospital and the rate of post dural puncture headache (PDPH) as an indicator

of good clinical practice when compared to International standards. International literature quotes incidence of PDPH to be 0.52%.

Methods: Details about the regional technique used were collected from the case notes prospectively. A telephone interview post discharge included questions about the presence of headache, back pain, lower limb paraesthesia and weakness, and overall level of satisfaction. Ethics Board approval was obtained.

Results: Data was collected from 482 patients undergoing regional anaesthesia. 41 patients were lost to follow up. There were 225 epidurals and 216 spinals. The headaches totalled 43. Six were positional and therefore by definition a PDPH, giving an overall rate of 1.3%. Four (three-18G and one with 16G needles) of the headaches were after epidural 1.77%. Two were after spinal (25G and 27G needles) 0.92%. There was a notable increase in the use of regional techniques in obstetrics. The overall rate for Caesarian section was 35% with 86.5% being performed under regional anaesthesia in 2014 compared to 43% in 2003. The average rate for epidural analgesia in labour in 2014 was 26% compared to 6% in 2003.

Conclusion: The PDPH rate is in keeping with international literature. This can also be said of the rate of occurrence of other less common complications. The higher rate of PDPH with epidurals is consistent with the more common occurrence of PDPH with epidural block.

OP2.19

Caesarian section anaestheisa - technique and failure rate

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Introduction: Csection anaesthesia can be done under regional anaesthesia (RA) or general anaesthesia (GA). RA is considered preferable, since most women prefer to be awake during this procedure and there is unequivocal evidence that RA is safer. RA, however has a significant failure rate which may lead to pain or need for GA. The proposed standards set by the Royal College of Anaesthetists state that most Csections should be carried out under RA, with more than 50% of category 1 sections (emergency) and more than 95% of category 4 sections (elective) carried out under RA. The rate of conversion from RA to GA should be less than 15% for category 1 and less than 1% for category 4.

Methods: All the Csections carried out between June and October 2015 were according to urgency. The type of anaesthesia administered was noted, then compared to standards set by the Royal College of Anaesthetists. The failure rate of RA and the possible reasons for failure to meet standards were explored.

Results: Out of a total of 259 Csections carried out, 72% of category 1 sections and 90% category 4 sections were done under RA. The failure rate of RA was 12% for category 1 and 2% for category 4 sections.

Conclusion: Our results are comparable to the proposed standards by the Royal College of Anaesthetists. Further improvement is necessary as we fall short of the standards in the % of category 4 sections carried out under RA and the failure rate of RA for category 4 sections.

OP2.20

Day case surgeries at Mater Dei Hospital: are criteria being adhered to?

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Introduction: Appropriate patient selection for day case surgery lessens public health care costs and enhances patient's surgical management. The aim of this audit was to determine if procedures being performed as day cases satisfied the necessary prerequisite criteria as per local hospital guidelines.

Methods: A prospective analysis of all day surgeries was performed during the first two weeks of October 2014 at Mater Dei Hospital. The pro-forma used highlighted if cases belonged to primary or secondary basket, and satisfied surgical, medical and social criteria. Data collection abided by the Data Protection Act.

Results: A total of 968 elective surgical procedures were performed during the conducted study period. 352 of these procedures (36.4%) were analysed as they satisfied surgical criteria for day care admission. 20 cases were excluded in view of missing data. 223 (23%) of elective surgical procedures were included in day surgery list of interventions. This comprised 156 (70%) procedures which satisfied surgical criteria, 38 (17%) lumps and bumps whilst 29 (13%) procedures which did not satisfy surgical criteria. 149 (95.5%) of those procedures which satisfied surgical criteria were performed as day case and 7 (4.49%) were subsequently admitted to a ward. 130 (87.2%) of day cases in day care list fulfilled all criteria. 19 (12.8%) cases did not fulfil criteria.

Conclusion: Inappropriate use of day care surgery has been shown. This means that an education campaign regarding selection criteria for day care admission should be initiated. Adherence to outpatient selection of cases can be improved by introduction of a day case assessment form.

OP2.21

Post lower segmental caesarean section pain management and modified early obstetric warning system charting

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Introduction: With the dramatic rise in rate of Caesarean deliveries in the last two decades, pain management post C-section (CS) has become a major medical and nursing challenge. The aims of this audit were to observe the pain management strategy used at Mater Dei Hospital for Caesarean section patients as well as explore documentation of the modified early obstetric warning system (MEOWS) in practice.

Methods: All mothers who underwent a Caesarean section during June and July 2015 were reviewed 24 hours post procedure. Data was obtained from clinical notes together with a patient interview. Data collection abided by the Data Protection Act.

Results: 95 mothers were included in this audit. Regional anaesthesia was the preferred technique used in 82 patients (88.4%). 94.6% of patients who had spinal anaesthesia received diamorphine. High compliance rate is shown in the use of NSAIDs and paracetamol. 24 mothers (25%) did not use the PCA (patient controlled analgesia) pump with only 25% who used more than 10mg of morphine within 24 hours postop. Overall, the MEOWS charts were adequately completed with monitoring of respiratory rate and blood pressure filled in 86% and 74% of the times, respectively. MEOWS chart was triggered in 44.2% of cases. Review by doctor was done in 12% of cases.

Conclusion: From this audit we can conclude that in the majority of cases, pain management policy was implemented successfully by the obstetrics team. Also, pain management amongst obstetric patients has achieved successful results with average satisfaction scores being 9.3.

OP2.22

Introduction of a ventilator associated pneumonia (VAP) prevention bundle

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Introduction: Ventilator associated pneumonia (VAP) is a pneumonia that occurs after 48 hours following intubation. VAP is the most common type of hospital acquired infection in mechanically ventilated patients and is associated with a mortality of 33–50 %. VAP increases days spent on the ventilator, hospital length of stay and increases healthcare costs. The introduction of a VAP prevention bundle should help significantly to address these problems.

Methods: The Wolverhampton ventilator associated pneumonia audit toolkit was used to diagnose VAP. All mechanically ventilated patients were screened for VAP over a 9 month period and the information was inputted into the Wolverhampton VAP toolkit to confirm the diagnosis of VAP.

Results: Out of 190 patients who were mechanically ventilated in ITU for more than 48 hours, 42 were diagnosed with VAP. This gives a VAP rate / 1000 ventilator days of 26.2. The great majority of patients developed late onset VAP and the organisms included multidrug resistant bacteria. This audit confirmed our suspicion that VAP is a frequent occurrence in our ventilated patients. The VAP prevention bundle should improve the situation.

Conclusion: Awareness of the significant morbidity and mortality associated with VAP and the attempt to decrease the incidence using the VAP prevention bundle should help to improve the outcome of our ventilated patients in ITU.

OP2.23

A comparison of local anaesthetic procedures performed at the Plastic Surgery and Burns Unit of Mater Dei Hospital Malta between 2013 and 2014

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Introduction: The Plastic Surgery and Burns Unit (PSBU) hosts its own operating theatre in which local anaesthetic procedures are performed on an elective and emergency basis. In 2014, the use of the theatre was further expanded to incorporate a see-and-treat clinic. This annual audit ensures progression of the performance of the PSBU both in terms of the number of procedures performed, the types of procedures performed, and the quality of the service offered.

Methods: A list of procedures performed in February and March 2014 was obtained from the PSBU records and from the PSBU theatre logbook. Details of the procedure performed were obtained from patient files, case summaries and iSoft, including the nature of the lesions excised, their subtype and the different closure techniques used.

Results: In 2014, an additional 174 patients were operated on, a reflection of the introduction of a see-and-treat clinic. The majority of procedures were of a benign nature (85.6%). The most common skin malignancies requiring surgical excision were basal cell carcinomata (66% of all skin malignancies), followed by squamous cell carcinomas (24.6%). Importantly, 2014 saw a drop in the rate of incomplete excisions from 11% in 2013 to 7% in 2014.

Conclusion: Clinical governance and departmental performance are vital. This audit showed an increase of 174 patients operated on in 2014 compared to 2013. It also demonstrated a satisfactory drop in incomplete excision rates from 11% to 7%, reflecting an increase in the quantity and also quality of the work performed in this department.

OP2.24

Rate of critical care admission and 30-day mortality post-emergency laparotomy in Malta

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Introduction: Up to 25 million patients undergo high risk surgical procedures worldwide each year, 3 million of whom do not survive until hospital discharge. Emergency laparotomy is recognised to have significant morbidity and mortality. The objectives of this audit is to record the immediate post-operative destination and to determine 30day mortality after emergency laparotomy in Malta.

Methods: Consecutive patients above 18 years of age who underwent EL at Mater Dei Hospital in Malta between July 2013 and July 2014 were enrolled. Demographics, comorbidities, physiological parameters, operative details and 30-day mortality were noted. Literature review was carried out using Pubmed. Data was analysed using SPSS.

Results: 187 patients were recruited. 109 patients (58.3%) were sent directly to ward, 78 patients (41.7%) were admitted directly to ICU. Overall 30-day mortality was 12.3% (23 patients) of whom 9% (17 patients) had small bowel pathology. 30-day mortality in patients admitted to ICU was 9.1% (17 patients) whilst 30-day mortality in patients admitted directly to ward was 3.2% (6 patients). This was statistically significant with a p=0.01 using Fisher's Exact Test. Grade of surgeon or grade of anaesthetist had no significance to immediate location (p=0.144; p=0.571), or to 30-day mortality (p=0.56; p=0.779).

Conclusion: 30-day mortality post-emergency laparotomy in Malta is of 12.3% and compares well with UK mortality rate of 14.8%.

OP2.25

Using an objective morphological analysis to study differentiation induction in acute myeloid leukaemia

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Introduction: Differentiation therapy is the use of nontoxic chemicals to age immortal cancer stem cells. HL60, an M2 (French-American-British classification) Acute Myeloblastic Leukaemia cell line does not possess the 15;17 translocation and does not respond to presently used differentiation agents like all transretinoic acid. The aim of this morphological analysis is to further confirm the best hits previously obtained using nitroblue tetrazolium reduction and cytotoxicity screening assays on HL60 cell lines.

Methods: HL60 cells were exposed to different differentiation agents at 1 and 10 micromolar and fixed on slides at day 3 and 5 and stained with Leishman's stain. Using light microscopy, a MoticamPro 282A camera was used to capture three images of different high power fields from each slide. The positive controls used were Dimethyl sulfoxide (DMSO) and Palmitate myristate acetate (PMA). An excel sheet using a scoring method was designed to facilitate

screening for features of differentiation such as: nucleus to cytoplasmic ratio, irregularity of cytoplasm, number of nucleoli and state of chromatin. The total score for all these features is added to give an overall numeric indication of differentiation.

Results: Reagents will be grouped according to this final score, thus confirming the differentiation identified in the initial screening tests and allowing the choice of the best agents to be further tested with flow cytometry.

Conclusion: This research will hopefully increase the number of agents which may eventually be used to induce differentiation in acute myeloid leukaemias, thus avoiding the harmful effects of standard chemotherapy.

Disclosure: The reagents were obtained through collaborations with labs in the European Union funded by 'STEMCHEM' COST consortium CM1106.

OP2.26

To fool a factor: the use of decoy oligonucleotides to target transcription factors involved in hair growth

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Introduction: Hair has many biological functions and hair diseases have a great impact on patients' physical and psychosocial wellbeing. The aims of this experiment was to determine whether the decoy oligonucleotides are effective in inhibiting hair growth and to determine whether liposomes made absorption of oligonucleotides through skin more effective.

Methods: Oligonucleotide sequences of the promoter binding sequences of Hox-c 13, Foxe1, Sox9, Foxn1, VEGF, Lhx2 and Gata3 genes were mixed with liposomes or with sterile water and applied on separate shaved areas on the dorsum of a population of rats. The hair growth rate was then observed and scored between 0 and 3 every three or four days, 0 being no hair growth and 3 being the most hair growth. As a control, one area had liposome only applied to it while another had nothing.

Results: The oligonucleotide sequences showed better results when mixed with liposomes, as opposed to sterile water. In fact, after the first experiment, the oligonucleotides were only mixed with liposomes. The oligonucleotides of the promoter sequences of Sox9 and Hox-c 13 exhibited the slowest rate of hair growth. On the other hand, Foxe1, Foxn1 and Gata3 were the least effective.

Conclusion: Oligonucleotides seem to exhibit enhanced uptake through the skin with liposomes. This may potentially lead to advances in the efficiency of drug delivery, not only for cosmetic purposes but also to treat various disorders of skin and hair growth.

OP2.27

Mononucleate cells from psoriatic patients exhibit altered mitochondrial respiratory activity

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Introduction: Psoriasis is a chronic inflammatory affliction hallmarked by hyperproliferation and altered differentiation of dermal keratinocytes. Accumulating evidences configure it as an immune-mediated disease determined through cytokines-mediated positive loops between activated lymphocyte subsets and keratinocytes. Mitochondria are now recognized as a decisional hub in controlling cell fate and the immunological response as well as energy control. We compared mitochondria related functions of peripheral blood mononuclear cells between psoriatic patients and healthy controls.

Methods: Eleven psoriatic patients and nine healthy volunteers were enrolled in this study. Venous blood was processed for isolation of peripheral blood mononucleate cells (PBMC). O2 consumption was measured by a Clarktype electrode. The specific enzymatic activities of complexes I and IV were assayed spectrophotometrically. Real-time PCR and Western Blotting analysis were performed on cell lysate.

Results: Respirometric analysis unveiled in patients' cells a significant increase of oligomycin-sensitive endogenous mitochondria-driven oxygen consumption. The enhanced mitochondrial respiration in patients' cells was traceable to an increased activity of the respiratory chain complex I. Analysis by quantitative RTPCR of transcription factors regulating mitochondrial biogenesis showed significant changes between patients and control cells and was confirmed by the unaffected expression of the complex I subunits. GRIM19, a structural and functional stabiliser of complex I and the mitochondrial translocation of STAT3 was significantly up-regulated in patients' cells.

Conclusion: Altogether the results obtained suggest the occurrence in psoriatic monocytes of an altered activity of complex I likely mediated by upregulation of GRIM19, which might lead to a chronic activation of Tlymphocytes thereby contributing to the development of psoriasis.

OP2.28

Is there a biomechanical cause for spontaneous pneumothorax?

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Introduction: Primary spontaneous pneumothorax has long been explained as being without apparent cause. This paper deals with the effect of chest wall shape and explains how this may lead to the pathogenesis of primary spontaneous pneumothorax.

Methods: Rib cage measurements were taken from chest radiographs in 12 male pneumothorax patients and 12 agematched controls. A finite element analysis (FEA) model of a lung apex was constructed, including indentations for the first rib guided by CT scan data, to assess pleural stress. This model was tested using different anteroposterior diameter ratios, producing a range of thoracic indexes.

Results: The pneumothorax patients had a taller chest (P= 0.03), wider transversely (P= 0.009) and flatter (P=0.03) when compared with controls, resulting in a low thoracic index. Prominent rib indentations were found anteriorly and posteriorly on the lung surface, especially on the first rib on CT. FEA of the lung revealed significantly higher stress (×5–×10) in the apex than in the rest of the lung. This was accentuated (×4) in low thoracic index chests, resulting in 20-fold higher stress levels in their apex.

Conclusion: The FEA model demonstrates a 20-fold increase in pleural stress in the apex of chests with low thoracic index typical of spontaneous pneumothorax patients. Mild changes in thoracic index, as occurring in females or with aging, reduce pleural stress. Spontaneous pneumothorax occurring in young male adults may have a biomechanical cause.

OP2.29

Inducing differentiation of HL60 cells via a nucleoside analog and 3-bromothiophene

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Introduction: Acute Myeloid Leukaemia is the commonest leukaemia of adulthood carrying a dismal prognosis, with the exception of acute promyelocytic leukaemia which responds to all-trans retinoic acid, ATRA. The aim was to cause HL60 acute myeloid leukaemia cells which did not respond adequately to ATRA to terminally differentiate using a nucleoside analog and 3-bromothiophene.

Methods: The cells were exposed to nucleoside analogs or to 3-bromothiophene at a concentration of either 1 μM or 10 μM for either 3 or 5 days. The response of the cell lines was assessed using reduction of nitro blue tetrazolium (NBT) normalised to cell number by dimethyl thiazolyl diphenyl tetrazolium (MTT) assays to show differentiation marker activity/cell number. This was done at 3 and 5 days to assess for both monocytic and granulocytic differentiation.

Results: The nucleoside analog resulted in significant differentiation on day 3 at both concentrations of 1 μM and 10 μM. 3-bromothiophene resulted in significant differentiation on day 3 at both concentrations of 1 μM and 10 μM. On day 5, 3-bromothiophene resulted in significant differentiation at 10 μM.

Conclusion: Both the nucleoside analog and 3bromothiophene have potential in treating acute myeloid leukaemia. Thus, they offer new hope to patients suffering from this disease.

Disclosure: This was part of, and received funding from European Cooperation in Science and Technology (COST) Action CM1106 carried out by the STEMCHEM consortium.

OP2.30

A hypothesis for reactivation of pulmonary tuberculosis: how thoracic wall shape affects the epidemiology of tuberculosis

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Introduction: This study was aimed at determining the cause for the high incidence of tuberculosis (TB) reactivation occurring in males with a low body mass index (BMI). Current thinking about pulmonary TB describes infection in the lung apex resulting in cavitation after reactivation. A different hypothesis is put forward for TB infection, suggesting that this occurs in subclinical apical cavities caused by increased pleural stress due to a low BMI body habitus.

Methods: A finite element analysis (FEA) model of a lung was constructed including indentations for the first rib guided by paramedian sagittal CT reconstructions, and simulations were conducted with varying anteroposterior (AP) diameters to mimic chests with a different thoracic index (ratio of AP to the transverse chest diameters). A Pubmed search was conducted about gender and thoracic index, and the effects of BMI on TB.

Results: FEA modeling revealed a tenfold increase in stress levels at the lung apex in low BMI chests, and a four-fold increase with a low thoracic index, r^2=0.9748 P<0.001. Low thoracic index was related to BMI, P=0.001. The mean thoracic index was statistically significantly lower in males, P=0.001, and increased with age in both genders.

Conclusion: This article is the first to suggest a possible mechanism linking pulmonary TB reactivation to low BMI due to the flattened thoracic wall shape of young male adults. The low thoracic index in young males may promote TB reactivation due to tissue destruction in the lung apex from high pleural stress levels.

OP2.31

Ultrasound investigation of scalp thickness in a study of male pattern baldness

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Introduction: Alopecia is a condition which affects a significant number of males and females worldwide. A local study carried out on 13 cadavers found a difference in scalp thickness between bald and nonbald cadavers. In view of these results, the aim of the study is to assess scalp thickness in a larger living population using ultrasound measurements for better statistical analysis.

Methods: 200 volunteers were recruited from St. Vincent de Paul, Mater Dei Hospital and the University of Malta. Recruitment of the volunteers was based on the following criteria: balding males below 40 years of age, balding and nonbalding males above 40 years of age, and females of any age. Informed written consent was obtained and data collected included: age, gender, degree of baldness, family history of baldness, and drug history. A photograph showing the degree of baldness was also taken. Ultrasound measurements were carried out using a high frequency probe at six different locations on the scalp. The study was approved by the University of Malta Research Ethics Committee.

Results: So far, the research indicates that there is a significant difference between scalp thickness at certain locations in balding and nonbalding participants.

Conclusion: The results obtained from this study may serve as a platform for future research to investigate why certain areas of the scalp are more susceptible to thinning than others.

Disclosure: We would like to thank the Malta Postgraduate Medical Training Centre for the provision of the ultrasound machine. A special thank you goes to all the healthcare providers at St.Vincent de Paul and to Mr Stephen Falzon from the Pharmacy Department at Mater Dei Hospital who helped in the recruitment of volunteers.

OP2.32

Involuntary care and the new Mental Health Act

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Introduction: The full effect of the new Mental Health Act is expected by end 2018. This study examines the achievements and changes implemented in the first year and identifies areas where action is needed.

Methods: The Office of the Commissioner monitors the involuntary care process through the various forms submitted by the psychiatrists responsible for care. Data of new cases was analysed to determine demographic and clinical characteristics of new admissions. The involuntary care process was tracked for each case. All forms were analysed for completeness.

Results: Of 263 applications for involuntary admission (1.2 daily), 95% involved adults, 5% were minors. The gender ratio was two males for every female. 60% of admissions involved early adulthood and middle aged persons. 15% were asylum seekers – a new vulnerable group emerging rapidly within our society. Schizophrenia, mood disorders and disorders due to alcohol and substance abuse accounted for 75% of admissions. 73% were either discharged or switched to voluntary care within 10 days. 6% required longterm involuntary care; half received such care in the community.

Conclusion: Patients are being followed up within established timeframes. Length of involuntary stay is diminishing radically. Community involuntary care is slowly becoming a follow-up option for difficult cases. Applications were more complete and the quality of information backing requests improved during the first year of implementation. Care plans are being submitted but the completeness and quality of some care plans merits revision. Evidence of involvement of patients and responsible carers in the care planning process should be better documented.

Disclosure: This study was possible due to the collaboration of all the staff at the Office of the Commissioner for Mental Health, mainly through the appropriate and timely processing of all applications for involuntary care received at the Office.

OP2.33

Congenital anomalies contributing to neonatal deaths in Malta

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Introduction: Neonatal mortality is a public health concern and congenital anomalies are a major contributor to this mortality. While perinatal causes of neonatal mortality have been documented to be decreasing, congenital anomaly causes have not. This study describes the congenital anomalies contributing to neonatal mortality in Malta from 1994-2013.

Methods: Data on neonatal deaths and cause of death 1994-2013 were obtained from the National Mortality and Congenital Anomalies Registers. Neonatal deaths with underlying cause of death coded within the 'Qchapter' of the WHO International Statistical Classification of Diseases were taken as deaths attributed to congenital anomalies. The congenital causes were grouped according to anomaly group and mortality rate/1000 livebirths for each group was calculated.

Results: Between 1994-2013 there were 441 neonatal deaths (5.2/1000 livebirths) registered. Of these 162 (36.7%) were attributed to congenital anomaly while 279 (63.3%) were attributed to other, non-congenital causes. Neonatal mortality rates for non-congenital anomaly causes decreased over the period (4.6/1000 livebirths 1994 1998 vs. 2.5/1000 livebirths 20092013) while neonatal mortality due to congenital anomaly causes did not (2.0/1000 livebirths 1994-1998 *vs.* 2.2/1000 livebirths 2009-2013). Congenital heart defects accounted for a neonatal mortality rate of 4.2/1000 livebirths, followed by anomalies of the nervous system, chromosomal anomalies and malformation syndromes all occurring at a rate of 3.1/1000 livebirths.

Conclusion: Congenital anomalies contribute significantly to neonatal mortality in Malta. Although most congenital anomalies are without known cause or prevention, a number of primary preventive measures, including periconceptional folic acid, are known to decrease their occurrence and these should be further researched and implemented.

OP2.34

Self-efficacy, self-care and outcomes in persons with diabetes

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Introduction: This study explored the relationship between self-efficacy, self-care and outcomes in adults with type 2 Diabetes Mellitus in Malta.

Methods: Using a cross-sectional research design, a questionnaire was distributed to 396 persons attending the diabetes clinics of a local public hospital and three health centres. Apart from collecting demographic information and details about diabetes characteristics, the levels of selfefficacy and diabetes self-care were measured using validated tools. Outcomes were assessed by ascertaining the presence or absence of complications, and HbA1c values were used as a marker for glycaemic control. Multivariate regression models were used to identify the most significant predictors of self-care and outcomes.

Results: A response rate of 89.4% (n=354) was achieved. Persons with higher levels of self-efficacy were found to have higher scores in the dietary (*OR* 1.5 95% CI [1.3, 1.8], p<0.001) and foot care (*OR* 1.6 95% CI [1.2, 1.9], p<0.001) areas of selfcare. Furthermore, they were less likely to have uncontrolled diabetes (*OR* 0.1 95% CI [0.1, 0.3], p<0.001). Self-efficacy was found to vary independently of the demographic and diabetes characteristic variables collected, suggesting an absence of sub groups of persons who are at risk of having low self-efficacy.

Conclusion: This study confirmed that the concept of selfe-fficacy is also applicable locally, being directly proportional to levels of self-care and improved glycaemic control. Public health policies which are aimed at improving outcomes of persons with diabetes should consider the effect that self-efficacy-enhancing lifestyle interventions might have on improving outcomes.

Disclosure: The research work disclosed in this publication was funded by the Strategic Educational Pathways Scholarship (Malta). The scholarship is part financed by the European Union – European Social Fund (ESF) under Operational Programme II – Cohesion Policy 2007-2013, "Empowering People for More Jobs and a Better Quality of Life."

OP2.35

An income divide? Monthly household income and prevalence of non-communicable disease

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Introduction: Research has shown that health inequalities exist across different socio-economic groups. The aim of this analysis was to assess any association between

monthly net household income and the prevalence of four non-communicable diseases (NCDs) in the working age population in Malta.

Methods: Data from the 2008 national crosssectional European Health Interview Survey (EHIS) was used. Data for the population less than 65 was analysed (n=1848) with self-reported lifetime disease prevalence being the outcome and self-reported monthly net household income the main predictor. The NCDs addressed in this analysis were COPD, diabetes, myocardial infarction (MI) and anxiety/depression. To adjust for competing factors; age, highest level of education, gender and all NCDs considered were included in the models. Binary logistic regression was applied

Results: Even when adjusting for other demographic characteristics and comorbidities, respondents coming from the lowest household income group (<€929/month) were more likely to have diabetes (*OR* 2.11; 95% CI 1.15 – 4.02), COPD (*OR* 3.60; 95% CI 1.65 – 7.87), and anxiety/depression (*OR* 2.02; 95% CI 1.31 – 3.13) when compared to the highest income group. The difference for MI was borderline significant (p=0.052) and could reflect a survivorship bias. There are no differences between the middle and high income group.

Conclusion: While cross-sectional data does not clarify a causal direction, the data seems to show that there is an association between the prevalence of major NCDs and low income households even when adjusting for the impact of other demographic characteristics and co-morbidities.

OP2.36

Terrorist attacks and the male to female ratio at birth: the troubles in Northern Ireland, the Rodney King riots and the Breivik and Sandy Hook shootings

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Introduction: Males are usually born in excess of females. The ratio is often expressed as M/F (male divided by total births). A wide variety of factors have been shown to influence M/F. Terrorist attacks reduce M/F. This study was carried out in order to ascertain whether individual terrorist attacks influenced M/F in relevant populations.

Methods: The following events were studied: the Troubles in Northern Ireland, the Los Angeles Riots (the Rodney King affair), the Breivik shooting (Norway) and the Sandy Hook shooting (Connecticut).

Results: Northern Ireland M/F was significantly lower during the Troubles (1969-1998) than during the period before (p=0.0006). There was a very sharp dip in 1978 (p≤0.004) during this particular year of renewed violence and heavy civilian attacks. Rodney King riots late April 1992 M/F dipped significantly in August 1992, four months after the riots (p=0.044). Breivik Shooting 22/07/2011 M/F dipped significantly in December 2011, five months after the event (p=0.004). Sandy Hook Shooting 14/12/2012 M/F dipped significantly in April 2013, four months after the event (p=0.009).

Conclusion: M/F dips follow catastrophic or tragic events if these are felt to be momentous enough by a given population. All of the above events caused significant population stress. The M/F dips noted may have been caused by population stress which is known to lead to the culling of frail/small male foetuses. The dips noted are comparable to a substantial proportion of quoted values for perinatal mortality, potentially elevating this, to a public health issue.

OP2.37

Problematic internet use among young people aged 18 to 30 years in Malta: are we worrying too much?

Anna Maria Vella, Richard Camilleri, Marilyn Clark, Janet Mifsud, Mario Mifsud

Introduction: The Internet has become an integral part of people's lives providing a wealth of information that is instantly accessible and contains entertainment and social network facilities for all age groups. For these reasons, its use continues to increase rapidly worldwide, particularly among youth. This research is a first attempt to explore the prevalence of problematic internet use (PIU) among a representative random sample of young people in Malta aged between 18-30 years using a validated translated internet addiction tool (IAT) developed by Young (1998).

Methods: A Computer Assisted Telephone Interview survey of a net randomized sample of 1500 individuals in Malta and Gozo aged between 18-30 years were recruited by the National Statistics Office (NSO). Researchers administered a questionnaire consisting of: One open question asking participants what they mostly used the internet for, the 20-point Internet Addiction Tool (IAT) and a number of socio-demographic questions.

Results: Using the cut off points developed by Young's, 0.8% of the population scored between 70-100 and were therefore classified as PIU's. 33.3% scored between 40-69 and were classified as excessive users and 65.9% had scores under 30 meaning that they were average users who had no problems in controlling their Internet use.

Conclusion: This study indicates that around two thirds of young people aged between 18 and 30 years in Malta do not have a problem controlling their internet use. This was lower than similar studies in other countries which found that the prevalence of PIU generally ranged from 4.6% to 4.7% among adolescents.

Disclosure: This study has been funded by the President's Foundation for the Wellbeing of Society and carried out by the Centre for Freedom from Addictions within this Foundation.

OP2.38

Cigarette smoking and patients with severe mental illness

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Introduction: Smoking rates are higher in people with mental illness when compared to the general population, hence these individuals are at greater risk of smoking-related disease. Moreover, interactions between nicotine and some psychotropic medications make the latter less effective. NICE Guidelines reiterate the effectiveness of smoking cessation interventions delivered to people with mental illness. Our aim was to examine the relationship between mental illness and smoking, through establishing rates of smoking, and rates of treatment for nicotine dependence.

Methods: All patients residing in the long-stay wards at Mount Carmel Hospital were included in the study. Data was collected over a one-week period in 2013, through interview of nursing staff and review of clinical notes.

Results: A cohort of 204 patients was studied, of which 46.1% were smokers with a M:F ratio of 3:1. Smoking was most common in patients with chronic psychosis (50.0%) excluding those with admissions for addiction-related problems. At the time of audit, 17 participants were involved in a smoking cessation treatment plan and 68 (72.3%) were on at least one medication that interacts with nicotine via the cytochrome

P450 1A2 (CYP1A2) system.

Conclusion: There is a strong association between mental illness and smoking, as well as known interactions between nicotine and psychotropic medications. It has been shown that smokers with mental illness should be helped to quit smoking, however many do not receive the necessary advice and support. Smoking cessation strategies are currently being planned at Mount Carmel Hospital. A re-audit will be carried out in order to determine their effectiveness.

OP3.01

Transanal total mesorectal excision: the way forward in rectal cancer surgery

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Laparoscopic ultra-low total mesorectal excision remains cumbersome because it is technically difficult to mobilize the most distal part of the rectum, especially in obese male patients with a narrow pelvis. Transanal total mesorectal excision (TaTME) may resolve all issues related to pelvic exposure, cross-stapling, and specimen quality. TaTME seems an attractive new methodology in rectal cancer surgery, but this approach has not been extensively investigated. TaTME is a result of recent developments in transanal endoscopic microsurgery (TEM), transanal minimally invasive surgery (TAMIS), natural orifice specimen extraction (NOSE), natural orifice transluminal endoscopic surgery (NOTES), transanal abdominal transanal proctosigmoidectomy (TATA), and laparoscopic TME. TaTME is an exciting convergence of various existing surgical techniques and represents the future of rectal cancer surgery. A substantial number of patients, especially obese males with a narrow pelvis, will benefit from this minimally invasive approach. The procedure can be initiated transanally or transabdominally. If a simultaneous approach with 2 operating surgeons was chosen, the operative time might be significantly reduced. TaTME can also be associated with better TME specimens and a longer distal resection margin. TaTME is feasible in expert hands, but the learning curve and safety profile are not well defined. Long-term follow-up regarding anal function and oncological outcome should be studied in the future. Standardization of the technique and reporting of outcomes are required.

OP3.02

Enhanced recovery after colonic resection at Mater Dei Hospital: a prospective pilot cohort study

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Introduction: Enhanced recovery after surgery (ERAS) is a new approach to surgical management. It focuses on all aspects of surgical care, and makes changes to the traditional surgical process, from pre-admission preparation to the post-operative period. The aim of enhanced recovery after surgery is to decrease the patients' stress response to surgery and hasten recovery, reducing complications and shorten post-operative in-patient stay.

Methods: We prospectively collected data about a cohort of patients who were included to follow the ERAS protocol between January and August 2015. Primary endpoints included length of post-operative hospital stay, post-operative complications and re-admissions within 30 days. Secondary endpoints were post operative pain, time to bowel function, analgesia requirements and adherence to the protocol.

Results: 10 patients were included. The mean age was 58.7 years. The median length of post-operative hospital stay was 2.43 (range 23) days. The overall incidence post-operative complications according to the Clavien-Dindo classification was in all cases Grade I, and 30-day re-admission rate was 14.3% (n=1) but the clinical reason was not related to the surgery itself. The ERAS protocol in this initial pilot study was adhered to in 79.5% of cases.

Conclusion: Our results confirm that introduction of an ERAS protocol for colorectal surgery at Mater Dei Hospital allows for a safe post-operative recovery, and significantly shortens the length of stay. Apart for helping to relieve some of the bed shortage problem, an ERAS programme will also give an opportunity to our colorectal patients to have a faster recovery and a less traumatic experience.

OP3.03

Oesophagectomies in Malta over the past eight years - an analysis of our results

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Introduction: Oesophageal cancer is increasing in incidence worldwide. With new diagnostic and staging modalities, its management is developing in major ways. There has been a trend towards minimally invasive techniques since their description by Cuschieri in 1992. We audited all oesophagectomies performed over an 8 year period to identify perioperative factors that may affect survival.

Methods: Retrospective analysis was undertaken on all patients from June 2008 till 2015 inclusive. Data was collected from the departmental database and case note review. Variables examined included age, tumour position, histology, tumour stage, nodal stage, completeness of resection, use of neo-adjuvant chemotherapy and operative technique.

Results: 31 patients underwent oesophagectomy during our time frame. Male to female ration was 3.34:1 Mean age was 64 years (range: 54 - 83). Cancer affected the middle third of the oesophagus in 6.5%, distal third in 41.9%, oesophago-gastric junction in 38.7% and cardia in 12.8%. Adenocarcinoma accounted for 90% of all cases, with squamous cell carcinoma occurring in 6% and other histological types in 4%. There were 21 laparascopically assisted and 10 open oesophagectomies. There was a 28% recurrence rate within one year and 66% within five years. Post operative survival stands at 71% after one year and 26% after 5 years.

Conclusion: Surgery for oesophageal malignancy continues to be associated with significant morbidity and mortality. Age and organ dysfunction are associated with an increased risk of death. Multidisciplinary led management planning and a move towards less invasive surgery has significantly positive outcomes on post operative status.

OP3.04

Umbilical/paraumbilical hernia repair: a new technique using the Ultrapro® Plug

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Introduction: Routine use of a permanent nonabsorbable mesh in umbilical/paraumbilical hernia repair remains controversial because of variable reports of increased wound infection. The tension associated with traditional techniques (Mayo or Mass closure) is associated with an unacceptable recurrence rate and increased pain post-operatively. In view of this a new tension free technique was developed using the partially absorbable Ultrapro® Plug which has to date been licensed for inguinal hernia repair.

Methods: The repair consists of a standard infraumbilical approach with transfixion and excision of the sac. A pre-peritoneal space is developed for 2 cm underneath

the circumferential edge of the defect. The plug is then sutured with 2/0PDS suture and the wound closed in layers. A single dose of antibiotic is given per-operatively. Files of all patients operated during August 2010 - December 2011 were reviewed retrospectively with respect to analgesia use, infection rates, recurrence, chronic wound pain and scarring.

Results: During the period of study, 15 adult patients were operated using this technique (11 Males/4 Females; 9 paraumbilical/6 umbilical). The median follow up period was 4.2 years (3.7 - 4.9). Analgesia consisted of NSAID's for 24 hours and paracetamol thereafter. There were no episodes of wound infection or recurrences to date. 14 patients were happy with the final scar but none reported chronic wound pain.

Conclusion: The use of the Ultrapro® Plug is a new effective, previously undescribed, tension free repair of umbilical/paraumbilical herniae. Further large prospective randomised studies are needed to determine whether the extra cost of the plug is justified.

OP3.05

Incidence and odds ratio of appendicitis as a manifestation of colon cancer: a retrospective analysis

Matthew Bonello, Tara Grima, Jonathan Cutajar, Josephine Psaila

Introduction: Obstruction of the lumen of the appendix is the major cause of appendicitis. It has been suggested that tumours could obstruct this lumen and cause appendicitis within the elderly. It has been suggested that patients over 40 presenting with symptoms of appendicitis should be investigated with a post-op colonoscopy for the possibility of a coexistent colon neoplasm. The aim of this study is to determine the incidence of colon cancer in those patients over 40 that presented with acute appendicitis in the Maltese population.

Methods: This is a retrospective analysis in which patients over the age of 40, who had been diagnosed with acute appendicitis, between the years 2008 and 2012 were surveyed. Patients who had been previously diagnosed with colon cancer or in whom the diagnosis of colon cancer was done at the time of presentation with appendicitis were excluded from this analysis. The remaining patients were analysed to determine which if any, developed colon cancer up until December 2014.

Results: The age adjusted incidence rate per 100,000 population was calculated. The mid year 2009 population for those 40+ (202,528) was used as the denominator. Similar calculations for the crude and incidence rate were calculated. The crude rate ratio was calculated which showed that the rate in the appendectomy population is 24 times higher than that in the general population.

Conclusion: The rate of colon cancer in patients diagnosed with appendicitis above 40 is statistically significantly higher.

OP3.06

Epigenetics and Type 1 diabetes

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Introduction: The prevalence of type 1 diabetes (T1DM) is increasing worldwide, with varying incidence rates between countries. Such cases could be due to environmental and/or epigenetic factors involved in T1DM pathogenesis.

Methods: Adult T1DM patients were identified from the Diabetes and Endocrine Centre, Mater Dei Hospital and their medical notes were reviewed for possible environmental trigger factors. Data collected included: date of birth, date of diagnosis, age at diagnosis, mode of presentation, associated conditions, diabetes complications, family history of autoimmunity and major stressful life events. Month of conception was estimated from the date of birth and the average monthly maximum and minimum temperature and hours of sunshine were obtained.

Results: In this interim analysis, 175 T1DM patients were identified. The prevalent birth month for T1DM patients was September (n=27) followed by December (n=22), while patients presented with T1DM most commonly in December (n=17). The variability in birth month and presentation month were both found to be statistically significant (p=0.015 and p=0.04 for both). A nonsignificant trend was found between estimated month of conception and average monthly maximum temperature (r=0.448; p=0.144), minimum temperature (r=0.459; p=0.133) and hours of sunshine (r=-0.459; p=0.133).

Conclusion: Based on this data and other environmental factors that contribute to the pathogenesis of T1DM, further analysis is required. In addition, the possible epigenetic effects of putative miRNAs affecting T1DM pathogenesis will also be investigated, following defined links of miRNA dysregulations with T2DM pathogenesis.

OP3.07

An unrecognized variety of diabetes amongst the Maltese population, MODY

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Introduction: Maturity-onset diabetes of the young (MODY), is a form of monogenic diabetes that may be caused by gene mutations. The prevalence of MODY cannot be estimated correctly because most cases are missed. Improper treatment is therefore dispensed.

Methods: Data protection clearance was granted by the Data Protection Officer at Mater Dei Hospital. Patient files at Diabetes Clinic were used to retrospectively manually identify diabetics diagnosed before 35 years of age from the years 1963-1997. Information on gender; age at diagnosis; weight and height at review; treatment at initial review; treatment within the first six months; treatment after the first six months; date of birth; family history of diabetes was gathered. Review of patient files is still ongoing. The MODY probability calculator was applied to the type 2 diabetes cohort and those individuals with a positive predictive value (PPV) of more than 25% would go on for further testing.

Results: On initial review 899 subjects were identified. These were classified as gestational diabetics n=172, type 1 diabetics n=245, type 2 diabetics n=287 and possible MODY n=95 according to clinical criteria, with another 100 subjects who need further data to be classified. The MODY calculator has shown 44 type 2 diabetics who have a PPV greater than 25%. Further analysis is ongoing.

Conclusion: This study is an opportunity to diagnose and estimate the prevalence of MODY in the Maltese population. Further data is needed to apply the MODY calculator to the remaining candidates. Those identified will be called for further tests.

OP3.08

Diabetes in pregnancy: diagnosis,

management, follow up, outcome and complications

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Introduction: The perinatal complications of diabetes in pregnancy have been recognised. Maternal complications can be equally devastating and outcomes differ according to the aetiology of the condition.

Methods: A retrospective study consisting of a cohort of type 1 (type 1 DM) and type 2 (type 2 DM) pregnant diabetics and the newly diagnosed gestational diabetics (GDM). Data collected included method of diagnosis, gestational age, medical and obstetric history, HbA1c levels, management, follow up, perinatal outcome and long term follow up.

Results: From 79 pregnancies, 69.6% patients were diagnosed with GDM, 13.92% type 2 DM and 16.5% type 1 DM. Mean gestational age in GDM patients was 37.9 (+/1.6) weeks, 35.5 (+/3.7)weeks in type 2 and 37.1 (+/0.7)weeks in type 1. Mean birth weight in GDM patients was 3.6Kg, 3.1Kg in type 2 and 3.3Kg in type 1 patients. 32.7% of GDM patients were on insulin and 50.9% on oral hypoglycaemic agents (OHA's). 72.7% of type 2 diabetes patients were on insulin while 3.6% on OHA's. All type 1 diabetes patients were on insulin. 30% of GDM patients, 25.5% of type 2 DM patients and 84.6% of type 1 DM patients, had an insulin infusion pump peri-partum and a mean HbA1c in the third trimester of 6.0, 6.3 and 7.1 respectively.

Conclusion: Diabetes in pregnancy should be managed holistically. 52% of GDM patients had an oral glucose tolerance test postpartum, 21.8% of which developed type 2 DM and 5.5% impaired glucose tolerance. Neonatal complications included macrosomia and polyhydramnios and congenital anomalies in type 2 patients.

OP3.09

Type 2 diabetes, bone and disc height

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Introduction: Subjects with type 2 diabetes (T2D) have an increased fracture risk, however there have been conflicting reports on the relationship between T2D and bone mineral density (BMD). This could be due to failure to adjust for potential confounding factors, This study assess the relationship between T2D and BMD at the fmeoral neck and spine in diabetic and nondiabetic subjects, after adjusting for multiple covariates which may affect BMD. Interveteral disc height was also investigated in view of its possible relation to fracture risk.

Methods: A hundred patients with T2D of at least 5 years duration and 86 nondiabetic subjects were recruited. A crosssectional study was carried out to compare BMD Tscores and disc heights between the twelfth thoracic (T12) and the third lumbar (L3) vertebrae between the two study groups.

Results: Diabetic subjects had a higher spine BMD Tscore on monovariate analysis (mean ± standard deviation [SD] 0.08 + 1.2 *vs* 0.29 = 1.24; p=0.049 respectively). However, there were no significantdifferences in T scores in either the spine or femoral neck after adjustment for potential confounding variables between the two study groups. Diabetic subjects had a statistically lower intervertebral disc height between the 2nd and 3rd lumbar vertebrae when compared to controls (mean adjusted difference of 0.028cm p=0.02).

Conclusion: Diabetes exerts no significant independent effect on BMD. However there was significantly lower disc height in patients with T2D. This may contribute to the increased vertebral fracture risk in subjects with T2D.

OP3.10

A national major amputation database for Malta

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Introduction: Major lower limb amputation is a cause of morbidity and mortality particularly where diabetes prevalence is high, as is the case in Malta. A national Amputation taskforce was set up in Malta in 2010. This multidisciplinary group included representatives from various healthcare professions as well as patient representatives. The aims of the group were to set up a national database on major amputations. This study reports on the trends in major amputations.

Methods: The database was set up in 2010. Data was collated by representatives of the different health care professions. All patients undergoing major lower limb amputation in Malta and Gozo were included. Data collated included demographics, indication for amputation, comorbidities, level of amputation, functional achievements and major outcomes particularly 30-day mortality. This study reports on data on major amputations performed between June 2011 and May 2015 inclusive.

Results: 321 major amputations were performed. There was a significant reduction (41%) in major amputations performed between 2011 (96) and 2015 (56). 185 (57.6%) were transtibial, 132 (41%) were transfemoral and 4 (1.2%) hip disarticulation. 246 patients (76.6%) were diabetics. The commonest etiology was arterial disease (n=257; 80%). Other indications included neoplasia, trauma, decubitus ulceration, diabetic neuropathy, meningitis, substance abuse and congenital causes. The 30-day mortality was 6.8% (22/321).

Conclusion: Major amputations have been significantly reduced despite the increasing population and prevalence of diabetes. Mortality is lower than in other European centres. The allocation of resources to prevent and treat diabetic-related disease is likely to lead to improved outcomes.

OP3.11

Predictors of diabetic nephropathy

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Introduction: Diabetic nephropathy is associated with increased mortality and endstage renal disease. The course of diabetic nephropathy can be ameliorated if the interventions occur early in the course of the development of nephropathy. The aim of this study was to identify factors which can predict risk of progressive renal disease in type 2 diabetes over a 7 year period.

Methods: Predictors for percentage change in ACR, progression and regression of diabetic nephropathy class were identified by Pearson correlation. Multivariate analysis was performed for factors which were significant or quasi-significant (p<0.1) in univariate analysis.

Results: Baseline ACR (p<0.001), baseline HbA1c (p=0.038), systolic blood pressure (SBP) (p=0.002), BMI (p=0.027), peak HbA1c during followup (p=0.015), and duration of diabetes (p<0.001) were positively correlated with percentage change in ACR, whilst haemoglobin (p=0.012) and BMI (p=0.027) were negatively associated. Baseline ACR (p<0.001), baseline HbA1c (p<0.02), SBP (p=0.034) and haemoglobin (p<0.001) were significantly

associated in multivariate analysis. Baseline ACR (p=0.009), baseline HbA1c (p=0.005) and peak HbA1c (p=0.003) were significantly correlated with progression of nephropathy. Baseline HbA1c remained significantly associated in multivariate analysis (p=0.011), whilst haemoglobin showed a nonsignificant trend to a negative association (p=0.068). Haemoglobin (p=0.047), total cholesterol (p=0.024), LDL -cholesterol (p=0.010) HDLcholesterol (p=0.020) were significantly correlated with regression in nephropathy class in univariate analyses.

Conclusion: Identifying factors associated with the onset and progression of diabetic nephropathy would allow earlier intervention which may prevent or delay the development of diabetic nephropathy.

OP3.12

Prediction of insulin resistance in Type 2 diabetes mellitus using routinely available clinical parameters

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Introduction: Insulin resistance (IR) is an important predictor of cardiovascular risk in the general population as well as in patients with type 2 diabetes mellitus. However it is difficult to assess clinically. The aim of the present study was to determine if IR can be assessed using simple parameters which are readily available in clinical practice.

Methods: This cross-sectional study included 194 patients (112 male, 82 female) with type 2 diabetes mellitus. Body mass index, waist index (WI), triglyceride levels, 1/HDL, triglyceride/HDL, uric acid and urine albumin:creatinine ratio were investigated as possible predictors of insulin resistance.

Results: In the study population, WI correlated more strongly than any other parameter with log insulin levels, log fasting glucose to insulin ratio (FGIR), log fasting glucose to insulin product (FGIP), homeostatic model assessment (HOMAIR) and quantitative insulin check index (QUICKI). WI also emerged as the strongest independent predictor of all IR indices studied in regression as well as in ROC analyses. At a cutoff of 1.115, WI had a 78% sensitivity and 65% specificity for predicting IR when HOMAIR was used as indicator of IR, and 74% sensitivity and specificity when QUICKI was used as indicator of IR. These compared favorably with the sensitivities and specificities of the metabolic syndrome in detecting IR. Combining WI with other variables did not improve performance significantly.

Conclusion: In our cohort of patients with type 2 diabetes, waist index was the parameter with the strongest association with, and the best predictor of, insulin resistance.

OP3.13

Predictive genetics: the Maltese familial breast/ovarian cancer genetic screening programme

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Introduction: Predictive genetic testing is used to assess the future risk of an inherited disease in individuals with a family history of the disease. BRCA1 and BRCA2 autosomal dominant mutations account for 5-10% of breast cancers and for around 15% of ovarian cancers. There are also families with hereditary tumours that are wildtype for both genes.

Methods: Genetic testing was offered at the Genetics Clinic, Mater Dei Hospital, according to the National Institute for Health and Care Excellence guidelines. BRCA1 and BRCA2 gene sequencing (n=127) was outsourced. Family members of individuals having BRCA1 or BRCA2 mutations were then tested locally (Laboratory of Molecular Genetics) for the presence of the mutation found in the proband and provided with the required counselling. BRCA1/2 wildtype individuals were recruited in the ImaGenX project, together with a Sicilian hereditary breast cancer cohort, for next-generation DNA sequencing (NGS) to find other causative mutations.

Results: The prevalence of BRCA1 and BRCA2 mutations in index cases was of 12% collectively; only one case (0.8%) had a BRCA1 mutation. Another 12% of cases carried a variant of undetermined clinical significance, all in BRCA2. NGS data will be communicated.

Conclusion: Through this ongoing service, affected families have been offered predictive genetic testing for the past 5 years. This allows asymptomatic individuals at an increased risk of hereditary cancer to benefit from surveillance programmes and ensure early tumour detection. Further research objectives (R.D.) will be to elucidate the role of novel genes discovered through NGS and work out their pathological molecular pathways using expression techniques.

Disclosure: BRCA1 & BRCA2 testing was carried out through the Pathology Department, Mater Dei Hospital R.D.'s. The project is funded partly by the ImaGenX project and partly by the Faculty of Medicine & Surgery.

OP3.14

CIP2A expression is upregulated in triple-negative breast cancer

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Introduction: Expression of cancerous inhibitor of protein phosphatase 2A (CIP2A) has been correlated with the clinical aggression and progression of breast cancer. CIP2A inhibits protein phosphatase 2A promoting proliferation and survival. This study aims to compare the transcript and protein expression in triple negative breast cancer (TNBC) and determine the significance of CIP2A localisation using formalin fixed paraffin embedded (FFPE) breast cancer tissue. Breast cancers with increased CIP2A are potential candidates for novel PP2A activation therapy.

Methods: CIP2A transcript expression was assessed using a dataset of 477 breast cancer cases from The Cancer Genome Atlas (TCGA). 44 FFPE breast cancer tissues were laser microdissected and lysed to quantify the transcript expression using a Luminex® beadbased assay. Immunohistochemistry was used to quantify CIP2A protein and localisation on FFPE tissue sections.

Results: CIP2A is overexpressed (>2-zscore) in 8% of breast cancer and 18% in TNBC when analysing TCGA RNASeq datasets. Protein expression of CIP2A was expressed above threshold (>3 Allred score) in 33% of TNBC cases (N=15) as compared to 21% of ER positive cases (N=19). CIP2A protein was generally localised in the cytoplasm 90% of positive cases, with localisation in the cell membrane in 31%

of CIP2A positive tumours.

Conclusion: Our study provides preliminary evidence of a novel therapeutic group within the TNBC potentially eligible for CIP2A targeted therapy or reactivation of PP2A. Our results merit further investigation and currently a study was initiated using a cohort of breast tumours (*N*=572).

Disclosure: This project is funded by the Faculty of Medicine and Surgery of the University of Malta and by the Breast Cancer Project 2014-2016 Scholarship.

OP3.15

Novel molecular classifiers of basal-type subset in breast cancer patients

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Introduction: The basal breast cancer subtype persists as a heterogeneous group that shows worse prognosis due to lack of targeted therapy. Understanding the deregulated cellular mechanisms uncovers new therapeutic targets which require biomarkers to select eligible patients. Analysis of datasets (cBioPortal) show that 59.6% of basal cancer exhibit deregulation of the PP2A cellular feedback mechanism. Our study aims to define biomarkers for PP2A deregulation in the basal subtype.

Methods: Genes commonly deregulated in basal cancer associated with PP2A regulation were selected as potential basalPP2A biomarkers. A 40-gene expression panel was compiled, consisting of basal/luminal classifiers; epithelial-mesenchymal transition markers; PP2A subunit expression; basal PP2A biomarkers and housekeeping genes. The Luminex® beadbased expression assay was validated and used to analyse 44 Laser microdissected Maltese formalin fixed paraffin embedded (FFPE) breast tumours. Data was converted to a z-score, analysed using the RapidMiner Studio software (version 6.3.0.0) and illustrated using Principal Component Analysis (PCA). This analysis could be applied to breast cancer RNASeq data from TCGA (*N*=520).

Results: breast cancer datasets were accurately defined into luminal, HER2enriched and basal molecular subtypes using 10 classifier genes with 98.2% concordance to the PAM50. When using the 5 basal PP2A biomarkers to drive classification, the basal subgroup is segregated into 2 groups which are predicted to have distinct PP2A activity.

Conclusion: The novel biomarkers divide the basal breast cancer patients into subtypes, one of which is potentially eligible to PP2A activating therapy. Further analysis shall correlate PP2A activity with PP2A inhibitory subunit expression using immunohistochemistry.

Disclosure: This project is funded by the Faculty of Medicine and Surgery of the University of Malta and by the Breast Cancer Project 2014-2016 Scholarship.

OP3.16

Molecular classifiers of breast cancer patients using multiplex assays

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Introduction: Breast cancer patients can be classified using receptor status or based on expression of specific signature genes. Classification of patients provides the basis to select specific targeted therapy and to identify new molecular subytpes with potential therapeutic options. Data from the cBioPortal for cancer genomics demonstrate that PP2A function is likely to be reduced in up to 60% of basal breast tumours. Tumours exhibit either homozygous deletion or underexpression of PP2A, but also overexpression of PP2A inhibitors. In this study we classify molecularly breast cancer cell lines and a cohort of Maltese patients. In addition, we assessed the effect of PP2A activity restoration on the cellular models.

Methods: Twelve human breast cancer cell lines representing different breast tumour subtypes were cultured. Forty breast cancer tumours from various subtypes were collected. A Luminex® beadbased multiplex assay was used to quantify transcript levels of PP2A and its inhibitors, but also other signature genes. Sensitivity to different drugs that target the PP2A complex was determined by MTT assays following treatment with incremental doses. An effective dose was selected and used to assess protein expression and localisation using immunofluorescence.

Results: Our data show that PP2A inhibitors are significantly upregulated in TNBC cell lines and patients. In addition, the TNBC cell lines are more sensitive to low doses of drugs that target the PP2A complex. PP2A inhibitors are downregulated in TNBC cell lines following treatment.

Conclusion: The TNBC subset of patients with suppressed PP2A activity would be eligible for treatment using therapies which target the mTOR pathway.

OP3.17

A novel mutation in the F9 gene in Maltese haemophilia B patients

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Introduction: Haemophilia B is an X linked bleeding disorder characterized by spontaneous bleeding due to Factor IX (FIX) deficiency. The FIX gene (F9) lies on the long arm of the X chromosome at Xq27.1. This contains eight exons (18) encoding six major domains that make up the FIX protein. There are currently 1095 known unique variants in the F9 gene. In Malta, the disease is relatively rare and in this study 11 Maltese haemophilia B patients underwent mutation analysis. Diagnosis in Malta has been largely dependent on the assessment of FIX levels rather than direct identification of DNA mutations.

Methods: DNA was extracted and amplified by polymerase chain reaction (PCR) using primers from each exon of the F9 gene. DNA sequencing was then performed for correct genotyping. These were compared with reference DNA from healthy individuals. For any large deletions, multiplex

ligation-dependent probe amplification (MLPA) was also performed.

Results: Four patients were classified as severe (FIX level <1%), while the rest have mild haemophilia B (FIX >5%). 1 known gross deletion, 2 known missense mutations and a novel single nucleotide deletion in the F9 gene promoter were identified. The single nucleotide deletion (FIX Malta I) was found to be a novel mutation affecting the transcription factor HNF4alpha binding sites in the promoter area.

Conclusion: The data thus far confirms a high heterogeneity of molecular defects leading to haemophilia B in Malta. These mutations may contribute for more precise identification of the structure–function relationship of the FIX molecule.

Disclosure: Funding: University of Malta.

OP3.18

Differential expression of breast cancer signature genes following rapamycin treatment

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Introduction: Breast cancer is classified into intrinsic molecular subtypes, each relating to predictive prognostic and clinical outcomes. Rapamycin inhibits the mammalian target of rapamycin (mTOR) pathway, which is often deregulated in various types of cancer. mTOR inhibitors are associated with antiproliferation and apoptosis. Aim: Investigating the differential expression of breast cancer signature genes following rapamycin treatment in various breast cancer subtypes.

Methods: MDA-MB-436 (ER-PR-HER2-) and MCF7 (ER/PR+ HER2-) cells were exposed to rapamycin concentrations of 0, 10, 25, 35, 50, 65, 75, 100ng/mL. Following 24 hours the cell viability was measured using an MTT assay, or lysed to prepare RNA for transcript quantification using Luminex® beadbased multiplex assay.

Results: MCF7 was sensitive to rapamycin with 10ng/mL. MDA-MB-436 was not sensitive to all rapamycin concentrations. Following mTOR inhibition both cell lines exhibit downregulation of *AURKA*, and as expected a downregulation of *VEGFA*. Upregulation of *TFF3* occurred with rapamycin addition in MCF7. In MCF7, *TFF3* and *PTEN* expression negatively correlates with cell viability.

Conclusion: This study depicts *AURKA*, which has a role in tumour development, being downregulated upon mTOR inhibition with rapamycin. This provides a mechanism for increased sensitivity to mTOR inhibitors in breast cancer with *AURKA* chromosomal amplifications. Although *TFF3* is associated with progression of disease and metastatic breast cancer, upregulation of *TFF3* following rapamycin treatment correlates with decreased viability in MCF7. Identifying the genetic expression changes with different rapamycin concentrations for each subtype, will pave the way towards predicting therapeutic response, and understanding therapeutic effects in different breast cancer cell lines.

OP3.19

The distribution and prevalence of HPV genotype in Maltese women diagnosed with CIN 3 and cervical cancer

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Introduction: The Human papilloma virus (HPV) is the causative agent of cervical carcinoma in women. There is a global variation of HPV genotypes that are highly carcinogenic. The aim of this study was to estimate the prevalence and type -specific distribution of HPV genotype in Maltese patients who were previously diagnosed with cervical intraepithelial neoplasia 3 (CIN 3) or cervical carcinoma.

Methods: 96 formalin fixed paraffin-embedded sections from archival cervical tissue were retrieved from the Pathology Department, Mater Dei Hospital, Malta. HPV genotypes were identified using the Multiplex HPV genotyping kit, which employs the identification of 24 HPV subtypes via PCRbased assay amplification, followed by a hybridisation step and identified via a Luminex analyser. Negative cases were re-analysed with the RTPCR. 92 cases were suitable for data analysis of which 73 cases were positive for HPV (79%). A total of 14 different HPV types were identified; 12 were high-risk HPV and 2 were lowrisk HPV genotypes.

Results: The most prevalent HPV genotype in all diagnosis categories was HPV16, followed by HPV 31, 45, 18, 33, 35, 52, 53, 58, 59, 70, 73 82 and 6. However, in invasive carcinoma cases, the most prevalent was HPV16 followed by 45, 18, 58, 31, 59, 73, 82, and 6.

Conclusion: The present study provided important information about the distribution of individual HPV genotypes in CIN 3 and cervical carcinoma cases in Malta. Although the frequency of HPV16 in the present study is similar to other European studies, the distribution of the other HPV genotypes was different.

OP3.20

The local reponse to the 2014 Ebola epidemic in West Africa

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Introduction: In 2014, West Africa, experienced the largest outbreak of Ebola virus disease (EVD) in history. Malta embarked on an intense programme to ensure adequate levels of preparedness and vigilant surveillance.

Methods: Here we discuss what measures were taken by the Maltese Health Department focusing primarily on the Infectious Diseases Unit and Ebola Response Team at Mater Dei Hospital. We wish to review the beneficial outcomes of these measures as well as outline any areas which need strengthening.

Results: This exercise was an extensive one involving the training of a large group of health professionals from different departments including Infectious Diseases Unit (IDU) doctors and nurses, infection control nurses, paediatricians, radiographers, anaesthetists, renal nurses and mortuary attendants. Public Health and Accident and Emergency had their own training programmes and drills. Two hour training sessions were rigorously held on a daily basis on the IDU with a full Ebola drill every Friday. Each trainee underwent certification at the end of training. We describe two reallife Ebola threats happening during normal hours and out of

hours.

Conclusion: The benefits from this exercise were numerous, especially the establishment of a dedicated team who voluntarily trained and worked round the clock. The improvements made to two of the isolation rooms in IDU were crucial to the final operating procedures. Two real life threats helped test and consolidate these systems. The game is not over yet. This exercise kickstarted an ongoing process so that these and future challenges are addressed with the best possible infrastructure and systems.

OP3.21

Novel tricalcium silicate cements: not just common cements

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Introduction: Portland cement, a construction material, is used in dentistry as it is hydraulic thus develops its properties in the presence of moisture, which is an essential property for a dental material. The main constituent phase of Portland cement is triclacium silicate. Thus second generation materials which improve on the original formulation are tricalcium silicate-based. Interaction of these cements with tissue fluids results in biomineralization. The aim of this research was to develop novel tricalcium silicate-based cements with sintered radiopacifiers. Sintering of the radiopacifier phase to the cement reduces the leaching thus less risk of spreading of radiopacifier in the surrounding tissues. Furthermore the properties of these novel cements were investigated for their prospective use as implant coating materials.

Methods: Six tricalcium silicate cements, either mixed or sintered to different radiopacifiers with 20% of either barium, calcium or strontium were used as radiopacifiers so that these materials could be distinguished radiographically. The control used was hydroxyapatite. These materials were characterized and a coating method described.

Results: All materials exhibited the typical formation of a calcium phosphate phase on hydration and contact with physiologic solution thus biomineralization occurred. The sintered materials gave markedly improved chemical properties over the control, but leached the radiopacifier components when compared to the mixed variants.

Conclusion: Tricalcium silicate cements can be promising implant coating materials due to their interaction with tissue fluids thus optimising the bonding between the prosthesis and the bone at the site of implant insertion. Further studies can be carried out on the materials to improve their properties.

OP3.22

A comparison of the microbiological flora in the oral cavity of type II diabetes mellitus *vs* non-diabetic adult dental patients

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Introduction: Diabetes mellitus predisposes to oral disease through alterations of oral microflora accompanied by drop in host's immunity. A comparison of oral microflora isolated from saliva and plaque specimens of 30 diabetic and 30 non-diabetic dental patients was made.

Methods: A case was defined as a male or female dental patient, aged 18 years or older and having type II diabetes mellitus (T2DM). Any association between demographics and oral health status of recruited patients, and the occurrence of T2DM, was tested for using Chi-Squared or Independent Samples T-Test. Culture-based methodology was used to count and identify cultivable oral bacteria and *Candida* species from specimens. Normality of data was tested by means of QQ plots. Mann Whitney U-Test was used for significance testing and multivariate regression analysis then carried out. Power analysis to enable future studies was also done.

Results: Counts of suspected *Lactobacillus* species (pathogenic) were significantly higher in diabetics – p=0.013, whilst counts of non-pathogenic *Neisseria* species were significantly higher in non-diabetic counterparts – p=0.046. With regards to mycological flora, the predominantly isolated microorganism was *Candida albicans* but its counts did not vary significantly between diabetics and non-diabetics. The majority of organisms identified in saliva were also identified in plaque. Occurrence of T2DM in recruited dental patients was not influenced by demographics or oral health practices. No statistically significant difference in oral health status of diabetics and non-diabetics recruited for this study was observed.

Conclusion: This study was successful in detecting significant quantitative differences in the oral microflora of diabetics versus nondiabetics.

OP3.23

Effects of steam, ethylene oxide, UV and alcohol sterilization and disinfection techniques on chemical and physical properties of selected dental filling materials

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Introduction: Tooth tissue loss through trauma/caries leads to infection of the dental pulp and eventual tooth loss. Teeth are restored with glassbased materials, resin composites and their hybrids. Materials' antimicrobial activity is important since biofilms on the material may reduce their longevity. The aim of this study was to assess the changes sustained by the materials after sterilization treatment required prior to antimicrobial testing

Methods: The materials investigated included a glass-ionomer cement (Chemfil Superior), a composite resin (SDR) and two hybrids (Ionoseal and Dyract Extra). The test materials were sterilized using alcohol, steam, ultraviolet light (UV) and ethylene oxide and any changes to these materials were then assessed by SEM, Fourier transform infrared (FT-IR) spectroscopy and microhardness testing.

Results: Steam sterilization caused changes to the surface of Dyract with a number of bubbles present on the material surface. Ethylene oxide affected the microstructure of the glass ionomer and the hybrids with deposition of chlorine and calcium in Chemfil and Dyract respectively and flattening of the Si–O stretching vibrations. UV sterilization resulted in changes in surface microhardness (P< 0.05).

Conclusion: The different sterilization techniques particularly ethylene oxide affected the microstructure of the materials under investigation. These results highlight the need for standardization of methodologies used for assessment of antimicrobial activity of materials, as well as further assessment of effects of sterilization methods on materials

used for medical devices. Changes in the material also lead to results of antimicrobial testing being nonrepresentative of what will occur when the material is being used clinically.

OP3.24

Use of levofloxacin and piperacillin-tazobactam for empiric treatment of lower respiratory tract infections in Mater Dei Hospital: are we too trigger-happy?

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Introduction: In an era where the rapidly increasing variety of multidrug resistant organisms is a major patient safety issue, the use of broad spectrum antibiotics needs to be judicious and curtailed. An audit was carried out to evaluate the use of piperacillin-tazobactam and levofloxacin for the treatment of lower respiratory tract infections (LRTI) in newly admitted patients.

Methods: The study retrospectively reviewed 55 patients, admitted to Mater Dei Hospital (MDH) between July and September 2014, who were treated with piperacillin-tazobactam or levofloxacin for a LRTI. Presence of 'CURB65' score documentation was noted as well as compliance with hospital antibiotic treatment algorithms.

Results: The 'CURB65' score was documented in only 4% of notes of patients diagnosed as community-acquired pneumonia. Compliance with local guidelines was significantly suboptimal. Only 29% of prescriptions for these two antibiotics were according to MDH guidelines and/or explained by severe manifestations, penicillin allergy or suspicion of Legionella infection. Piperacillin-tazobactam was the most noncompliant antibiotic (94% of prescriptions were not in line with guidelines) whereas compliance for levofloxacin was just 61%.

Conclusion: The results suggest that second line formulations, especially piperacillin-tazobactam, are being used unnecessarily for LRTI, possibly because calculation and documentation of 'CURB65' scores is being overlooked and treatment algorithms are not being followed adequately. In an age of increased resistance, it is essential to avoid unnecessary use of these two potentially resistogenic formulations, when options are available and equally effective. This is particularly important for initial treatment regimens of newly admitted patients, since de-escalation is locally uncommon.

OP3.25

Outcome of Mantoux screening in children in Malta: does BCG vaccination matter?

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Introduction: The Mantoux test is a screening tool used in children to detect possible sensitisation to tuberculosis (TB) on entering Malta from a high risk country or prior BCG vaccination. We aimed to determine if the size of the Mantoux reaction in children with TB infection was affected by BCG vaccination.

Methods: All children with a Mantoux test of ≥10mm were assessed by clinical examination, a Chest Xray and an interferongamma release assay for evidence of TB. Evidence of BCG vaccination was sought. Children were divided into 2 groups according to the Mantoux size of 10<15mm or ≥15mm. Significant differences were inferred from non-overlapping 95% Confidence Intervals (CI).

Results: A total of 121 children aged <16 years of age (mean 10.2 years) were recruited between May 2009 - June 2015. Of these, 60% were male and 66% were foreign. Of the 74 patients with a Mantoux reaction between 10<15mm, 30% (n=22) had latent tuberculosis, with 17/22 (77%; 95%CI: 59-95%) having evidence of BCG vaccination. A Mantoux reading of ≥15mm was documented in 47 children of who 45% (n=21) had latent tuberculosis, with 16/21 (76%; 95%CI: 58-94%) having evidence of BCG immunisation. There was no significant difference in the proportion of TB infection between BCG vaccinated children in the two groups.

Conclusion: Despite the UK NICE guidelines recommending to only investigate children with evidence of BCG vaccination if the Mantoux reading is ≥15mm, our results show that vaccinated children with a Mantoux reaction between 10<15mm should still be investigated for TB.

OP3.26

Evaluating fosfomycin as an alternative treatment for infections caused by highly resistant OXA48 enterobacterial isolates in Mater Dei hospitalized patients

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Introduction: Increased carbapenemase mediated resistance (KPC,NDM,VIM,IMP,OXA48) have left the patients infected with Carbapenemase Producing *Enterobactericeae* (CPE) with few treating options. That encourage re-evaluating older generation antibiotics as fosfomycin. It shows promising alternative treatment in patients with high resistant isolates. Local CPE isolates exhibit resistance to all penicillins, ß lactamase inhibitors, cephalosporins, quinolones and aminoglycosides, with restricted options for amikacin, tigecycline, fosfomycin and carbapenems (when Minimal Inhibitory Concentration MICs <=8 mg/L). We evaluate fosfomycin susceptibility among OXA48 CPE isolates from MDH inpatients, prior establishing fosfomycin in Malta.

Methods: We have analysed data of total 741 OXA48 isolates tested to fosfomycin in the Bacteriology lab, November 2012 - May 2014. Sensitivity carried out by ASTN204 Vitek 2 Biomerieux (*versus* 7.01 & EUCAST2012). ESBL verified by ESBL+AmpC Screen kit from Rosco Diagnostica, OXA48 gene was confirmed by RT PCR (RotorGene Q).

Results: Out of total, 74% CPE were susceptible to fosfomycin (MIC <=16mg/mL). Pus isolates were less susceptible compared with those from urine (75% vs 90%). Co ESBL/OXA48 enterobacterial isolates from urine were less susceptible 66%, than ESBL negative OXA48 – 83%. *K.pneumoniae* was the majority, comprising 87 % of urinal isolates. Susceptibility to fosfomycin as follows: *K.pneumoniae* 72%; *Enterobacter* – 33%; all 15 *E.coli* were sensitive.

Conclusion: Although compared to uncomplicated UTI or ESBL, our OXA48 *K.pneumoniae* expressed higher resistance against fosfomycin, the laboratory data supports the use of this drug against OXA48 multidrug resistant entrobacterial isolates. Together with amikacin, tigecycline and colistin should be established as a treatment option for CPEs.

OP3.27

House visits in general practice: a cross sectional survery

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Introduction: House visits (HV) in Maltese general practice (GP) has never been documented and studied. This study was aimed to shed more light on HV.

Methods: All the patients who got a HV from Floriana Health Centre (FHC) during the month of March 2014 were

contacted via telephone.

Results: The total number of contactable HV was 201 (out of a total of 230). 110 had one or more pre morbid conditions. The most common complaint was fever (10.2%). 62% of the patients considered their need of a house visits as urgent. 64.2% of patients state that they have a private GP. 63% claimed that they choose the service of the FHC as their own GP was not available and because the service was faster. Valletta (21.4%) followed by Hamrun (20.9%) were the two localities requesting most HV. We noticed a peak of visits requests for the age group 20-49, which is not found in other studies. Most HV (58%) were for female patients and for patients over 60 years (49.2%). 94% of respondents claim that the arrival time was appropriate and 82% reported being satisfied with the HV. The main reason why a HV was requested was transport issues (27.5%).

Conclusion: This study described uncharted territory in Maltese GPs. The fact that the 20-49 age group requested most HV might be a reflection of an outdated system for certification for absence from work. More studies are needed to better describe this aspect of GP to inform further service development.

OP3.28

Health record documentation by doctors in a primay health care setting; a local audit

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Introduction: The aim of this audit is to assess medical documentation and record keeping in the Primary Health Care setting at Government Health Centres. The Health Informatics Unit (HIU) guidelines, part of Royal College of Physicians (RCP) of London, were adapted and the minimal documentation needed for adequate record keeping was assessed in the local medical health records.

Methods: Files of patients who attended Mosta Health Centre in a specified period were selected randomly and used in this audit. Records were analysed for patient name & ID, presence of loose notes in the file, Chronological order of notes within the file, date, time, legibility, doctor's name, signature and registration number.

Results: 228 patient visits were analysed. 200 files were successfully retrieved and in 48% notes were not in chronological order, 39% had loose papers within the file.37 out of the 200 files were found to have no note documenting the patient encounter. From 163 files the date (96.9%), time (4.9%), legibility (90.2%), doctor's name (31.9%), signature (95.7%) and registration number (73.6%) were properly documented. 28 files were not found.

Conclusion: Adequate record keeping is important for both patient safety and quality of care, and also for medicolegal purposes. Inadequate record keeping can lead to difficulty for medical staff to protect themselves from legal repercussions in cases of litigation. Medical records can be used as legal documents in court as proof of what management the patient underwent when under the care of a doctor or team. Medical records should be complete, concise, wellorganised and legible.

OP3.29

Use of lumbosacral spine radiographs in primary health care centre

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Introduction: Lumbosacral spine radiography is one of the most commonly requested studies in primary healthcare. The aim of this study was to examine the indications for such radiographs in a primary healthcare centre setting.

Methods: We conducted a retrospective, descriptive, crosssectional study. A list of all patients who underwent lumbosacral spine radiography in a local health centre between January and June 2014 was obtained. Episode data, patients' sociodemographic data and the clinicians' requests were collected using the Radiology Information System and the Picture Archiving and Communication System. Data was analysed using the Statistical Package for Social Sciences and was stored in a non identifiable manner.

Results: The majority of the subjects were female (54%, n=1021). The sample population had an age distribution of 896 years with a mean of 55 years. Lower back pain or neurological symptoms (78%) and degenerative disorders (17%) were the most frequent requests for lumbosacral spine radiography. Examination findings were documented in 4% of GP requests. Patient expectation accounted for only 0.2% of cases. 3% of the clinician's requests were missing or inappropriate. Older patients were more likely to undergo lumbosacral spine radiography for lower back pain and neurological symptoms. Trauma tended to be a common indication in the age groups below 40 years and in the above 90 year olds.

Conclusion: Appropriate documentation of the indications is important to enhance patientoriented clinical outcomes of the performance and interpretation of radiographs by family physicians onsite and also for offsite imaging and interpretation by radiologists.

OP3.30

Mental health in youth

John M Cachia

Office of the Commissioner for Mental Health, MEHHealth

Introduction: Mental disorder is the major public health challenge in adolescence and young adulthood. Literature shows that 1 in 5 teens and young adults live with a mental health condition. Half of all lifetime cases of diagnosable mental illness begin by age 14. Threequarters of lifetime mental illness arises by mid twenties. This study describes the demographic and clinical characteristics of youngsters admitted involuntarily for observation for acute psychiatric disorders.

Methods: The Office of the Commissioner is notified of all involuntary admissions for observation in acute mental health facilities. Data from 70 notifications pertaining to persons aged 30 years or less, was inserted in an excel spreadsheet.

Results: 28% of all acute involuntary psychiatric admissions involved youngsters. 60% were males, 40% were females. Schizophrenia, mood disorders and personality disorders were the main disease categories. There are detectable regional differences. Young asylum seekers are of concern. 35% required at least one additional period of involuntary care. The readmission risk within 3 months of first admission was 20% and readmission was the best predictor of longer involuntary acute care needs.

Conclusion: Acute psychiatric hospital admission of youngsters needs to be reformed. Mental disorder should not

be allowed to reach the chronic stages of the disease process. There are many youngsters at risk within our communities. They need true empowerment and effective and timely support. Mental health services for youngsters require holistic horizontal approaches involving mainly health, education, and welfare. Substantial investment in infrastructure, human resources and training is required.

OP3.31

University of Malta SAHHTEK survey: results from the pilot study

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Introduction: Malta is no exception to the global increase in the number of cases of Diabetes mellitus type 2 (T2DM) and obesity. A lack of recent studies in Malta and concern for better control of these noncommunicable diseases has led to plans for a large cross-sectional study by the University of Malta. The aim is to identify the prevalence of T2DM, obesity, hypertension, physical activity, smoking, alcohol consumption and their correlations, including genetic information.

Methods: A randomized sample of 50 participants was selected for a pilot study in November 2014 prior to the fieldwork. Participants were called for a health check, including blood pressure, height, weight, hip and waist measurements, together with an interview using a validated questionnaire and blood testing for fasting glucose and lipid profile.

Results: 46% (n=23) accepted to participate (male=9; female=14). Among these, 13% were known diabetics on treatment (one was uncontrolled) and none were newly diagnosed. 26% had impaired fasting glucose. 30% were known hypertensives on medication among whom 57.1% were uncontrolled. 64.3% of females were overweight (42.9%) or obese (21.4%) while 55.6% among men were overweight (33.3%) or obese (22.2%). Gender weight differences were not statistically significant (p=0.21).

Conclusion: It is evident that diabetes, obesity, impaired glucose regulation & hypertension are highly prevalent and often uncontrolled among adults in Malta and therefore of great public health concern. The main study should reveal the full extent of these problems and their interrelations in sharper detail.

Disclosure: Univeristy of Malta, Alf Mizzi Foundation, Atlas Insurance, RIDT as the main funding sources.

OP3.32

Maternal age at delivery in Malta over the past 15 years

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Directorate for Health Information and Research

Introduction: Developed countries describe an increase in the number of older mothers at delivery. Older maternal age is associated with a greater risk of adverse outcomes including preterm birth, intrauterine growth restriction and perinatal mortality. This analysis examines trends in maternal ages in Malta over the 15-year period 2000-2014.

Methods: The National Obstetrics Information System (NOIS) collects comprehensive data on all births and deliveries from 22 weeks gestation occurring in Malta. Anonymous data on deliveries from 2000-2014 was obtained from NOIS and analysed using MSexcel and chisquare tests for trend.

Results: Between 2000-2014 a total of 60,380 deliveries and 61,365 births were registered with NOIS. Analysis of 5 year maternal age groups shows that the rate of deliveries to mothers in the 30-34 and 35+ year agegroups have experienced a steady significant increase over the period: 24.6% (n=1060) of deliveries in 2000 *vs* 33.3% (n=1423) in 2014 for 30-34 year olds (p<0.001) and 12.7% (n=547) in 2000 *vs* 19.3% (n=826) in 2014 in 35+ year olds (p<0.001). Deliveries in the younger maternal age groups, <20yrs, 20-24 and 25-29, all show an overall decreasing trend between 2000-2014: 5.6% (n=240) *vs* 3.6% (n=152) for <20 year olds (p<0.001); 20.4% (n=881) vs 13.5% (n=576) for 2024 year olds (p<0.001) and 36.0% (n=1553) *vs* 30.4% (n=1298) for 25-29 year olds (p<0.001) respectively. The most frequent age group at delivery is currently 30-34 years.

Conclusion: Similar to other developed countries, Malta has experienced a steady and significant increase in older mothers.

OP3.33

It's not all about time: factors implicated in food choices among Maltese mothers

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Introduction: Literature suggests that time availability may be at the heart of the increase in weight trajectories among mothers due to its impact on food choices and exercise behaviour. This research investigated the experience of weight management for Maltese mothers juggling multiple responsibilities and the factors that inhibit or facilitate weight management following motherhood. Determinants to snacking and take away consumption were also explored.

Methods: The research employed a mixed-methods approach with two qualitative studies (n=9, n=20) and one quantitative survey-based research (n=348). Participants were Maltese mothers between 18 – 60 years of age, living with a partner/ husband and having at least one child living at home. Themes and statistical differences were analyzed by BMI group and occupation.

Results: Whilst time scarcity is a common experience for mothers regardless of BMI or occupation, it is not significantly related to high-calorie snacking or take away consumption. Eating that is triggered by emotions or stimuli available in the environment may be more likely to lead to over consumption of high calorie foods while a more restrained eating style and the tendency to plan food may be more likely to lead to consume fruit & vegetable snacks and maintain weight-related goals.

Conclusion: These findings may have implications for practice as it may help professionals working with mothers to look beyond time availability as a factor for food choices and address factors than may bring about successful long-term weight management.

Disclosure: The research presented is in fulfillment of a PhD for the first author. She is supported by a grant from the Malta Government Scholarship Scheme (MGSS).

OP3.34

Fluid prescription in acute medical admissions

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Introduction: Assessing hydration status is essential to the management of the acutely unwell patient presenting to the emergency department. This guides the prescription of replacement and/or maintenance intravenous fluids. The level of patient hydration should then be reassessed

continuously on the medical ward. Our audit aimed to study the documentation of hydration status, as well as the input/output charting on the ward.

Methods: Our study population was composed of all patients admitted to Mater Dei Hospital during the period August to November 2013 under the care of seven medical consultants. A group of medical basic specialist trainees was responsible for data collection by means of a standard proforma.

Results: From a study population of 655 patients, 34.8% (n=228) were found on intravenous fluids on the post-admitting ward round. 51.8% (n=118) of these patients were male and 48.2% (n=110) were female, with an average age of 63.1 years. Hydration status was documented in the admission notes in 45.6% (n=104) of patients admitted on intravenous fluids. Input/output charting was requested in 18.9% (n=43) of patients on intravenous fluids, and was charted in 46.5% (n=87) of these patients. When fluid was given at the Accident and Emergency Department, this was documented on the Accident and Emergency red sheet in 74.6% (n=156).

Conclusion: The documentation of patient hydration status by the admitting doctor is suboptimal. The importance of requesting and carrying out input/output charting in patients receiving intravenous fluids should be highlighted to admitting doctors and nursing staff.

OP3.35

Treatment of psoriasis with biologic agents in Malta

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Introduction: Biologic therapy has revolutionalised the treatment of moderate to severe psoriasis leading to improved clinical outcomes and quality of life scores. This study aims to determine current biologic use in psoriatic patients at our department.

Methods: All patients who were administered biologic therapy for psoriasis in Malta were included. Data included demographic details, disease duration and severity, biologic use and duration, previously attempted treatments, side effects, early and late response to biologic using Psoriasis Area Severity Index (PASI) scores and Dermatology Life Quality index (DLQI) scores.

Results: A total of 36 patients were started on a biologic between 2009 and 2014 for psoriasis (M:25, F:11) with a mean age of 46.9 years. These included etanercept (n=22), infliximab (n=8), adalimumab (n=4) and ustekinumab (n=2). Secondary failure was the main reason why biologics were stopped and switched. Most patients had an improvement in their PASI scores after 2 to 4 weeks of starting the biologic and had a PASI 90 score improvement. All patients had more than a 5 point improvement in DLQI score.

Conclusion: Biologic use in our department is on the increase. Our patients had considerable improvements in their PASI and DLQI scores. Secondary failures have occurred usually after 2 to 4 years and switching has yielded positive results. Biologics are expensive drugs and recently we have switched to cheaper biosimilars. Doctors should be aware of the treatment options available for psoriasis patients, their possible side effects and when to refer to our department. In most cases a satisfactory response can be achieved.

OP3.36

Monitoring of patients with systemic lupus erythematosus in local practice

Erika Cefai, Bernard Coleiro, William Camilleri, Edith Sciberras, Andrew Borg

Introduction: Systemic Lupus Erythematosus (SLE) is a disorder characterised by multisystem involvement. The use of evidence-based guidelines can help in optimising management. The aim of this audit was to assess local management of patients with a diagnosis of SLE and compare it with the European League against Rheumatism (EULAR) recommendations published in 2010.

Methods: Patients with a diagnosis of SLE that attended rheumatology clinics at Mater Dei Hospital during the year 2014 were identified. Data was collected from isoft clinical manager and case files after obtaining approval from Data Protection. The data collected looked at various aspects mentioned in the EULAR recommendations: patient assessment, cardiovascular risk, laboratory assessment, co-morbidities, infection risk, frequency of assessments and renal involvement.

Results: 50 patients were identified in total. Assessment of cardiovascular risk varied: 90% had FBG/HBa1c monitoring but only 38% of patients had their smoking status checked. Neutrophil and lymphocyte counts as part of infection risk monitoring were done in all patients but vaccinations were not being recommended. The commonest comorbidity documented was hypertension in 28% of patients. Availability of baseline or follow-up investigations varied e.g. antinuclear antibodies were done in 90% but urinalysis and urine for microalbuminariua were taken in 88% and 20% of patients respectively.

Conclusion: This audit has highlighted the fact that there are areas in lupus monitoring that can be improved. This can be achieved by means of dedicated lupus clinics and use of proformas at every visit.

OP3.37

Vaccination rates in adults with autoimmune inflammatory rheumatic diseases and the patients' perspective on their infection risk

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Introduction: The aim of the study is to determine whether vaccination in adult patients with autoimmune inflammatory rheumatic diseases (AIIRD) is being carried out according to the EULAR guidelines. These recommend that the vaccination status should be assessed and that influenza and pneumococcal vaccination should be strongly considered for patients with AIIRD.

Methods: 50 patients with AIIRD attending the Rheumatology Clinic were recruited for the audit. Demographic data and vaccination status were determined using the medical notes. Further information on their vaccination history and their perceived risk of infection was obtained by interviewing the patients.

Results: 58% were females and the mean age was 62.7 years. 36 patients were taking a synthetic DMARD and 9 were on a biologic. Information on vaccination history was found in the medical notes in only 2 cases. The influenza vaccine was taken in 36 patients (72%), out of which it was taken yearly in 24 patients. The proportion of patients who took the influenza vaccine was significantly higher in those above 65 years (p=0.019). 5 patients (10%) claimed they had taken the pneumococcal vaccine after having been advised to do so by a hospital doctor. 34% claimed that they knew that they were

at increased risk of infections because of their condition or treatment. Only 8% stated that they had been advised to take vaccination because of this.

Conclusion: Improved patient education on their infection risk and need for vaccination is required. This can be encouraged by having structured documentation of patients' vaccination status in the medical notes.

OP3.38

The outcome of kidney transplantation in antineutrophil cytoplasmic antibody associated vasculitis

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Introduction: The outcome of renal transplantation in ANCA associated vasculitis (AAV) is considered comparable with patients transplanted for other aetiologies. In this study, we report our experience of renal transplantation in patients with AAV, followed by a pooled analysis of previous studies

Methods: This retrospective study included all patients with ESKD secondary AAV who received a kidney transplant between 1987 and 2013 in the East of Scotland. Patient and graft survival were examined together with disease recurrence following transplantation. Subsequently we undertook a pooled analysis of the published data together with our single centre experience.

Results: We identified 24 patients receiving a total of 31 renal allografts. Median age at first transplant was 45.5 years (range:18-68) and median follow up post transplant was 60 months (range:0.5-226.0 months). All patients were ANCA positive (71% PR3 and 29% MPO) before transplant. Patient and death censored allograft survival at 1 and 5 years were 92%, 88% and 93%, 71% respectively. The overall patient and allograft relapse rate were 0.022 and 0.016 relapse/patient-years respectively. Twenty studies were included in the pooled analysis with a total of 1169 patients. The overall 5 year patient and death censored graft survival were 88% and 71%, respectively. Relapse rate was significantly higher in patients with positive ANCA at transplantation (14% *vs.* 5%, p=0.042).

Conclusion: Our single center experience shows that renal transplantation remains a safe option with comparable one year outcomes. Furthermore, disease relapse post-transplantation is relatively rare. Finally, multicenter registry data are needed to define predictors of renal outcomes in AVV.

OP3.39

Incidence of endstage renal disease requiring renal replacement therapy in the Maltese islands

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Introduction: Chronic kidney disease (CKD) Stage 5 leading to endstage renal disease is a leading cause of morbidity and mortality. Worldwide, and in Malta, use of renal replacement therapy (RRT) has steadily risen in the past decade. However, robust data on the precise incidence of new patients commencing RRT in Malta were lacking.

Methods: In this retrospective observational study covering the entire Maltese population, all patients with a diagnosis of CKD who required dialysis between 2009 and 2013 were identified. A complete database of CKD patients from day 1 of dialysis (including age, gender, aetiology, modality of dialysis, survival and mortality data) was compiled from manual records at the Renal Unit Mater Dei Hospital. Per million population (pmp) statistics were calculated using the Malta demographic review.

Results: A remarkably similar number 96 (232 pmp), 88 (212 pmp), 83 (199 pmp) and 89 (211 pmp) of new CKD patients commenced chronic dialysis in the years 2009, 2010, 2011 and 2012 respectively. This rate translates to one new patient initiating dialysis every four days. The incident rate was higher in males (average 64.8%). The 2012 incident rate of patients receiving RRT in Malta was similar to that of Portugal (211 pmp *vs* 219 pmp) but was nearly double the UK incident rate (211 *vs* 108 pmp) and the overall 2012 incidence rate of patients receiving RRT in 30 countries in Europe (211 *vs* 109.6 pmp).

Conclusion: Malta has a stable but a comparatively high incidence of new patients initiating dialysis.

OP3.40

Management, referral and outcomes of acute kidney injury

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Introduction: Acute kidney injury (AKI) is common in hospitalised patients and is associated with increased morbidity, mortality and hospital stay. Risk assessment for AKI, preventative measures and timely referral to a nephrology team have been shown to improve outcomes. The aim of this audit is to assess the clinical management of AKI prior to nephrology referral and to determine mortality associated with AKI.

Methods: A random patient cohort, referred to the nephrology team with AKI, was analysed. AKI was defined using the Acute Kidney Injury Network classification.

Results: A total of 50 patient consultations were analysed. The median age was 72.0 (range 39-92) with 52.0% being males. Six percent (n=3) were classified as Stage-1 AKI; 14% (n=7) Stage-2 AKI; 80% (n=40) Stage-3 AKI. Fifty-four percent (n=27) had hospital-acquired AKI. The median number of days from onset of AKI to nephrology referral was 2 (range 07). Renal replacement therapy was required in 18% (n=9). Patients with a background of CKD were more likely to develop AKI (68%; n=34). Urinalysis was performed in 64% (n=32) and renal imaging in 60% (n=30) prior to the consultation. Documentation of urine output was available in 82% (n=41). Nephrotoxic drugs were not stopped in 51.2% (n=21). Inpatient mortality was 14% (n=7) and 30-day mortality 18% (n=9).

Conclusion: Investigations including urinalysis and renal imaging are lacking prior to nephrology referral. A guideline including a riskassessment, prevention and recognition tool; guidance for appropriate investigations, management and nephrology referral, is crucial to improve AKI outcomes in our hospital.

OP4.01

Diagnosis and treatment of food allergy: pearls and pittfalls

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Introduction: The prevalence of pediatric food allergy (FA) and anaphylaxis has increased in the last decades, especially in westernized countries where this emerging phenomenon was marked as a "second wave" of the allergic epidemic. Pediatric allergists are also experiencing remarkably changes in the pattern of allergic sensitization and disease manifestations, with a wider range of allergenic foods and increase in non-IgE-mediated gastrointestinal disorders The cornerstone in the diagnostic workup of FA is the oral food challenge (OFC) which is time and cost-consuming and involves the risk of adverse allergic reactions. Over recent

years great advances have been achieved in the field of in vitro allergy testing and component-resolved diagnosis has increasingly entered clinical practice. Testing for allergen components can contribute to a more precise diagnosis by discriminating primary from cross-reactive sensitizations and assessing the risk of severe allergic reactions. Avoidance of the offending food and emergency treatment of adverse reactions are currently the mainstays for the management of IgE-mediated and non-IgE-mediated FA. Prompt administration of intramuscular epinephrine is the firstline therapy for food-induced anaphylaxis. A dietary programme for FA should always include education on how to avoid specific allergens as well as comprehensive nutrition assessment on how to appropriately substitute foods in order to obtain adequate energy intake and nutrients for age.

Conclusion: It must be considered that FA tends to resolve in most cases during the first years of life. Therefore the required period of strict elimination diet is not a priori established and periodical re-evaluations by the allergist are fundamental to assess the changing nutritional needs and eventually resolution of the disease. Furthermore there is a growing body of evidence to show that specific oral tolerance induction can represent a promising treatment option for food allergic patients. In parallel, education of food allergic patients and their caregivers as well as physicians about anaphylaxis and its treatment is becoming recognized a fundamental need. International guidelines have recently integrated these new evidences and their broad application all over Europe represents the new challenge for food allergy specialists.

OP4.02

Intravenous cannulae in hospitalised children: a prospective observational study

Isaac Balzan, Fabrizia Cassar, Jessica Coppini, Paula Gauci, Abigail Magro, David Pace

Introduction: Hospitalised children often need peripheral intravenous cannulation. This study investigated factors affecting cannula insertion and maintenance.

Methods: Children, 0-16 years old hospitalised on the paediatric medical and surgical wards were enrolled. The cannula size, insertion site, method of fixation, cannula access after insertion and the visual infusion phlebitis (VIP) score were documented. Differences were analysed by computing the 95% confidence intervals (CI) and a logistical regression analysis model was used to assess any correlations.

Results: Out of 348 children, 54% of whom were male, there were 378 cannulation instances. Children <5 years old were significantly more likely to have a 24G cannula on the dorsum of the hand, an obscured exit site and a bandage than children >9 years old in whom a 22G cannula in the antecubital fossa with a visible exit site was placed (p=<0.05). The mean duration was 48 hours with most cannulae being removed electively on discharge. Blood soiling of the dressing, which occurred in 60.1% (95%CI: 52.6-67.2%) within 24 hours of insertion, was correlated with access for continuous or intermittent intravenous infusions (*OR* 1.8; 95%CI 1.1-2.9 and 1.2; 95% CI 1.1-1.4 respectively) whilst blood-letting after 24-48 hours was the cause of subsequent soiling (*OR* 2.1; 95%CI 1.0-4.5). Only 48.7% had a VIP score documented in the first 24 hours.

Conclusion: A change in practice is needed to maintain a visible exit site, a clean cannula dressing and to VIP scoring, all of which are important in preventing hospital acquired infections in children.

OP4.03

Invasive bloodstream infections in hospitalised children in Malta

Jessica Pace, David Pace

Introduction: Invasive bloodstream infections (BSIs) are an important cause of morbidity and mortality in children. Identification of the causative pathogen from blood cultures is crucial in determining antibiotic susceptibility and rationalising treatment. We aimed to determine the burden of BSIs in hospitalised children.

Methods: Results of all blood cultures taken from children aged 0-16 years hospitalised at Mater Dei Hospital from 2010-2014 were obtained. All isolates were analysed to differentiate pathogens from contaminants. Antibiograms were used to determine the most suitable antibiotic regimes for children admitted with suspected sepsis.

Results: Over the 5 year study period, 57 pathogens were isolated from a total of 3,376 blood cultures (1.7%). The annual incidence of septicaemia in children (mean age: 3.25 years) was 17.4/100,000 children. Infants aged <3months sustained 26.3% (15/57) of the burden of BSIs. The most common pathogens in children >3 months old were *Staphylococcus aureus* (n=12, 21.4%), *Streptococcus pnuemoniae* (n=8, 14.0%) and *Neisseria meningitidis* (n=5, 8.8%). In infants <3 months old *Escherichia coli* (n=6, 10.5%), *Streptococcus agalactiae* (n=3, 5.3%) and *Staphylococcus aureus* (n=3, 5.3%) were the most common invasive bacteria. Cefotaxime/ceftriaxone covered 80% (12/15) and 50% (21/42) of invasive pathogens in infants <3 months old and in older children, respectively.

Conclusion: *Staphylococcus aureus* is the most prevalent invasive pathogen in children >3 months old. Empiric treatment of sepsis with cefotaxime/ceftriaxone would cover the majority of the pathogens, although the antibiotic choice should also be based on the clinical presentation and risk factors of the child.

OP4.04

Paediatric micturating cystourethrograms in Malta

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Introduction: Low-grade vesico-ureteric reflux (VUR) is unlikely to be of clinical significance whereas high -grade VUR may be associated with renal dysplasia/scarring, hypertension and chronic kidney disease. Micturating cysto-urethrograms (MCUGs) are performed to identify VUR in high risk children presenting with febrile urinary tract infections (UTIs) and to exclude posterior urethral valves.

Methods: Paediatric MCUGs performed during 2013 and 2014 were included in this retrospective study. The indication for each MCUG, result and any complication related to the procedure were noted. When the indication was a urinary tract infection, the data collected included any other imaging performed. Local practices of requesting imaging following a first urinary tract infection were compared to international guidelines.

Results: 117 MCUGs were performed. 40 (34%) were requested post-surgical intervention and 77 (66%) were requested following a UTI, 71 (61%) after a first UTI and 6 (5%) following recurrent UTIs. First UTIs were atypical (using NICE guidelines) in 40/57 infants aged < 6 months, 12/13 children between 6 months - 3 years and in the one child > 3 years of age. 2 MCUGs were not completed due to malpositioned catheters. The MCUG was abnormal in 26 of 77 (34%) where the indication was a UTI. High-grade VUR

(grade IV-V) was identified in 11 of 26 (42%). 12/26 had low-grade VUR and 3/26 had an abnormal bladder.

Conclusion: We concluded that more investigations are performed locally than those currently recommended by international guidelines following a first UTI. A national guideline for investigating children following first and recurrent UTIs may help reduce these numbers.

OP4.05

Reversible intestinal failure from a milder phenotype of tufting enteropathy caused by a novel large deletion in the EPCAM gene

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Introduction: Tufting enteropathy (TE) is a rare neonatal inherited condition causing intestinal failure, requiring long-term parenteral nutrition (PN) or small bowel transplantation. Mutations in the EPCAM gene have been implicated in TE. Anecdotal observations suggested a milder TE phenotype in the Maltese islands. We aimed to characterize this milder form of TE and identify responsible mutations within the EPCAM gene.

Methods: The clinical phenotype, nutritional status and histological appearances of TE patients were retrospectively reviewed for the period 1985 – 2012. Immunohistochemical EpCAM staining of small and large bowel mucosal tissue was performed on all patients and matched controls. Following primer design, EPCAM DNA sequencing was performed.

Results: 8 TE patients were diagnosed in the study period and followed up for a median of 18 years. This cohort showed excellent survival rates without small bowel transplantation, paucity of phenotypic malformations and fewer nutritional requirements. 4 patients demonstrated histological spontaneous reversibility and complete mucosal healing. Another 3 showed histological improvement but not complete healing. EpCAM staining was negative in all TE patients and positive in controls. EPCAM sequencing identified a novel large (1773bp) deletion, resulting in complete deletion of exon 5 and loss of EpCAM protein in all patients.

Conclusion: This cohort demonstrates a milder phenotype compared to other TE cohorts, representing a new subgroup of TE patients. Spontaneous reversal of intestinal failure is possible (avoiding unnecessary transplantation) and is independent of EpCAM expression. The novel deletion present in all patients suggests a founder effect and the first genotype-phenotype correlation in isolated intestinal TE patients.

OP4.06

Local survival outcomes in metastatic renal cell carcinoma

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Introduction: A third of patients who develop renal cell carcinoma will have metastatic disease at presentation. The role of cytoreductive surgery in these patients is a topic of debate. The aim of this study was to analyse survival outcomes of these patients with current local treatment, comparing these outcomes in patients who did and did not receive a nephrectomy.

Methods: Data was gathered retrospectively from the Malta Cancer Registry and Mortality Data at the Department of Health Information, records of multidisciplinary team meetings held within the Urology Department at Mater Dei Hospital, hospital imaging and patient records. Data gathered included: patient demographics, date of diagnosis, TNM staging, tumour histology, Fuhrman grade, time to treatment and modality of treatment. Exclusions included: localized disease relapsing after, surgery presence of metastasis at diagnosis not certain concomitant primary tumours.

Results: 77 patients diagnosed between 13.2.2009 and 04.03.2005 were included. The age at presentation ranged from 30 to 88 years, median age of 67 years. 11 were incidental findings and 47 symptomatic. The most prevalent symptoms were abdominal pain and gross haematuria. No data on clinical presentation was available for the remainder. The predominant staging at presentation were T4 (28%) and T3a (23%). Survival outcomes are still being determined at time of writing. Overall survival and cancer specific survival will be determined by a validated prognostic score.

Conclusion: Overall and cancer specific survival in the local population of metastatic renal cell carcinoma will be compared to larger similar series presented in the literature.

OP4.07

Prevalence of pseudoexfoliation at St Vincent de Paule Residence (SVPR)

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Introduction: Pseudoexfoliation syndrome (PEX) is regarded as relatively common in the Maltese population but the prevalence of this condition is not known. This epidemiological study was conducted to assess the prevalence of PEX in Malta's largest geriatric residence and to report the clinical features present.

Methods: Prospective study conducted in the Day Clinic of SVPR having a population of averaging around one thousand. 320 patients were randomly selected covering 4 age groups of 40 patients each (<75, 75-80, 81-85 and >86) both males and females. A detailed examination including Visual Acuity, slit lamp biomicroscopy with and without pupil dilatiation, intraocular pressure and fundal examination was performed. All definite PEX positive patients underwent gonioscopy.

Results: 247 patients were able to be examined. Ages ranged from 51 to 101 years old, with a male to female ratio of 1:1. 16 definite positive cases (6.48%) of PEX were identified of which 11 (4.45%) were bilateral and 5 (2.03%) were unilateral. 8 patients (3.24%) had suspicious signs of PEX. All definite cases but 1 had pseudoexfoliative glaucoma.

Conclusion: A prevalence rate of PEX of 6.48% (or 9.72% including suspicious cases) ranks highly compared to other European populations. To the best of our knowledge this was the first study conducted in a Maltese population to examine the prevalence in any Ophthalmological condition. Furthermore, the high prevalence as well as the proximity of multiple generations of affected families in the Maltese islands allowed us to participate in a multicentre genetic study in which the LOXL1 gene for PEX was localised.

OP4.08

The follow up of benign thyroid nodules: an audit of local practice

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Introduction: Thyroid nodules are common and their follow up is an issue of international discussion. The American Thyroid Association recommends benign nodules to be followed with serial ultrasound examinations every 6 to 18 months. The British Thyroid Association guidelines recommend that nodules with benign cytology and benign ultrasound characteristics do not need repeat imaging or ultrasound guided fine needle aspiration cytology (USFNAC), unless there is strong clinical suspicion of malignancy. The aim of this study is to audit the local practice of follow up of benign thyroid nodules with regard to ultrasound requisition and repeat FNAC.

Methods: A retrospective analysis of patients diagnosed with cytologically benign thyroid nodules in 2010 and 2011 was done. A follow up period of up to 4 years was assessed. Clinical, sonographic and cytological findings were compared.

Results: The total number of USFNAC between 2010 and 2011 was 111. In 2010, a total of 45 thyroid USFNAC performed, 27 of which had benign results. In 2011, a total of 66 thyroid USFNAC were performed, 42 of which had benign cytology. In the 2010 group, a total of 7 benign nodules showed no follow up, 19 underwent repeat ultrasound and 1 had a repeat FNAC that was benign. In the 2011 group, 17 showed no follow up, 22 underwent repeat ultrasound and 2 had a repeat FNAC, 1 of which showed malignant cytology.

Conclusion: Results shows that local follow up of benign nodules is not standardised and differs between clinicians. Further analysis will be done to enable local guidelines suggestion.

OP4.09

Epidemiology of cleft lip and cleft palate in Malta

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Introduction: The aetiology of cleft lip and palate is unknown. Clinically in the Plastic Surgery unit in Malta, operations to correct cleft palate appeared to be more common than cleft lip, contrary to literature. A descriptive epidemiological study was carried out to determine the proportion of patients with cleft lip and/or cleft palate in Malta.

Methods: All cleft patients born between July 1993 and December 2012 were included in the study. Data was collected retrospectively from the Department of Health, medical files and by phone questionnaires. Apart from demographic data, other aspects analyzed included type of cleft deformity, associated congenital anomalies, family history as well as maternal age, smoking, drinking habits and drug history.

Results: 197 patients were listed. 4 patients were excluded from the study as their medical information was inaccessible. Isolated cleft palate (61.65%) was more frequent than cleft lip alone (15.03%) or lip and palate together (23.32%). Male clefts were slightly more common than female clefts (53.37% vs 46.63%). Cleft palate alone was seen more commonly in females (34.20% *vs* 27.46%) whilst males predominated in cleft lip (8.29% *vs* 6.74%) and also in combined cleft lip and palate (17.62% *vs* 5.18%). Left sided clefts were more common than right sided clefts (14.53% *vs* 6.15%).

Conclusion: This is the first study of its kind on cleft deformities in Malta. The rate of isolated cleft palate was found to be much higher than expected when compared to results from other countries where cleft lip, with or without cleft palate, usually predominates.

OP4.10

Is the urinary bladder the perfect pressure vessel?

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Introduction: The bladder is a hollow organ that generates an internal pressure; its volume and flow-rate should therefore be determined by the physics of pressure vessels. The aim of this study was to assess whether the bladder closely follows the rules of pressure vessels.

Methods: Allometry was used to assess how urinary flow-rate, and bladder pressure and volume scale with body size. A literature survey was performed to gather urinary bladder characteristics across several mammalian species. The physics of pressure vessels was investigated.

Results: Theoretically, volume and pressurization energy of pressure vessels sizes with an allometry of 1.0 with mass, whilst pressure is not related to mass. With efficient transfer of stored pressurization energy into output energy, the flow rate should also size with an allometry of 1.0 against mass. Measured allometry for volume versus mass was 0.981, R^2=0.958, p<0.001; flow rate allometry 1.028, R^2 =0.933, p<0.001; pressure allometry 0.057, R^2 =0.174, p=0.304. Ttest showed that there was no statistical difference between theoretical and measured allometry for bladder mass and volume, and urinary flow-rate.

Conclusion: Since both bladder volume and urinary flow-rate sizeup with an allometry of 1.0, this implies that micturition time must be a constant, indicating that this may be an accurate test of prostatic hypertrophy. That the bladder pressurization energy is proportional to urinary flowrate across mammalian species indicates that the bladder is able to empty with constant efficiency. This suggests that the normal bladder behaves as a perfect physiological pressure vessel, as indicated by its rounded shape and three 'filament-wound' muscle layers.

OP4.11

The Emergency General Surgical Unit: the clinical and economic benefits of the centralization of emergency general surgery

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Introduction: General surgical emergency admissions account for a mortality of 40% and a cost of £88 million to NHS. Creation of a centralised specialist emergency general surgery unit at a University Hospital between 2008 and 2009 was designed to improve outcomes.

Methods: A retrospective observational study was conducted of patients who attended EGSU between 2007 and 2012. Primary outcomes measures were overall mortality while secondary analysis was conducted on all emergency laparotomies, with 30 day mortality and long term survival as primary outcome measures. Statistical analysis compared

categorical data by the Chi squared test, and compared long term survival using the Kaplan-Meier method.

Results: Admissions in EGSU ranged between 4500 and 5088 patients per year (2007-2012). Overall mortality of patients fell from 2.3% in 2006 to 1.3% in 2012 (p=0.002). Median length of stay per patient reduced from 4.3 days in 2006 to 3.3 days in 2012, leading to a total of 5088 bed days saved in 2012, with cost saving of £1.1 million in one year. 226 patients underwent an emergency laparotomy in 2007 and 222 in 2008, with a 30 day mortality of 19.5% and 22.5% respectively, and this reduced to 9.6% in 2012 (p=0.04). The overall 2 year survival of patients who had a laparotomy in 2007 was 63%, and this increased to 70% for patients who had a laparotomy in 2012 (p=0.07).

Conclusion: The centralisation of emergency general surgery improved overall mortality, operative mortality and reduced hospital length of stay, with a considerable cost saving to the hospital.

OP4.12

Characteristics of patients being admitted for debridement or amputation procedures

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Introduction: Individuals suffering from diabetes can suffer from abnormal inflammatory pathways, neuropathy and peripheral arterial disease (PAD). Neuropathy leads to foot deformity, loss of sensation in the peripheries and loss of skin integrity. PAD leads to tissue hypoxia which limits capillary capacity. This can lead to foot ulceration, infection and gangrene which often necessitate amputation of part of the lower limbs. The aim of this study was to observe characteristics of patients being admitted for surgery in a local hospital.

Methods: Patient characteristics and medical history were compiled over a 6 month period for a group of patients admitted at Mater Dei Hospital for debridement or amputation procedures. The presence and severity of PAD was assessed from spectral waveform results and Ankle Brachial Pressure Indices.

Results: Fifty patients (33 male, 17 female; age 28-92 years) participated in the study. Six patients were admitted for a debridement procedure and 34 patients had an amputation procedure. Characteristics of this group of patients included: 49 patients suffering from diabetes (35 Type 2, 14 Type 1), 44 patients suffering from neuropathy, 47 patients suffering from PAD (35 severe, 12 mild to moderate). Almost all patients who were suffering from PAD (n=49) were also suffering from diabetes. A positive correlation was observed between the severity of PAD and diabetes (p=0.02).

Conclusion: The presence of diabetes which consequently leads to the development of PAD and increases risk for the requirement of debridement and amputation procedures.

OP4.13

An outbreak of sexually transmitted infections (STIs) in the MSM (men who have sex with men) population in Malta

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Introduction: In Europe, men who have sex with men (MSM) continue to be disproportionately afftected by STIs, including HIV. Several reports on STI outbreaks have been reported in many european cities in the MSM population. The objective of our study is to review the current status of STIs and HIV among MSM in Malta.

Methods: A retrospective analysis of the medical records of all patients attending the local Genitourinary clinic in the first 8 months of 2015 was carried out.

Results: In the study period a total of 2428 visits were performed for 1942 patients, 59.5% (n=1155) of which were male. 27% (n=524) of patients were in the age bracket between 15 and 24 years and 40.7% (n=790) between 25 and 34 years. 18.1% (n=352) of our population is MSM of Maltese origin (71%). Concerning infections in MSM, 24 patients were found to be positive for Chlamydia, 28 for Gonorrhoea, 24 for Syphilis and 29 for HIV.

Conclusion: In the European Centre for Disease prevention and Control surveillance report on STIs issued in 2014, Malta was the only discordant country in reporting the heterosexual population as the predominant population affected by syphilis and gonorrhoea. This year Malta has experienced a reverse in the trend with the MSM population being the most affected. This calls for urgent preventive strategies in MSM population.

OP4.14

Analysis of changes in antiretroviral therapy regimens in the cohort of HIV seropositive patients followed up at the infectious diseases clinic

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Introduction: The aim of this project was to analyze the reasons behind switches in antiretroviral therapy (ART) of HIV seropositive patients attending the Infectious Diseases Clinic.

Methods: Data regarding patients' ART and reasons for changes in treatment between 2000 and June 2015 were obtained from patients' medical notes and pharmaceutical records.

Results: There were 267 patients started on ART. Of these, 8/267 (3%) received short-term ART during pregnancy and were not included in the study. Changes in ART regimen occurred in 53% (n=138) of patients (258 switches). Minor treatment changes occurred due to switching antiretrovirals to co-formulated preparations and boosting of protease inhibitors. Reasons for major switches included updating of regimens, ARTrelated toxicity, ART resistance, drug interactions, co-infection, pregnancy and antiretrovirals started abroad which were not available locally. The mean number of major treatment switches per patient was 1.56. There were 23% of zidovudine-containing regimens which required switching due to zidovudine as opposed to 2.8% of tenofovir-containing regimens where tenofovir was not tolerated. There was no treatment changes related to abacavir. With regard to the NNRTI-based regimens, 23.8% of the efavirenz-based regimens required switching due to efavirenz intolerance versus 26% of nevirapine-based regimens where nevirapine had to be replaced. Lopinavir/ritonavir was responsible for 13.6% of changes of all lopinavir/ritonavir based regimens.

Conclusion: In view of low adverse events related to tenofovir and abacavir, the availability of these drugs locally as first line treatment is desirable. Similarly, availability of an alternative PI with a more favourable side effect profile would benefit patients intolerant to lopinavir/ritonavir.

OP4.15

Assessment of antiretroviral drug resistance mutations in HIV seropositive patients in Malta

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Introduction: The aim of this study was to assess antiretroviral drug resistance mutations in HIV seropositive patients in Malta.

Methods: Resistance tests between 2010 and 2015 were analysed. Data regarding the antiretroviral treatment (ART) regimens and adherence of patients with resistance mutations was extracted from clinical notes and pharmaceutical records.

Results: There were 89 resistance tests requested. A total of 9 patients (10%) had resistance mutations. Of these, 3 were treatment naïve whilst 6 patients were on ART but had virological failure. Of the patients receiving ART, 4 patients had adherence rates of 100% whilst the other two patients had adherence rates of 87% and 42% respectively. Reverse transcriptase (RT) mutations were identified in 8 patients. These included M184V, K65R, K103N, and K219E/Q/R. There were 9 patients who had mutations in the protease (PR) gene. These included M36I, A71T, L90M, M46L and D60E. However, only 2 patient profiles had confirmed resistance to protease inhibitors. Changes in treatment based on resistance results were carried out in 4 patients who were on ART, with all patients going on to achieve virological suppression. Those patients with M184V still had lamivudine incorporated into their regimen due to its favourable effects of decreasing viral fitness. One other patient refused treatment whilst another patient had a repeat resistance test showing no mutations.

Conclusion: ART resistance in the cohort of HIV seropositive patients in Malta compares well with other cohorts. Genotypic resistance testing is useful to guide HIV therapy especially in patients with virological failure.

OP4.16

Adherence to the European association for the study of the liver (EASL) and American association for the study of liver diseases (AASLD) guidelines in the management of hepatitis B

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Department of Medicine

Introduction: AASLD and EASL have developed guidelines to assist physicians in the management of patients with hepatitis B. The aim of this audit is to establish adherence to these guidelines within the Infectious Diseases Department at Mater Dei hospital.

Methods: Patients testing positive for hepatitis B virus (HBV) between January 2007 and December 2014 were randomly selected. Demographic data and details on the management of HBV were obtained through patients' clinical notes and online laboratory results. Local management was then compared to AASLD and EASL guidelines.

Results: Our cohort consisted of 109 patients. HBV treatment was started in 23.9% of patients,of whom 73.1% received Tenofovir, 7.7% received Lamivudine and 19.2% received Lamivudine/Tenofovir combination as part of anti-retroviral treatment in human immunodeficiency virus (HIV)/HBV coinfection. Both EASL and AASLD guidelines were followed in 38.5% of patients. In 7.3% of patients, neither guideline was followed. 10.1% of patients who satisfied criteria for one of the guidelines were not managed accordingly. In the latter two groups, reasons for non-adherence included lack of liver biopsy prior to treatment (68.4%) and failed follow up appearances (10.5%). 26.6% of patients did not fit criteria in any guideline because of different hepatitis B viral load and alanine aminotransferase cutoff levels. Co-infection with HIV/hepatitis C was present in 0.9% of patients for which no information is available in the guidelines.

Conclusion: There is low adherence to EASL or AASLD guidelines in the management of hepatitis B, mainly because liver biopsies were not done when recommended prior to starting treatment. Also,there were a significant proportion of patients who did not fit the criteria of either EASL or AASLD guidelines.

OP4.17

Prioritizing the need for treatment of chronic hepatitis C patients in a methadone dispensing clinic in Malta.

Moses Camilleri

Agenzija Sedqa

Introduction: The advent of direct acting antiviral drugs has rendered the treatment of chronic hepatitis C more effective. This has led to hopes that hepatitis C infection could eventually be eradicated. Patient stigmatization and high treatment costs are some of the challenges that need be overcome if most patients are to benefit from the new treatment. The aim of this study is to suggest a simple, inexpensive and noninvasive tool which could help prioritize chronic hepatitis C patients when deciding who should be administered treatment for this condition.

Methods: Out of 187 patients testing positive for hepatitis C antibodies, the three parameters required to calculate the Fibrosis4 score were available for 127. A higher Fibrosis4 score has been associated with an increased level of liver fibrosis.

Results: 15 patients out of 127 (11.8 %) scored 3.25 or more on the Fibrosis4 tool. Various studies show this score to be associated with the presence of significant liver fibrosis.

Conclusion: In view of the high cost of the recently introduced treatment for chronic hepatitis C, it is being proposed that the Fibrosis4 score could be used to prioritize patients who are in more urgent need of commencing treatment for this condition or who require additional histological evaluation. Though liver biopsy and histology remain the gold standard when evaluating the state of liver fibrosis, Fibrosis4 is a noninvasive, simple to use and widely available tool that has been shown to correlate well especially with higher histological liver fibrosis stages.

OP4.18

Does continuous positive airway pressure influence respiratory infections in patients suffering from obstructive sleep apnoea?

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Introduction: Continuous positive airway pressure (CPAP) is the standard treatment for obstructive sleep apnoea (OSA), with limited data about the prevalence of respiratory infections and microbial colonization in these patients.The aim of this study is to determine if CPAP use is associated with respiratory infections and to identify the organisms that colonize or infect these patients.

Methods: A prospective, case-controlled study in patients diagnosed with OSA was carried out. 137 patients were recruited, interviewed using a questionnaire and a nasal swab was taken from each patient. Patients using CPAP machines had swabs taken from masks and humidifiers.

Results: 66 (48.2%) patients received CPAP treatment with 60.6% of them having a heated humidifier. 78.8% were male, with the majority using a full face mask (63.6%). No significant difference was seen in the prevalence of rhinosinusitis, lower respiratory tract infections and hospital admissions between CPAP and non-CPAP treated patients. The presence of a humidifier did not influence the prevalence of infections. Commensal flora was predominantly cultured from nasal swabs from both patient groups. Coagulase Negative *Staphylococci* and Diphtheroids were the main organisms cultured from masks (23.4%) and humidifiers respectively.

Conclusion: This study shows that the use of CPAP, choice of mask and humidifier have no significant impact on the prevalence of infections and microorganisms isolated. These results contrast with previous data suggesting that more research is needed to identify potential associations between respiratory infections, microbial colonization and CPAP use.

OP4.19

Trends in meticillin-resistant *Staphylococcus aureus* (MRSA) bacteraemia, at Mater Dei Hospital, Malta; the importance of root cause analysis to drive improvement strategies

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Introduction: Root cause analysis (RCA) of serious infections, aims to establish the clinical relevance, probable source and especially identify any system issues that could have been responsible for the event and attempt to improve them to avoid recurrences. Since 2011, the Infection Control Dept of Mater Dei Hospital (MDH) has organised an RCA for every case of hospital-acquired meticillin-resistant *Staphylococcus aureus* (MRSA) bacteraemia.

Methods: We analysed trends in hospitalacquired MRSA bacteraemia at MDH between 2011-2014, as well as the conclusions of RCA meetings held to investigate these incidents.

Results: The overall number of MRSA bacteraemias in 2011 was 36; more than 80% were identified as originating from suboptimal peripheral or central intravenous line care. This finding led to the implementation of numerous initiatives aimed at improving line management, especially care bundles. A steady reduction in cases followed, with no line-related MRSA bacteraemias identified in 2014. As a result, the predominant predisposing factors in later years became mainly surgical site infections (34%) and urinary tract infections (22%). To further reduce these events, MRSA admission screening and decolonisation was introduced in early 2014. By the end of that year, MRSA bacteraemia cases had fallen to 9 cases – a 75% reduction in 4 years.

Conclusion: RCAs offer an invaluable tool for improvement strategies related to patient safety and are a cornerstone of modern infection prevention and control efforts in hospitals. Through a multidisciplinary approach, they provide an insight into the factors causing serious infections and allow corrective action to be taken to achieve effective system change.

OP4.20

Acute ischemic injury of astrocytes

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Introduction: Controversy reins as to whether astrocytes are damaged during the acute phase of brain ischaemia, or whether they are highly resistant to such injury. There is also a complete absence of data describing regional differences in astrocyte ischaemia-sensitivity, which is likely to influence the progress of focal ischemic injuries such as stroke.

Methods: Using multiphoton confocal microscopy in conjunction with expression of genetically controlled fluorescent cell markers, we have examined the changes in cell morphology and viability during relatively short (80100 min) periods of either global or focal ischaemia in vivo. A similar approach using rapid cell imaging was applied to brain slices, allowing the investigation of cellular factors controlling cell injury.

Results: For the first time we describe how astrocytes on the outer border of cortical layer 1 experience a very rapid form of vacuolization and cell swelling, coupled to loss of processes and cell death. Astrocytes deeper in layer 1 have a more typical protoplasmic or perivascular morphology and show a slower loss of processes and less marked cell death. In vivo acute cell death was detected via imaging of nuclear condensation; while in brain slices loss of cell fluorescence was apparent (since intracellular fluorophore can escape rapidly into the bath). Astrocytes in white matter structures such as the corpus callosum showed a lower sensitivity to injury.

Conclusion: Astrocyte injury is highly regional and dependent upon cell type; this previously unexplored fact will have large consequences for our understanding of how a stroke injury progresses.

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OP4.21

Pathogenesis of psychiatric disorders: role of redox dysregulation

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Introduction: Redox dysregulation has been shown to play a key role in the pathogenesis of psychiatric disorders. The NADPH oxidase NOX enzymes are emerging as new sources of reactive oxygen species production. In a well established rodent model of psychosis, the rat social isolation rearing, we previously demonstrated an early increase of NOX2-derived oxidative stress in specific brain regions. However, the leading cause of this NOX2 increase remained still unclear.

Methods: To identify early neuropathological alterations occurring in the brain before NOX2 elevations, we exposed rats to a short period of social isolation (one week); then, we performed immunohistochemical and biomolecular analysis. A translational approach towards human psychiatric pathology was also used, investigating if NOX2 expression was increased in postmortem brain samples of suicidal patients, with a clinical psychiatric anamnesis.

Results: One week of social isolation led to an altered expression of specific genes involved in blood brain barrier (BBB) integrity and permeability, suggesting that early BBB disruption preceded NOX2 elevations in the brain and might be its leading cause. Importantly, NOX2 expression, together with indirect markers of oxidative stress, were significantly

increased in the cortical GABAergic and glutamatergic neurons of suicidal subjects as well as in glial cells, more likely via interleukin6 mediated neuroinflammation.

Conclusion: These results will improve our understanding of the redox pathophysiology of the psychiatric disorders, entailing important medical impacts. Thus, identification of biomarkers of redox dysregulation might provide innovative diagnostic tools and will open new insights in the treatment concepts for mental diseases.

OP4.22

Detection and analysis of real-time behavioural sequences of social interaction in rats

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Introduction: The social interaction test is a well known tool to study anxiety in rodents. Notwithstanding, despite the high number of studies, scanty data are available on the temporal structure of the behaviour of two interacting rodents.

Methods: T pattern analysis (TPA) was applied to study the behaviour of adult male Wistar rats, divided into pairs and observed in openfield for 15 min. TPA is a multivariate technique able to determine whether behavioral events do occur sequentially and with significant constraints on the interval lengths separating them. Behavioural activities, recorded by means of a videocamera, have been described in an ethogram and classified into intra- and inter-subjects.

Results: Percent distribution showed that intra-subject behavioural elements represented the 62.37% and the inter-subject ones the 37.63%; mean durations revealed a longer time spent in intra-subject activities. TPA revealed 221 different patterns divided in four categories: (a) containing only inter-subject elements; (b) containing both inter and intra-subject elements; (c) containing rat 1 and rat 2 intra-subject elements and, finally, (d) containing intra-subject elements carried out by one of the two rats.

Conclusion: Results demonstrate that rat social behaviour is structured on the basis of complex recurring sequences of behavioural elements. Notably, taking into consideration the third category, that is, patterns containing elements performed by the two animals not in physical proximity, it is suggested that some kind of interaction does exist also when the two subjects are involved in activities not seemingly belonging to interactive behavior.

OP4.23

In vivo imaging and monitoring astrocytes in health and disease

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Introduction: Proper brain function is maintained by an integrated system called the neurovascular unit. Astrocytes are the predominant glial-cell type of this unit but little is known about their functional impact during ischaemia. During the last decades, the development of genetic tools and imaging techniques achieving high spatial and temporal resolution have opened up new avenues for the study of astrocytes in vivo.

Methods: We describe the use of a novel technique employing a tightly focused laser illumination to optically excite a circulating photosensitizer molecule, allowing precise formation of clot formation at the level of individual arteries and capillary beds in real time. Two photon laser scanning fluorescence microscopy permitted the observation of changes in blood flow, blood redistrubution after clot formation, platelet aggregation and the loss of integrity of neighboring astrocytes through a cranial window in GFP-GFAP-expressing mice.

Results: This longitudinal imaging approach provides semiquantitative information on the kinetics of erythrocytes and leukocytes to better understand microcirculation alteration and to follow sequential astrocyte injury *in vivo*.

Conclusion: Contrary to what has been published so far regarding the resilience of astrocytes to ischaemic injury, we demonstrate here that the time-dependent damage of astrocytes differs between different brain regions, and that different subclasses of astrocytes also exist within the same brain region exhibiting differential vulnerabilities to injury. Since neuronal death is seen as a consequence of the failure of astrocytes to support the metabolic demand of neurons, efforts designed to protect the integrity of astrocytes may constitute an alternative strategy for neuroprotection.

OP4.24

Modelling spinal muscular atrophy in Drosophila: a fruitful approach?

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Introduction: Spinal Muscular Atrophy (SMA) is an untreatable neuromuscular disorder resulting from limiting levels of the Survival Motor Neuron (SMN) protein. SMN interacts with Gemins 28 and Unrip to form a macromolecular complex whose best-characterised function concerns the assembly of spliceosomal Smclass small nuclear ribonucleoproteins (snRNPs). Each SMNGemins complex member is thought to have a key role during this process. It is however unclear how defects in snRNP assembly lead to the selective neuromuscular degeneration that is typical in SMA.

Conclusion: We propose that a disruption in the normal stoichiometry of the SMNGemins complex depresses its function, with consequences that lead to SMA. We are present elucidating which function of the SMNGemins complex is crucial for guarding against neuromuscular defects.

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OP4.25

Implication of inwardly-rectifying K channels in the pathogenesis of autism

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Introduction: Autism spectrum disorder (ASD) is a group of heterogeneous neurodevelopmental disorders that severely impairs the CNS and affects >70 million people. ASD is characterized by dysfunctions in multiple CNS areas resulting in deficits in social, language and behavior core domains. Several co-morbidities are frequently reported, including epilepsy, cognitive impairment and motor delay, as well as GI dysfunctions. Although no specific epigenetic factors have been linked conclusively to ASD, genetic mutations to more than 100 loci are recognized as possible causes. A mounting body of evidence associating a "channelopathy" pathogenesis to autism has been provided by our team in the recent past.

Methods: A multidisciplinary approach involving clinical investigations, genetic screenings, biochemistry, immunofluorescence imaging, crystal structure analysis and electrophysiology was used to perform the study.

Results: Here we report on monozygotic twins displaying an autism/epilepsy phenotype. Genetic screening identified a novel KCNJ2 variant in Kir2.1 that enhanced the channel's surface expression and stability at the plasma-membrane and reduced protein ubiquitylation and degradation, altered protein compartmentalization in lipid rafts, by targeting more channels to cholesterol-poor domains and reduced interactions with caveolin 2.

Conclusion: Our study reveals novel mechanisms concerning wildtype Kir2.1 channel processing by the cell, binding to both caveolin 1 and 2, protein degradation through the ubiquitin–proteasome pathway, and a potential multifunctional site that controls Kir2.1 surface expression, protein half-life and partitioning to lipid rafts. Genetically-induced Kir2.1 channel impairments emerge as crucial for proper astrocyte function, and may contribute to the pathogenesis of seizures and neurodevelopmental disorders.

OP4.26

Specific or synergistic effects of deep brain stimulation of subthalamic nucleus and L-dopa on TMS-evoked cortical reactivity in Parkinson's disease patients

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Introduction: Deep brain stimulation (DBS) of the subthalamic nucleus (STN) represents an effective therapy in Parkinson's disease. The recent anticipation of the clinical indication to neurosurgery and evidence on the DBS-mediated impact on cortical plasticity raised once more the need to clarify its underlying mechanisms of action.

Methods: Here we have analyzed the cortical reactivity by combining transcranial magnetic stimulation (TMS) and EEG, and examined the effects of STNDBS on discharge evoked by TMS of the primary motor cortex (M1). Six advanced PD patients treated with routine bilateral STNDBS were investigated in three settings: i) double OFF; ii) OFF-therapy/ONDBS; iii) double ON (ONtherapy/ONDBS). In each condition, 80 single TMS pulses are delivered over left M1 while simultaneously acquiring EEG.

Results: When turning STNDBS ON (OFFtherapy/ON-DBS and ONtherapy/ONDBS) a significant increase of the global mean field power (GMFP) peaking at 60-70 ms (P2) occurred (significant versus OFFtherapy/OFFDBS condition). Further, only ONtherapy/ONDBS condition promoted a synergistic increase of GMFP peaking at 100ms (P3). Time/frequency analysis showed a synchronization of activity in the 1017 Hz range over central-posterior region within the P2 time window; in the P3 time window a synchronization of activity in the 1116 Hz frequency range over central regions emerged when comparing OFFtherapy/ONS to ONtherapy/ON DBS.

Conclusion: Our data reveal that bilateral STNDBS induces a significant modulation of cortical global reactivity at early components. The association of LD therapy produces distinct modulation of later components. These findings could be related to cortical-induced modulation of GABAergic intracortical activity or more complex modulation of premotor plasticity.

OP4.27

Pre-operative intravenous fluid hydration in elective total knee and total hip replacement patients and the effects on peri-operative complications

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Introduction: Total knee and hip replacements are common procedures which may have certain complications such as acute kidney injury, haemoglobin drop requiring transfusion, myocardial infarction and thromboebolic events.

Methods: Patients undergoing elective joint replacement surgery were divided into two cohorts in which one cohort received pre-operative intravenous fluids from midnight on the day of surgery and one cohort did not. The post-operative course of the two cohorts was monitored using patient files, discharge letters and blood test results. Comparisons were made between pre- and post-operative haemoglobin and creatinine levels in both cohorts. Other complications arising were also monitored.

Results: Results showed that 27.3% of all patients in cohort one had a significant creatinine rise which eventually resolved post-operatively, as opposed to 7.5% in the second cohort (p=0.038). Also a total of 12.2% of patients required transfusion post-operatively in cohort one, as opposed to 2.5% in cohort 2 (p=0.118). Other parameters monitored included thromboembolic complications, postoperative urinary retention, length of stay and mortality. The results obtained were compared and statistical testing ensued.

Conclusion: Conclusions were that preoperative intravenous fluid replacement has no significant effect on postoperative morbidity and mortality

OP4.28

Hip fracture mortality among osteoporotic patients

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Introduction: Osteoporotic hip fractures are common occurrence among the elderly population, with an associated increase in mortality risk. The aim is assess the hip fracture mortality rate among the 60+ year osteoporotic Maltese

population and identify any related determinant factors.

Methods: An observational retrospective study was performed analyzing all emergency osteoporotic hip fractures requiring surgery, presenting to Mater Dei Hospital in 2011. Osteoporotic fracture was defined as hip fracture occurring following a low energy trauma accident in patients over 60 years of age. 'Electronic case summary' software was used to analyse the length of hospital stay while survival rates were obtained from the Malta National Mortality Registry, Directorate for Health Information and Research.

Results: In 2011 there was a total of 281 osteoporotic hip fractures. The mortality rate within 90 days of surgery was 12.81% (n=36), the majority of whom were post inter-trochanteric fracture. The mortality rate increased to 25.3% (n=71) 1 year following the surgery. The rate further increased to 46.62% (n=131) after 3 years with female preponderance. The inter-trochanteric hip fracture was the commonest type of fracture encountered in our study population (n=83). There was no significant difference between genders regarding length of hospital stay (p=0.149) and mortality. The opposite was true when different fracture types and gender were considered (p=0.0001).

Conclusion: The highest mortality rate is within 90 days post-operation especially in females sustaining an inter-trochanteric hip fracture. Special care should be given to this sub population to try to reduce compounding factors that may increase the mortality rate.

OP4.29

Comparison of the total care pathway for neck of femur fractures between Mater Dei Hospital, Malta and Barnet Hospital, London UK

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Introduction: Neck of femur (NOF) fractures in the elderly is a worldwide phenomenon which is increasing as is the ageing population. They occur frequently in elderly patients. The aim was to compare the care package offered to patients suffering osteoporotic NOF fractures at Mater Dei Hospital in Malta against Barnet Hospital in London, UK. Mater Dei Hospital has a catchment area of 400,000 people whereas Barnet Hospital is a district general hospital serving around 800,000 people.

Methods: Mater Dei Hospital data was collected from clinical notes. Data from Barnet Hospital was collected from the NOF register. Inclusion criteria were patients over 60 years of age suffering an osteoporotic NOF. Exclusion criteria were high energy trauma or medical co-morbidities exacerbating weak bone architecture. Data was collected starting on 4th April 2011 to the 31st December 2011.

Results: In Malta,196 patients (80% females) with mean age of 81 years and mean length of stay (LOS) 11.4 days were, examined. Out of which 4 were already on osteoporotic treatment, none were prescribed upon discharge. 8 patients died within the first 2 weeks post-op. Barnet cohort was of 205 (77% females), mean age of 83.4 years and mean LOS of 18.3 days. 42 were already on osteoporotic treatment, while 162 patients were started upon discharge. 18 patients died within the first 2 weeks post-op.

Conclusion: The overall care pathway for both hospitals provides a similar outcome for a similar population sample. There was no statistical significant difference regarding mortality rate or LOS in hospital following a NOF fracture.

OP4.30

Delirium and its management in hip fracture patients

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Introduction: Delirium is described as an acute deterioration in mental function. It is prevalent in elderly patients with defined risk factors especially after surgery and is often underinvestigated and misdiagnosed. The Scottish delirium guidelines developed by the Scottish Delirium Association were used as a standard in this audit.

Methods: A hip fracture integrated care plan has been developed and is now in use in orthopaedic wards in order to facilitate better assessment and management of such patients. A 10 point abbreviated mental state examination (AMT10) section has been included in the booklet to assess the cognitive state of patients on admission. Patients sustaining a hip fracture from July 2015 were enrolled into the study and their medical notes reviewed. Data collected included: age, gender, AMT 10 record, history of changes in cognition, risk factors, documentation of causes, management, improvement, geriatric reviews and documentation in discharge letters.

Results: This is an ongoing audit and full results will be available in due course. Yet preliminary results indicate that the AMT 10 is often not done, and risk factors, premorbid state and cause of the delirium are not clearly documented. Review by geriatricians and reassessment are generally carried out, acute medical issues dealt with and improvement documented. However, episodes of delirium are often not documented in discharge letters.

Conclusion: Delirium may be distressing for both patients and relatives. Increased awareness by the orthopaedic surgeons and nursing staff is required so that it may be promptly diagnosed when it happens, as timely recognition may lead to rapid resolution.

OP4.31

Mortality following hip fracture in Malta

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Introduction: Hip fractures are an important cause of mortality especially in the elderly. The aim of the study was to analyse trends in mortality in patients admitted with hip fracture over 10 years in Malta, in view of changes in demography and improving healthcare.

Methods: Patients 60 years and over, admitted to St. Lukes Hospital/Mater Dei Hospital with their first fracture from 2004 to 2013 (n=3445) were followed up for 1 year following admission through linkage between the Hospital Activity Analysis Database and the National Mortality Register. Trends in number of admissions as well as 30 day, 6 months and 1 year mortality were analysed using Poisson regression.

Results: Mean age at presentation was 80 years in males and 81 years in females, with 2.5 female admissions for every male admission. There was an overall increase in admissions over 10 years. 30 day, 6 month and 1 year average mortality over the whole period in males and females respectively was 10.0%, 5.3%; 27.4%, 15.3%; 36.5%, 20.6%. There was no significant change in mortality in males over 10 years, while in females there was a significant downward trend in 30 day, 6 months and 1 year mortality over the time period under study (p values: 0.001; 0.007; 0.002).

Conclusion: Though fewer males sustain hip fractures compared to females, mortality is higher in males and this has

also been observed in other international studies. Temporal trends show a fall in mortality in females but not in males and this needs further evaluation.

OP4.32

Biochemical predictors of low bone mineral density and fracture susceptibility in Maltese postmenopausal women

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Introduction: Osteoporosis and fractures are complex skeletal conditions resulting from an interplay of genetic and environmental factors. The aim of the study was to investigate the association of biochemical levels of total serum calcium, total serum alkaline phosphatase (sALP) and serum albumin with bone mineral density (BMD) levels at the lumbar spine (LS) and femoral neck (FN), and with fracture risk in Maltese postmenopausal women. Levels were also correlated with age, years since menopause (YSM) and physical activity.

Methods: A case-control study of 1045 women was performed. Women who suffered a fracture were classified as cases whereas women without a fracture history were included as controls subdivided into normal, osteopenic or osteoporotic according to their BMD measurements. Blood specimens were collected following good standard practice and testing was performed by spectrophotometry.

Results: Calcium, and to a lower extent sALP, were correlated with FN BMD levels. Fracture cases, especially those who sustained a hip fracture, had the lowest levels of calcium, sALP and albumin relative to all other control groups. Biochemical levels decreased with increasing age, possibly increasing fracture risk. YSM was correlated with lower calcium levels in fracture cases (rho: 0.229, $p<0.01$). Biochemical levels significantly decreased with reduced physical activity in fracture cases. Moreover, reduced physical activity was associated with decreased BMD levels at the hip and spine.

Conclusion: Results suggest that levels of calcium, sALP and albumin could be indicative of fracture risk, whereas calcium levels and to lower extent sALP are indicators of hip BMD.

OP4.33

Aspirin impairs the carnitine shuttle pathway in redox-compromised yeast cells: implications for cancer chemoprevention and Reye's syndrome

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Introduction: Acetylcoenzyme A (acetyl-CoA) plays an important role in cellular metabolism. It is an essential substrate for energy production in the tricarboxylic acid (TCA) cycle. In yeast cells grown on ethanol as the carbon source, acetyl-CoA is generated in the peroxisomes and cytosol, and then transported into mitochondria by the carnitine shuttle pathway. We use yeast as a eukaryotic model since it offers large experimental advantages in conditions controlled by multiple genes.

Methods: The yeast strains used in this study are the wildtype Saccharomyces cerevisiae EG103 and the manganese superoxide dismutase (MnSOD)-deficient yeast strain EG110. Yeast cells were grown in rich ethanol medium (YPE) in the presence and absence of aspirin. Microarray analysis of gene expression profiles was validated by qPCR, in conjunction with preliminary enzyme activity studies.

Results: We observed that in MnSOD-deficient EG110 cells, aspirin exerts a significant inhibitory effect on acetylCoA synthetase. Moreover, aspirin downregulates components of the carnitine shuttle involved in the transport of acetylCoA to the mitochondria.

Conclusion: We conclude that this inhibitory effect of aspirin on the redox-compromised MnSOD-deficient yeast cells leads to energy failure and contributes to aspirin-induced apoptosis. Because several core cellular processes, such as apoptosis, are conserved among yeast and mammalian cells, these observations may contribute to our understanding of the mechanistic behaviour of aspirin in mammalian cancer cells which experience constantly higher levels of oxidative stress with respect to normal cells. These studies may also contribute towards understanding the involvement of aspirin in the molecular pathology of Reye's syndrome.

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OP4.34

Probing the structure and tumour-suppressor properties of manganese superoxide dismutase

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Introduction: Manganese superoxide dismutase (MnSOD) is an antioxidant and tumour suppressor protein located in the mitochondrial matrix, where it protects against oxidative stress generated during cellular respiration. The dismutation reaction converts superoxide into hydrogen peroxide and molecular oxygen. Since both superoxide and hydrogen peroxide function as signalling molecules, superoxide removal and hydrogen peroxide generation by MnSOD may result in being as crucial as the antioxidant protection provided by MnSOD. *Caenorhabditis elegans* MnSOD3 is of particular interest, as it has been identified as a component of the insulin regulated longevity pathway. Its catalytic mechanism is therefore, significant to the study of carcinogenesis and ageing.

Methods: The structures of *C. elegans* MnSOD as well as the MnSODazide complex have been determined by Xray crystallography, and the effect of the hydrogen peroxide reaction product on proliferation of chronic myelogenous leukaemia K562 cells was studied in the form of a biological assay.

Results: Azide acts as a superoxide substrate analogue and MnSOD inhibitor. The structure of MnSOD complexed with azide is the first that shows how the substrate is positioned in a tetrameric eukaryotic MnSOD. Azide binds endon to the manganese centre as a sixth ligand, demonstrating the arrangement of an extended hydrogen-bonded network necessary for the formation of a proton relay including His30, Tyr34, Gln142 and the manganese-bound solvent ligand.

MnSOD3 also reduced proliferation of K562 cells in a dose dependent manner by inducing apoptosis.

Conclusion: This study indicates how the well-ordered solvent molecule arrangement forming part of the hydrogen-bonded network in MnSOD, allows fast protonation during catalysis.

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OP4.35

The interferon regulatory factor 5RelA interaction targets inflammatory genes in macrophages

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Introduction: Spatially and temporally controlled expression of inflammatory cytokines is critical in eliciting an appropriate immune response. In this context, the role of Interferon Regulatory Factor 5 (IRF5) is essential in establishing inflammatory phenotypes. IRF5 is also a genetic risk factor for many autoimmune diseases. The molecular basis of its transcriptional activity will be outlined in this presentation.

Methods: The transcriptional complex between Nuclear Factor kappa B (NFκb) and IRF5 was investigated by co-immunoprecipitations and chromatin immmunoprecipitation (ChIP) procedure followed by qPCR. This model was further investigated on a genomewide level using ChIP-seq, protein: DNA microarrays and RNAseq in macrophages stimulated with bacterial lipopolysaccharide. OneStrep truncation mutants of IRF5 and NFκb member RelA were used to map the interacting domains.

Results: We discovered that IRF5 binds to regulatory elements of the *tnf* gene locus and other highly transcribed proinflammatory genes. Analysis of protein: DNA microarrays demonstrates that IRF5 recognizes the canonical IRF-binding motif (ISRE) in vitro. However, IRF5 binding in vivo appears to rely on its interactions with other proteins. IRF5 binds to a noncanonical composite PU.1:ISRE motif, and its recruitment is aided by NFκb subunit RelA. Global gene expression analysis in macrophages deficient in IRF5 and RelA highlights the direct role of the RelA:IRF5 cistrome in regulation of a subset of key inflammatory genes.

Conclusion: The ultimate goal in inflammatory diseases would be to target transcription of a specific subset of proinflammatory genes. Inhibiting IRF5 activity may pave the way for the development of more selective drugs targeting the basic mechanisms underlying the inflammatory response.

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OP4.36

Amiloride induces alternative splicing of the PP2Acα mRNA in haematopoietic cell lines

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Introduction: Targeting BCRABL1 by imatinib has proven successful for the treatment of Chronic Myeloid Leukemia (CML) patients. Nonetheless, a cumulative 5year failure rate of 17% still exists due to therapeutic resistance. Increased expression of BCRABL1 inhibits PP2A activity, promoting survival and proliferation. Previous studies established that an isoform of the catalytic subunit α of PP2A (PP2Acα) is predominant in 15% of CML. This study investigates alternate splicing of PP2Acα as a novel potential mechanism of therapeutic resistance in CML.

Methods: Several leukaemic cell lines were treated with amiloride, imatinib, rapamycin or FTY720. The differential expression of selected splicing factors was analysed by qRT-PCR. The expression profile of the resulting cellular model was correlated with the splicing factor profile of 14 CML patient samples using the unpaired ttest.

Results: A cellular model was established using TOM-1 cells (BCRABL1+ Bcell precursor leukaemia cell line) treated with amiloride to predominantly express PP2Acα2. Conversely, untreated cell lines, cell lines treated with imatinib, rapamycin and FTY720, and BCRABL1 negative CML samples did not express the PP2Acα2 isoform. 8 out of 15 (53%) splicing factors were differentially expressed in the BCRABL1+ cells, with a pvalue lower than 0.05. All 15 splicing factors analysed were upregulated in the PP2Acα2 mutant isoform CML patient samples.

Conclusion: A cellular model with predominant expression of PP2Acα2 was established. This isoform switch was solely induced by amiloride and correlated with differential splicing factor expression. These results suggest a novel mechanism for BCRABL1 targeted therapy resistance mediated by differential expression of splicing factors.

Disclosure: Funds were made available through the University of Malta.

OP4.37

The effect of endoluminal treatment with cfos oligonucleotide antisense on the expression of cfos mRNA in human saphenous vein

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Introduction: Saphenous vein graft (SVG) disease and its consequent early and late occlusion are well-described problems in CABG patients. Early SVG occlusion results mainly from graft thrombosis while the commoner late occlusion is caused by intimal hyperplasia and atherosclerosis. The changes that occur in the SVG when subjected to the increased blood flow, pulsatile in nature and at a higher pressure include intimal processes, medial vascular smooth muscle cell (VSMC) alterations and adventitial modifications. The early response genes cfos, cjun and cmyc are crucial for these vascular alterations.

Methods: Cultured human saphenous vein (HSV) was studied for the presence of cfos, cjun and cmyc mRNA using Northern Blot analysis. Antisense oligonucleotide to cfos was administered and its effect on cfos mRNA in HSV was

studied. Cell proliferation was determined using 3Hthymidine incorporation and the presence of proliferating cell nuclear antigen (PCNA). Tissue viability was established by measuring adenosine nucleotides using HPLC.

Results: Increased expression of cfos, cjun and cmyc was shown in surgically prepared saphenous vein. Intraluminal treatment with cfos antisense at different concentrations reduced the expression of this gene. Increased cell proliferation was noted in surgically prepared vein. The ATP/ADP ratios remained high during the culture period indicating tissue viability throughout the experiment.

Conclusion: The presence of increased expression of cfos, cjun and cmyc in the surgically prepared vein may be involved in increased cell proliferation and the treatment with cfos antisense reduces cfos expression and may have an impact in SVG disease

OP4.38

Serum amyloid A in chronic obstructive pulmonary disease

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Introduction: Serum Amyloid A types 1 and 2 (SAA1, SAA2) are acute phase proteins elevated in inflammatory conditions. They are biomarkers of disease activity and participants in pathogenesis. Production is primarily hepatic, while pulmonary expression has also been reported in COPD. This project aimed to (i) study the cytokine-induced SAA transcriptional regulation in human airway related cells (ii) investigate temporal changes in serum SAA levels in stable COPD patients undergoing a 12-week pulmonary rehabilitation (PR) programme.

Methods: A pGL4.10SAA2 luciferase reporter construct, was transfected into HepG2 hepatocytes, A549 pulmonary epithelial cells and U937 monocytic cells. Following 24h the cells were stimulated with different concentrations of Il-1β, IL6, LIF and IL8. Six and 24h postincubation, promoter activity was quantified using dual luciferase reporter assays. Stable COPD patients were recruited from Mater Dei Hospital outpatients clinic, as part of a separate project, and serum SAA concentrations were analysed using ELISA.

Results: IL1β showed the highest SAA2 transcriptional regulatory activity in U937 (27.8 fold) and HepG2 (10.1 fold) cells. IL8 induced 5.7 fold activity in U937 cells, and 2.8 fold in A549. LIF was only active in A549 cells (3.0 fold). The mean SAA was 52.4±7.4µg/ml (SEM) at baseline, 76.6±11.3µg/ml after 8 weeks (difference from baseline; $p<0.05$), and 56.0±9.5µg/ml at week 12.

Conclusion: Inflammatory microenvironments can induce SAA2 transcription in airwayrelated cells, with the promoter being most active in IL1β-stimulated monocytes. PRP-related changes in serum SAA were observed in COPD patients, and further studies are required to better understand the mechanisms underlying this observation.

OP4.39

Dichloroacetate induces morphofunctional alterations and selective degradation of mitochondria in cells from oral squamous cell carcinomas

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Introduction: As known, oral squamous cell carcinomas (OSCC) are aggressive and drugs-resistant human tumours displaying a high rate of aerobic glycolysis, known as "Warburg effect". By fostering mitochondrial oxidation of pyruvate, dichloroacetate (DCA) is able to restore a normal bioenergetic profile and to induce cytotoxicity in OSCC-derived cells characterized by a glycolysis-reliant metabolism, as demonstrated in our previous study. This effect was paralleled by remodeling of the mitochondrial network, never documented before, resulting into organelle fragmentation. The aim of our study was to assess the ability of DCA to interfere with processes that regulate the number and the shape of mitochondria.

Methods: The expression patterns of "mitochondria-shaping" proteins and proteins involved in autophagy were evaluated, by Western blotting, in cells treated with 4 and 10 mM DCA.

Results: DCA treatment of cell lines characterized by a glycolytic phenotype was associated to the overexpression of the profission protein Drp1, most probably connected to mitochondrial fragmentation. Interestingly, DCA treatment also induced a dose-response increase in LC3II protein levels associated with reduced levels of mitochondria-related proteins as TOM 20, indicative of mitophagy. Most probably, this process becomes so massive and persistent to trigger cell death.

Conclusion: By the induction of remodeling of the mitochondrial network, DCA is able to trigger organelle fragmentation and degradation most probably involved in its cytotoxic effects. The analysis of mitochondrial morpho-functional alterations could contribute to the identification of the downstream targets of metabolic drugs like DCA and to their potential manipulation for therapeutic purposes.

OP5.01

Assessing clinical quality in Maternity care

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Clinical audit is a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change. Audits are central to preventing failings in healthcare, such as those recently identified by the Francis Report and the Keogh Review into mortality rates. They promote compliance with national guidelines and therefore best outcomes for patients. They also help identify system failures and improvement areas, which lead to better use of resources and financial savings for NHS services. The publication of audit data improves patients' access to information on NHS services and better choice. The data also aids accountability, hospital inspections and other accreditation visits.

The Each Baby Counts Project is a project run by the RCOG, part-funded by the Department of Health. The aim of the project is to reduce the number of stillbirths, neonatal deaths and severe HIEs occurring as a result of incidents occurring during term labour by 50% by 2020.

The project will undertake ongoing national surveillance of these adverse events and all UK units will be expected to

participate. The conclusions of local governance and risk management reviews will be pooled and evaluated in order to develop an audit-informed rolling action plan suitable for local implementation.

This presentation will focus on Quality improvement projects currently being undertaken by the Clinical Quality team at the RCOG.

OP5.02

A retrospective observational study of the causes and treatment of recurrent early pregnancy loss

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Introduction: This is a retrospective observational analysis of 232 patients who attended the clinic over the past 5 years. The conditions associated with recurrent pregnancy loss and the effect the treatment protocols employed were studied.

Methods: A standard detailed obstetric, gynaecological and medical history was taken in every case. A standard investigation protocol was then applied to all patients. Depending on the results each couple was advised a treatment protocol. Data of the outcome of the pregnancies immediately following the miscarriage has been collected.

Results: Idiopathic No: 91 Live births: 54 Miscarriages: 13 Polycystic Ovarian Syndrome No: 7 Live births: 5 Miscarriages: 1 Luteal phase deficiency No: 4 Live births: 3 Miscarriages: 1 Endocrine No: 4 Live births: 4 Miscarriages: 0 Anatomical abnormalities No: 5 Live births: 3 Miscarriages: 0 Genetic defects No: 4 Live births: 3 Miscarriages: 0 Thrombophilia Acquired No: 13 Live births: 8 Miscarriages:2 Inherited Protein S deficiency No: 2 Live births:2 Miscarriages: 0 Protein C deficiency No:1 Live births:0 Miscarriages: 0 Factor V mutation No:1 Live births: 0 Miscarriages: 1 Factor II mutation No: 3 Live births: 3 Miscarriages: 0 MTHFR double heterozygote No: 26 Live births: 14 Miscarriages:5 MTHFR homozygote No:26 Live births: 15 Miscarriages: 3 Combined thrombophilia: No: 24 Live births: 18 Miscarriages:13 Combined Pathology Not:18 Live births: 10 Miscarriages: 3

Conclusion: This study of 232 patients indicates that the process of investigating and offering treatment to patients with a history of recurrent miscarriages leads to positive results.

OP5.03

Awareness of the human papillomavirus (HPV) and HPV vaccines

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Introduction: The aim of this study were to investigate the impact of the use of HPV vaccines in the health care system through the perception and awareness of HPV and the HPV vaccine amongst female patients, gynaecologists and pharmacists.

Methods: Two, self-administered questionnaires for doctors and pharmacists and for patients who visit gynaecology outpatients' clinic at Mater Dei Hospital (MDH) and fifteen community pharmacies. Fifteen community pharmacies were chosen by stratified random sampling and questionnaires were distributed to ten patients per pharmacy and managing pharmacists. Questionnaires were also distributed to gynaecology specialists at MDH.

Results: From the 115 patients recruited, the majority of patients had heard of the HPV virus (53.6%) and HPV vaccines (52.3%). 88.5% who were aware of the HPV virus and HPV vaccines were also aware of the association between the HPV virus and cervical cancer and 73.7% of participants stated that they carry out regular cervical smear tests every two years. Thirteen gynaecologists completed the questionnaires and five stated that over one month they vaccinated between three to five patients. Eight provide information to patients regarding HPV vaccines. All participating gynaecologists and managing pharmacists agreed on the presence of HPV vaccines in the local healthcare system.

Conclusion: The awareness regarding HPV and HPV vaccines has improved compared to data reported in an earlier local study undertaken in 2012 by Brincat et al. A reason for this, could include the fact that since 2012, HPV vaccines have been implemented in the health care system.

OP5.04

The role of cytokines in cutaneous aging during menopause

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Introduction: Skin aging is one of the complications of menopause that affects most women. Several cytokines are involved in the aging process. Cytokines in the skin are produced by epithelial cells and keratinocytes, besides Langerhans cells as part of the immune system. Aim: To understand the physiological process of cutaneous aging and the role of cytokines in skin aging during menopause with the decline of oestrogen.

Methods: A systematic review was conducted to identify the imbalance of pro- and anti-inflammatory cytokines which bring about the aging process resulting in dry wrinkled skin which bruises easily, delayed wound healing and body hair loss.

Results: A significant rise in the level of pro-inflammatory cytokines Tumour Necrosis Factor-alpha (TNF-α), Interleukin (IL)1 and IL6 occurs in menopause which drives the aging process. With the decrease in oestrogen in menopause the level of B and CD4 Tlymphocytes decreases, natural killer cells' cytotoxic activity declines, and the response of cells to cytokines increases. TNFα increases collagen degradation through increased production of MMP9 while inhibiting collagen synthesis, and lowers skin immunity thus the risk of skin infections in older age increases. Other cytokines involved include Transforming Growth Factor-beta (TGFβ), cysteinerich protein 61 (CCN1), IL8, IL10, IL18 and interferons.

Conclusion: The use of oestrogen in menopause increases the thickness of skin dermis, collagen content and skin elasticity. Further research is necessary to establish the role of cytokines in the prevention and treatment of skin aging.

OP5.05

Serum cytokines in Maltese women with miscarriage

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Introduction: Spontaneous miscarriages include pregnancy loss from the time of conception up to 24 weeks of gestation. More than 50% of first trimester miscarriages and 30% of second trimester miscarriages are caused by fetal chromosomal aberrations. It is assumed that chromosomally abnormal miscarriages are affected through different mechanisms than chromosomally normal miscarriages.

Karyotypically abnormal miscarriages may be due to local functional disturbances while normal karyotype miscarriages may be the result of fetal rejection due to a maternal systemic inflammation. Cytokines play a crucial role in the maintenance of pregnancy by regulating and modulating the immune system. Recent studies reveal that in normal karyotype miscarriages there is cytokine production in the maternal circulation linked to a Thelper (TH)-1 cell type immunity. Pro-inflammatory cytokines tumor necrosis factor α (TNF-α) and interferon γ (IFN-γ) are amongst the cytokines that are considered detrimental to pregnancy, while anti-inflammatory cytokines interleukin (IL)-4, 6 and 10 enhance embryonic development.

Methods: In total, 25 miscarriages have been karyotyped using conventional cytogenetic techniques. Maternal sera collected at the time of miscarriage (n=60) will be assayed with Quantikine® ELISA kits to detect, quantify and compare serum cytokine levels: TNFα, IFNγ, IL10 and transforming growth factor β1 (TGFβ1). Comparison will be made between serum cytokine levels in women undergoing miscarriage (n=40), women experiencing recurrent miscarriage (RM) (n=20) and women with a history of RM (n=20).

Conclusion: The karyotype and cytokine results will be presented to establish a possible correlation between cytokine levels in women experiencing miscarriage or RM, and fetal karytope.

OP5.06
COPD as a multisystem condition

George Cremona

COPD is characterized by a poorly reversible airflow limitation resulting from chronic inflammation, mainly due to tobacco exposure. Patients with COPD are increasingly recognized to be at risk for several co-morbid conditions, including cachexia, muscle weakness, lung cancer, coronary artery disease, heart failure, and bone mineral density loss. The extrapulmonary co-morbidities significantly complicate the management and influence the prognosis of patients with COPD. Although certain co-morbidities like cardiovascular diseases share some risk factors with COPD, such as cigarette smoking, other frequently observed co-morbidities, including musculoskeletal wasting, metabolic syndrome, and depression, cannot be easily attributed to smoking. There is increasing evidence that chronic inflammation is a key factor in COPD and that inflammation might be the common pathway linking these co-morbidities. The treatment of COPD must also include these co-morbidities and likewise patients with co-morbid conditions should be screened and treated for COPD with the aim of improving both symptoms and prognosis.

OP5.07
Predictors of inhaler technique in asthma and COPD

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Introduction: Correct inhaler technique (pMDI,with/without spacer) is essential for effective management of asthma and COPD. AIM-to assess inhaler technique using two different scores, one expecting 10 correct steps out of twelve and another none of 4 critical errors.

Methods: 164 patients (Male 45.7%, Mean-age 57.9, 78% asthma, 22% COPD) were recruited. Regular follow up by respiratory physician 61%, GP 46.3%, none 12.8%. A structured questionnaire was administered and technique formally assessed by one of 5 medical practitioners.

Results: 108 (65.9%) got 10 out 12 steps correct, 56 (34.1%) had no critical errors. No critical errors seemed to be associated with a decrease in oral steroid use in the previous year with an odds ratio *OR* of 0.52(0.231.17, p=0.1), while 10 correct steps *OR* 1.45(0.663.2, p=0.36) failed to predict any difference, after correcting for age, gender and vaccination history. In a multivariate model using 30 predictors of no critical errors, Asthma diagnosis *OR* 3.91(1.1612.07, p<0.06), Diabetes *OR* 4.2(1.45 12.2, p<0.06), Education on scale of 14, OR 1.35(0.951.94, p=0.09), married status *OR* 2.06(0.964.45, p=0.05) were positive predictors, while Hypercholesterolemia *OR* 0.35(0.140.88, p=0.18). Critical errors, 31.7% failed to shake the inhaler, 45.1% failed to exhale before inhalation, 18.9% failed to coordinate activation with inspiration, while 40.2% failed to hold their breath for 10 seconds.

Conclusion: The presence of no critical error predicted less use of oral steroids in the previous year. Education and married status, and asthma were positive predictors. Co-morbidities, surprisingly, seem to have an independent effect on absence of critical errors.

OP5.08
An audit on the effect of a hospital oxygen therapy guideline on prescription and administration of oxygen therapy

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Introduction: Aim: to assess the effect of a hospital oxygen therapy guideline on oxygen prescription and administration at the Emergency Department (ED) and medical wards of Mater Dei Hospital.

Methods: Data was collected on oxygen prescription and administration in patients attending the ED with conditions most likely to require oxygen therapy. Z test was used to compare results of a similar audit in 2011 to results after the hospital guideline implementation in 2015.

Results: In patients in whom oxygen was indicated: Oxygen administration at the ED improved from 23.5% to 97.5% (p<0.05); flow rate and delivery device were documented in 47.9% before, and 72.5% after guideline (p<0.05). Oxygen therapy prescription in management plans improved from 34.1% to 95% (p<0.05). Oxygen was prescribed in treatment charts in 51.8% before and 25% after guideline. Oxygen was administered in wards in 98.4% before and 85% after guideline, ie 15% of patients requiring supplemental oxygen did not receive it. After guideline implementation: 19.7% of patients in whom supplemental oxygen was not indicated were prescribed oxygen therapy, 96.6% of these received oxygen therapy in wards. For patients in whom oxygen was prescribed including flow rate and delivery device (whether oxygen was indicated or not), oxygen was received correctly in ward in 7.1% before and 63.5% after guideline (p<0.05); received incorrectly or not at all in 92.9% before and 36.5% after guideline (p<0.05).

Conclusion: Oxygen therapy prescription and documentation at the ED improved significantly. Oxygen therapy administration in wards has improved, although prescription of oxygen in treatment charts needs improvement.

OP5.09

Watching over the lung nodule

Jonathan Gauci, Elizabeth Cassar, Christabel Mizzi, Dillon Mintoff, Richard Pullicino, Mauro Sacco, Kay Vanhear, Andrea Vella Baldacchino, Adrian Mizzi, Stephen Montefort

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Introduction: While most pulmonary nodules (smaller than 3cm) are not malignant, follow-up is imperative since suspicious lesions may be biopsied early and potentially cured. The Fleischner Society issued guidelines for follow-up intervals in high-risk (smokers) and low-risk patients. The aim of our project was to study solitary and multiple pulmonary nodules detected on computed tomography (CT) and to audit followup of solitary pulmonary nodules (SPNs) measuring less than, or equal to, 8mm in accordance with Fleischner recommendations.

Methods: The study population included all patients at Mater Dei Hospital with one or more pulmonary nodules on CT during 2012, excluding those with a history of malignancy, new CT diagnosis of extrapulmonary malignancy, concurrent pulmonary lesions larger than 3cm, and foreign bodies.

Results: The study population consisted of 135 SPNs, and 56 patients with multiple nodules. All SPNs ≤8mm were benign, while those measuring >8-20mm had a 21.8% (n=12) risk for malignancy, and those measuring >20-30mm had a 28.6% (n=8) risk. SPNs ≤8mm were followed up in agreement with Fleischner recommendations in 49.0% (n=24). Smoking history was specified on 28.2% (n=11) and 36.7% (n=11) of initial and follow-up CT requests respectively. The appropriate time-frame was specified on the followup request in 72.0% (n=18).

Conclusion: Follow-up of SPNs is suboptimal. Clinicians often do not record the smoking history in the CT request, and the radiologist is therefore unable to recommend the optimal followup interval. Clinicians do not always specify the timeframe for follow-up CT, possibly leading to inappropriate scheduling by the radiology department.

OP5.10

Association between obstructive sleep apnoea and atopy in Malta

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Introduction: The aim of this retrospective observational study was to identify whether there is a relationship between obstructive sleep apnoea, asthma, allergic rhinitis and atopic dermatitis among local patients.

Methods: Adult patients over the age of 18, who underwent a polysomnogram in 2013 at the sleep clinic at Mater Dei Hospital were contacted and asked to complete a telephone questionnaire. The questionnaire included demographic data, details about the sleep study, drug history as well as the validated ISAAC questionnaire including questions about asthma, allergic rhinitis and eczema.

Results: Our cohort included a total of 100 patients (mean age 58±9.6years, 78%males, mean BMI 38.5±7.7, mean AHI 38.4±26.9, mean ODI 33±27.5), 99 of whom had a positive domiciliary sleep study. CPAP was started by 57 patients (58%) but only 44 patients (77%) were compliant to treatment for more than 3 hours on most nights. Of the patients diagnosed with OSA, 16 patients (16%) complained of wheezing, 35 patients (35.3%) complained of sneezing/runny nose/blocked nose when not having a cold or flu and 17 patients (17.1%) complained of itchy rash, in the past 12months. 26.3%, 33.3% and 20.2% complained of the respective symptoms ever with 34.6% and 30.3% claiming that wheezing and allergic rhinitis symptoms improved respectively after starting CPAP.

Conclusion: Symptoms related to atopic conditions are common in patients suffering from obstructive sleep apnoea. Awareness of this association may help respiratory physicians and sleep specialists to optimise treatment of such patients.

OP5.11

Bacterial flora and peritoneal dialysis related infections in Malta

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Introduction: Peritoneal dialysis (PD) related infections are the most important complication of this renal replacement modality. However, national data on the spectrum of bacterial flora associated with PD infections is lacking.

Methods: In this retrospective study covering five years (2008 – 2012), all Maltese PD patients (both manual and automated) attending the Renal Unit Mater Dei Hospital were studied. PD related infections included both exitsite infections and peritonitis. All the respective microbiological data was analysed and the spectrum of flora assessed.

Results: Study population included 137 patients, 37.96% female, 42.34% diabetic. Mean age was 62.77 ± 14.42 years. 18.98% never had a PD related infection. Overall culture negative infection rate was 14.60%, with the rate for 2012 decreasing to 11.94%. 58.06% of positive cultures were Gram positive bacteria (*Staphylococcus* at 41.88% (42.42% peritonitis), with 20.93% being *Staph. aureus,* 7.60% being *Methicillinresistant Staph. aureus* (25% peritonitis), 19.36% coagulasenegative *Staphylococci* (60.61% peritinitis), *Streptococcus* at 8.59%, Diphteroids 3.81%, *Enterococcus* 2.54%, *Peptostreptococcus* 0.63%. Gram negative cultures included *Pseudomonas aeruginosa* at 17.14% (24.07% peritonitis), *Escherichia coli* 6.35%, Serratia 4.13%, *Klebsiella* 2.86%, Enterobacter 1.27%, Acinetobacter 1.27%, *Moraxella* 0.95%, and *Morganella/Prevotella* 0.63. Rarer Gram negatives included *Raoultella planticola* and *Brevundimonas diminuta*. Polymicrobial cultures were 4.17% (2009), 23.80% (2011), and 20.90% (2012). Overall fungal infection rate was 4.76%.

Conclusion: This was a first study on the frequency and spectrum of bacterial flora in PD related infections in Malta, with *Staphylococcal* infections being the most common. There was a trend towards polymicrobial cultures during the last two years.

OP5.12

Incidence of dialysis-requiring acute kidney injury in the Maltese islands

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Introduction: Acute kidney injury (AKI) is an increasingly common condition associated with high morbidity, mortality, and resource use. AKI is also associated with poor long-term outcomes, such as accelerated progression of chronic kidney disease, need for chronic dialysis, and higher mortality after hospital discharge. In a subset of patients,

AKI is severe enough to require renal replacement therapy ('dialysis-requiring AKI'). Robust information about temporal epidemiology of AKI requiring dialysis in Malta is lacking.

Methods: In this retrospective observational study covering the entire Maltese population, we identified all patients with a diagnosis of AKI requiring dialysis between 2009 and 2013. Manual records at the Renal Unit Mater Dei Hospital were carefully abstracted to construct a complete database of AKI patients, including their age, gender, cause of AKI, and survival and mortality data.

Results: The incidence increased from 61 cases (147 per million) in 2009 to 76 cases (180 per million) in 2012. Cases amounted to 70 (169 per million) and 42 (101 per million) in 2010 and 2011 respectively. A male gender preponderance over the study period (62%) was also evident. By comparision, the incidence in the UK for 2012-3 was recently reported to be 208.7 per million people, whereas in the US, 533 cases per million person-years was reported in 2009.

Conclusion: The incidence of dialysisrequiring AKI in Malta is steadily increasing, to the extent that it will shortly surpass the incidence of end stage renal disease requiring dialysis or transplant.

OP5.13

Haemodialysis adequacy at the renal unit

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Introduction: Haemodialysis (HD) is associated with better outcomes in patients receiving maintenance HD. The HD dose should therefore be measured on a regular basis. The aim of this analysis is to measure the delivered dose of HD during January, March and June 2015 and assess adequacy. Comparison is made between patients with arteriovenous fistula (AVF) or graft (AVG) and those with central venous catheters (CVCs).

Methods: All patients undergoing HD during the above time-frame were included and their age, gender, filter type and vascular access were noted. Pre- and post-dialysis urea samples were collected using standardised methods. The urea reduction ratio (URR) and single pool Kt/V (spKt/V) were calculated for every dialysis session. According to international recommendations, adequate HD dose is defined as a URR of ≥65% and/or spKt/V of ≥1.2.

Results: A total of 142, 146 and 155 patients were undergoing HD in January, March and June respectively, out of which 21.8%, 10.2% and 8.3% were excluded because of incomplete data. The mean URR was 66.3±9.3 in January, 68.6±9.5 in March and 68.9±10.8 in June, with a mean spKt/V of 1.31±0.38, 1.39±0.38 and 1.44±0.53. HD adequacy was achieved in 55.3% (n=62) of patients in January, 65.6% (n=86) in March and 66.9% (n=95) in June. HD adequacy was significantly higher in patients with AVF/AVG when compared to CVCs (66.8% vs 44.6%) (p=<0.0001).

Conclusion: The majority of patients achieved the minimal adequate dose of HD in all three months. Regular auditing is suggested, targeting for higher HD dose (spKt/V ≥1.4) for every session.

OP5.14

Is surveillance of native arteriovenous fistulae required in the Maltese haemodialysis population?

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Introduction: A native arteriovenous fistulae (AVF) is the optimal access for haemodialysis. Native fistulae are prone to stenosis and thrombosis and this is an important cause of access loss. Identification of asymptomatic stenoses and appropriate treatment may lead to a reduction in access failure. The aim of this study was to assess the feasibility of introducing a screening programme for patients undergoing haemodialysis through an autogenous arteriovenous (AV) fistula at the Renal Unit at Mater Dei Hospital.

Methods: Patients undergoing haemodialysis through a native AVF were recruited. Data was collected on patient demographics, type of AVF and previous interventions. All AVFs were scanned. The AVF was assessed for patency, stenosis and flow rates.

Results: 103 patients were eligible of whom 89 were recruited. 53 (59.5%) were male and 37 (41.6%) were diabetic. 61 (68.5%) had a brachiocephalic fistula, 25 (28.1%) a radiocephalic and 3 (3.4%) a transposed brachiobasilic fistula. The mean age of the AVF was 27 months (range 3-116 months). The mean flow rate was 1.59L/min. 13 (14.6%) of the AVFs assessed had a significant stenosis while another 19 (21.4%) had an insignificant stenosis. 57(64%) showed no stenosis. 23.6% of stenoses were at the anastomotic site while the rest (12.4%) were in the venous segment.

Conclusion: A significant proportion of AVF have clinically undetected stenoses which may lead to failure. Despite the high proportion of diabetic patients the stenoses rates in the Maltese dialysis population is similar to that reported in other countries. A surveillance programme is justified.

OP5.15

Endovascular abdominal aortic aneurysm repair in Malta

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Introduction: Endovascular repair of infrarenal abdominal aortic aneurysm (EVAR) has become the standard of care over the last decade. An EVAR programme was set up at Mater Dei Hospital in 2009. The aim of this study was to report on the main outcomes of EVAR in Malta.

Methods: All patients undergoing EVAR between 01/01/2009 and 31/12/2014 were included. Data on the size of abdominal aortic aneurysm, type of repair and outcomes including mortality, aneurysm related mortality, and other complications were recorded. Follow up included CT angiography and duplex ultrasonography.

Results: 50 patients underwent EVAR. 46 (92%) were male. Mean age was 78.4 years (range 57-92). All procedures were completed endovascularly, with no conversion to open. There was one death (2%) within 30 days, secondary to myocardial infarction. In 6 cases (12%) there was a type I endoleak that was successfully treated on table in 5, using either a moulding balloon or a neck/ limb extension. One required a separate intervention to repair the type 1 endoleak. There were no reported aneurysm ruptures in this cohort over a mean follow up period of 45 months (range 6-78). 3 (6%) type II endoleaks were detected during follow up. There were

4 (8%) graft limb occlusions treated endovascularly(2) or open (2).

Conclusion: The successful deployment rate and the low mortality rate (2%) compares favourably with data reported in major trials. The EVAR programme in Malta has to date been successful in preventing ruptures in this cohort of patients.

OP5.16

Recurrent varicose veins following surgical treatment in the Maltese population

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Introduction: Varicose veins are associated with the development of significant comorbidity such as venous ulceration. Treatment consumes a significant proportion of health budgets. Recurrences increase the financial burden on the health service and leads to additional interventions. Identifying the cause of recurrences is an important step in reducing the burden on patients and the health service. The aim of this study was to identify the types of recurrent varicose veins presenting to the vascular unit at Mater Dei Hospital.

Methods: Patients with a history of recurrent varicose veins presenting for the first time to the Vascular Unit between June and October 2014 were recruited. Data regarding the patients' past medical history, clinical severity of venous disease, and source and route of venous incompetence was collected through clinical and ultrasonographic examination.

Results: 53 limbs from 46 patients with recurrent varicose veins were included. Half the limbs (52.3%) had skin changes. In 92.3% surgery had been performed to the groin. The saphenofemoral junction was the most common source (69.8%), while the great saphenous vein was the most common route of incompetence (60.4%). A completely intact great saphenous vein was present in 30.2% of limbs while a residual great saphenous vein stump was present in 32.1% of limbs. Nonsaphenous incompetence was identified in 26.4% of limbs.

Conclusion: Technical errors, mainly inadequate ligation of the saphenofemoral junction and incomplete stripping of the great saphenous vein, were the dominant cause of recurrence. This highlights the importance of meticulous preoperative duplex ultrasound assessment coupled with correct technical execution of the intervention.

OP5.17

Preliminary results of radiofrequency vein ablation programme at Mater Dei Hospital

Ian Said, Kevin Cassar

Introduction: During the past decade, international practice guidelines for the management of varicose veins of the lower limb have recommended endovenous thermal ablation (radiofrequency or endovenous laser ablation) over open surgery as the first line treatment for varicose veins associated with truncal reflux. The aim of this review is to audit the introductory results of venous radiofrequency ablation (RFA) at Mater Dei Hospital.

Methods: Patients referred with symptomatic primary/ recurrent varicose veins under the care of the vascular surgery team were evaluated with Duplex ultrasonography. Patients were deemed suitable for treatment with RFA if: evidence of truncal reflux; deep veins were patent and competent, target vessel was not tortuous, less then 2mm in diameter and over 5mm below the skin. All patients underwent clinical examination and ultrasonography 6-10weeks postoperatively to assess for: occurrence of DVT, success of target vein occlusion.

Results: In the period between February and July 2015, 71 patients underwent lower limb venous RFA with a total of 74 veins being treated. Male to female ratio was 1:3 (24% male vs 76% females). A total of 69 long saphenous veins, 4 short saphenous veins and 1 anterior accessory vein were treated. 95% of patients were treated with simultaneous phlebectomies. 21 of the above patients have till date undergone post-operative duplex ultrasound examination. 100% of treated veins were successfully occluded with resolution of truncal reflux. No cases of post-operative DVT (symptomatic/asymptomatic) occurred.

Conclusion: Early results of venous RFA at Mater Dei hospital are encouraging although more cases are needed to compare to international practices.

OP5.18

Survival after lung cancer surgery in Malta

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Introduction: The aim was to determine the operative rate for lung cancer in Malta and to measure survival after lung cancer surgery in Malta and to calculate the factors affecting survival.

Methods: Theatre registers were used to identify patients undergoing resection for lung cancer in Malta. These were collated with pathology reports and survival data from the hospital's patient archiving system. Kaplan-Meier plots and log rank testing were used to assess survival according to age, cancer subtype, gender, lymph node status and disease staging. A Cox regression analysis was also performed using these variables.

Results: Based on the annual lung cancer incidence of 149 patients in 2012, the resection rate was 8.95%. Kaplan-Meier plots showed survival post lung cancer surgery of 78% at 1 year, 69% at 3 years and 65% at 5 years, with survival maintained for a further 2 years. Log rank test showed that lymph node status, p=0.001, and disease staging were statistically significant predictors of survival, p=0.001. Cox regression analysis confirmed that staging was the most important predictor of outcome.

Conclusion: Post-op survival after lung cancer surgery in Malta is good, with a 65% 5-year survival. The resection rate of 8.95% is similar to that in UK. Further improvement will require investment and an effort to decrease the waiting time to surgery – in 2006 only 33% of operated patients received surgery within 2 months of initial referral, whilst the targets for lung cancer treatment in the UK are to decrease from 2 months to 4 weeks by 2020.

OP5.19

Personalized medicine: EGFR and ALK genotyping of lung adenocarcinomas in Malta

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Introduction: Testing for the generally mutually exclusive EGFR (epidermal growth factor receptor) gene mutations and ALK (anaplastic lymphoma kinase) gene re-arrangements, which are related to the responsiveness of pulmonary adenocarcinomas to tyrosine kinase inhibitors (TKIs), has become important for therapeutic decisionmaking. The EGFR mutation screening service has been offered locally for the past three years. The aim of this study was to review the findings and correlate them to treatment outcomes.

Methods: Samples (n=60) consisted of histological and cytological specimens from both primary tumours and metastatic lesions consistent with pulmonary adenocarcinoma. DNA extraction from histological shavings or cytology slides was followed by the detection of somatic mutations in exons 18-21 of the *EGFR* gene using a highly sensitive realtime PCR kit. *ALK* gene rearrangement testing by fluorescence in situ hybridisation (FISH) was outsourced on request.

Results: *EGFR* mutations were found in 33.3% of specimens tested. Fifty percent (50%) of the mutant samples harboured deletions in exon 19 (16.7% of total samples). ALK fusions were found in 10% of specimens tested (n=20). Tumour genotyping informed oncologists on what targeted treatment to administer. Correlation of mutations with treatment outcomes will be discussed in detail.

Conclusion: *EGFR* mutations appear to be more prevalent in local specimens than reported elsewhere, possibly due to clinical selection of advancedstage adenocarcinomas. *EGFR* mutations in exons 18, 19 and 21 confer sensitivity to *EGFR* TKIs. Tumours harbouring *ALK* gene fusions respond to *ALK* TKIs. The use of such predictive tests for targeted cancer therapy is an important step forward in personalized medicine.

Disclosure: *EGFR* testing was provided through the Pathology Department, Mater Dei Hospital

OP5.20

Use of targeted therapies in advanced and metastatic non-small cell lung cancer - our local experience.

Donika Metaraku, Maria Mifsud, Stephen Brincat, James Mark Debono

Introduction: A significant proportion of lung cancer patients have targetable molecular characteristics, such as mutations (EGFR) and fusion genes (ALK). These molecular abnormalities, currently identified in adenocarcinoma subtype of NSCLC, are predictive of response to targeted therapy. Thus, laboratory testing for histological subtypes and molecular characteristics of the tumour are essential to identify the group of patients who will benefit most from these expensive targeted therapies.

Methods: A retrospective review of patients' data who received erlotinib treatment from 2010 up to date was performed. 102 eligible patients were identified from pharmacy dispensing list. Data on demographics, gender characteristics, histological subtypes, EGFR/ALK testing, date of start of erlotinib and radiological response with CT scan assessments were collected.

Results: Adenocarcinoma subtype was identified by histopathology in 66 patients (65%), by cytology in 30 patients (29%). Two patients (2%) had squamous histology. Information on EGFR/ALK status was available only on 31 patients (30%) and mostly during the year 2013 and 2014. The majority of patients (nearly 98%) had received 1st line cisplatin based chemotherapy and erlotinib was given at time of progression or after completion of chemotherapy at availability of EGFR satus. Radiological partial response was seen in 48 patients (47%), (29 females and 19 males), complete response in 5 female patients (5%). 31 (32%) patients had stable disease.

Conclusion: Targeted therapies in EGFR/ALK positive NSCLC are well establised with high RRs and PFS. Therefore routine testing for appropriate cases, particularly in adenocarcinoma subtype is recommended to determine the best approach for these patients.

OP5.21

Modulating regulatory T cells for treatment of cancer

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Introduction: A sub-population of cells called Regulatory T cells (Tregs) present a major obstacle to successful immunotherapeutic treatments to cancer. In fact, modern immune checkpoint modulator agents have been hailed as breakthroughs in cancer therapy. The tumour microenvironment can promote the expansion of Tregs, thus blocking effector cells. Tregs may however be plastic in nature and this study is looking into ways to modulate their phenotype.

Methods: Interferony (IFN γ), lipopolysaccharides (LPS), tumour cell free DNA (cfDNA) and TexOE® (a local patented extract from the prickly pear, Opuntia ficus indica) were tested on isolated Tregs, monitoring changes in FOXP3 mRNA (the master regulator gene of Tregs) using RTPCR. Although such results were suggestive, flow cytometry using cell surface markers is being used to replicate and extend this data. We can thus assess whether the reagents studies are reducing Tregs through cytotoxicity or by converting them into effector cell types. The effector T cells can then be assessed by lymphocyte cytotoxicity assays.

Results: RTPCR indicated that IFNγ and TexOE® did not alter the FOXP3 expression in an isolated Treg population, however LPS caused an increase in FOXP3 expression, while tumour cell free DNA reduced it.

Conclusion: Preliminary studies have shown that Treg phenotypes may be modified. Therefore, the next step in this project will be attempting to convert Tregs into effector T cells inside the tumour microenvironment acting as "Trojan horses" and eradicating the tumour.

OP5.22

Androgens are involved in regulation of growth and differentiation in hepatocellular carcinoma cells in vitro

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Introduction: Sexual hormones, estrogens and androgens, determine biological response in a tissue and gender-specific manner and have a pivotal role in endocrine-mediated tumorigenesis. Androgen signalling, mediated by the androgen receptor, is critical factor influencing growth of normal and malignant cancer cells. Hepatocellular carcinoma (HCC) may be modulated by both estrogens and androgens hormones during its initiation, progression and metastasis. The purpose of this study was to investigate the role of androgens in regulating proliferation and differentiation of HCC.

Methods: To achieve this aim, the human hepatocellular carcinoma cell line HepG2 was treated with Nandrolone Vetranal, a synthetic androgen ligand, for 72 hs and its viability and proliferation was assessed by MTS and cell cycle analysis, respectively. The expression of protein involved in cell cycle regulation and differentiation markers were analysed by Western blot. Endogenous respiration was measured by high performance oxymetry.

Results: Nandrolone treatment determined cell growth inhibition which is associated with a reduction in the cell number in the S phase and concomitant increase in the G2 cell number. Androgens inhibited human liver cancer cell proliferation by repressing expression of cyclin D1 and increasing the expression of the cyclin dependent kinase inhibitors p21Waf1/Cip1, leading to cell cycle arrest in the G2 phase. This effect involved stimulation of AKT signalling (which increases p21Waf1/Cip1) via inhibitory phosphorylation of GSK3β, suggesting the potential involvement of GSK3β inactivation in senescence and p21 up-regulation in cellular differentiation. Moreover Nandrolone affected metabolism of hepatoma cancer cell through a significant reduction of mitochondrial respiratory activity.

Conclusion: The antiproliferative effects exerted by androgens in HCC cell line can promote cellular differentiation resulting in senescence-associated growth suppression. Hence Nandrolone could be used as differentiation agent in treatment of hepatocellular carcinoma.

OP5.23

Survival data on acute myeloid leukemia in Mater Dei Hospital

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Introduction: Acute myeloid leukemia (AML) is the commonest acute leukemia in Malta, however there is limited data regarding the demographics and outcomes of treatment. We aimed to assess the overall survival (OS) of patients with AML and evaluate the impact of several variables such as white blood cell count (WBC), age, bone marrow blast count and cytogenetics.

Methods: A retrospective study was performed on all adults diagnosed with de novo AML from January 2008 to December 2014. Descriptive statistics and survival functions were performed on the study population.

Results: 72 patients were identified and included in this study. 54.2% were male and 62.5% were older than 60 years of age at diagnosis. The median age at diagnosis was 62 years. One third of patients presented with a WBC of more than $30x10^9$/L. 54% of patients had failed (12.5%) or unavailable cytogenetics (41.7%). Favourable cytogenetics were present in 9.7%, intermediate in 26% and adverse in 9.7% of the study population. Cumulative overall survival at 5 years was calculated as 41% and 5 year disease free survival was 37%. Age had a statistically significant impact on OS (p=0.001 Log Rank) with a 5 year OS of 67% in patients <60 years and 25% in patients aged >60. There was no statistically significant difference in OS associated with different cytogenetic risk groups, WBC and bone marrow blast count.

Conclusion: The overall survival of patients with AML in Malta is similar to OS reported in studies performed in most European countries with age having a significant impact.

OP5.24

Does dose intensity of chemotherapeutic agents have any effect on survival or relapse in patients with high grade Bcell lymphoma?

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Introduction: Chemotherapeutic regimens should be given at their optimal dose and schedule, which may sometimes be disrupted due to a multitude of factors and ultimately lead to lower drug dose intensity. We analyzed whether the latter has any effect on survival or relapse.

Methods: 66 patients who presented with a diagnosis of diffuse large B-cell lymphoma (DLBCL) and Grade3 Follicular Lymphoma diagnosed between January 2010 and April 2015 and who received at least 2 cycles of RCHOP chemotherapy were analyzed. The actual total dose (ATD) for each chemotherapeutic agent, namely doxorubicin, cyclophosphamide and vincristine was calculated individually by summing the total dose given (in milligrams) and dividing it by time in weeks. This was then compared with the planned total dose (PTD) as specified by protocols/guidelines infused to get a ratio (RTD). Lead-time between diagnosis and treatment was also recorded to establish a baseline and whether a delay in treatment would result in a worst overall survival or outcome.

Results: There was no statistical significance between average days from histology-report issue to treatment for patients under 70years (average 26.34 days) compared to patients over 70 (average 23.74days) (P 0.56). No correlation between the individual RTD for each of the three drugs and survival was found. 5 year disease free survival for patients under 70 years was 67.8% and 48.8% for over 70.

Conclusion: Overall there was no correlation between survival and delay in starting therapy (P>0.05). Neither time from diagnosis to start of therapy nor treatment adjustments seem to affect disease free survival in our cohort.

OP5.25

Gentamicin prescription at Mater Dei Hospital: are guidelines followed?

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Introduction: Gentamicin has a narrow therapeutic index with potential ototoxicity and nephrotoxicity. Serum levels are often unpredictable and monitoring of treatment is necessary to ensure effective therapeutic levels with minimal toxicity.

Methods: Data was collected over three months from most wards at Mater Dei Hospital (MDH), Excluding the Intensive Care Unit, neonatal and paediatric wards.

Recording of the following criteria prior to gentamicin dosing was assessed: patient actual body weight, use of actual body weight or ideal body weight, patient height, ENT review and creatinine levels prior to administration. The time at which post-serum gentamicin levels were taken and whether or not the nomogram was correctly used for dose adjustment were noted.

Results: Sixty-four patients were included, 52% males (n=33) and 48% (n=31) females. Pre-treatment ENT review was missing in 100% of patients. Height was recorded in 15.6% (± 8.9% at 95% confidence level) of patients. 29.6% were over 76 years of age and 4.7% were over 85 years. 6.25% (n=4) were prescribed gentamicin in spite of exclusion criteria. Body weight (BW) was missing in 46.8% (n=30). In the rest, actual body weight was used in 91.28% (n=31) and ideal body weight in 8.82% (n=3). Serum levels were appropriately taken in 31.25% of patients and 18.75% were dosed according to the Greater Glasgow and Clyde nomogram. Renal profile was correctly repeated in 78% (n=50).

Conclusion: Gentamicin treatment at MDH is inadequately managed and monitoring is haphazard. A recent guideline was issued and this would require re-audit to identify any improvements in the practice.

OP5.26

Safety and tolerability of omalizumab in Malta

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Introduction: Omalizumab is a recombinant monoclonal anti-IgE antibody used in severe IgE-mediated asthma. It is considered to be welltolerated with an acceptable sideeffect profile. the aim of this study was to analyse the safety and tolerability of Omalizumab in severe IgEmediated asthma in Malta in patients using Omalizumab over the past 4 years.

Methods: All adult patients who were started on omalizumab for severe persistent allergic asthma since 2012 in addition to their asthmarelated medication and consented for participation were included in this ongoing study. The patients were reviewed regularly and side effects documented. Treatment effectiveness was assessed at 16 weeks, and then at yearly intervals.

Results: Our cohort included 37 patients (mean age 51±11, 59% males, mean IgE level 391±378 IU/mL). Sixteen patients (43.2%) developed at least one side effect. Seven patients (18.9%) developed 2 or more side effects. The vast majority of side effects developed and subsided within the first 16 weeks. Side effects reported included: headache-27%, injection site reactions-8%, nausea-8%, lethargy-5%, myalgias-5%, arthralgias-5%, fever-3%, vomiting-3%, weight gain-3%, nasopharyngitis-3%. Omalizumab was stopped in 3 patients due to treatment ineffectiveness and in 2 patients due to intolerable side effects, namely arthralgias and myalgias. Side effects were not related to the dosing frequency but were related to the higher doses received.

Conclusion: Omalizumab has an acceptable safety profile and has been well tolerated, having a response rate of 86%. Further evaluation of our cohort will provide us with safety and tolerability in the longer term.

OP5.27

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). Aim: The aim of this study is to investigate the genetic and functional relevance of the association of single nucleotide polymorphism (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. We will follow up this work with deletion of selected regions showing enhancer potential using CRISPR/Cas9 system followed by RNAseq, in order to investigate genome regulation in mentioned intergenic region.

Conclusion: This study provides preliminary evidence suggesting that epigenetic regulation at region tagged by rs12477314 may underlie the observed association seen with pulmonary function.

OP5.28

Pharmacogenetic aspects of thiopurine methyltransferase in Maltese individuals

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Introduction: Thiopurine methyltransferase (TPMT) is an important enzyme for the metabolism of thiopurine drugs, and pharmacogenetic variability has been associated with serious adverse effects in treated patients. There is currently no information on TMPT gene variants in the Maltese population. The aims of this project were to (i) identify the frequencies of the clinically relevant alleles *2, *3B and *3C and (ii) screen the TPMT gene promoter for novel variants.

Methods: DNA was obtained from patients suffering from Crohn's disease, and from anonymous random samples maintained at the Malta Biobank. Genotyping and promoter screening were carried out using PCRRFLP, tetraprimer ARMSPCR and Sanger sequencing. Assays were designed and optimized accordingly. Where necessary, bioinformatic tools

were used for assay design and analysis of results.

Results: We identified the following allelic frequencies: TPMT*2: 0% (n=390), TPMT*3B: 1.3% (n=390), TPMT*3C: 1.1% (n=380). Promoter sequencing (n=126 chromosomes) revealed 3 SNPs (4567T>A, 4621T>A, 4793A>T) and homozygous or heterozygous deletions of 17 or 34bp occurring between positions 49895023 (38.0%, n=126)(NCBI Accession NG_012137.2). We also identified a hypervariable region terminating approximately 40bp upstream of the transcriptional start site (TSS) having multiple heterozygous SNPs that could not be electronically deconvoluted to indel variants.

Conclusion: TPMT pharmacogene allelic frequencies are comparable to international reported values. The identified promoter variability could potentially confer important transcriptional regulatory influences, especially due to its TSS proximity. Further molecular and clinical studies are required to investigate this.

OP5.29

The validation of a guideline algorithm for the antibiotic treatment of infected lower limb wounds or ulcers

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Introduction: Lower limb and foot ulcers are a common complication. Presence of infection requires pharmacological management. In such cases, antibiotic guidelines are used. In fact the Antibiotic Team at Mater Dei Hospital (MDH), have created an algorithm for lower limb wound infections and ulcers. The aim of this study was to assess and validate this algorithm.

Methods: Eighty patients selected from MDH Surgical Out Patients, MDH Tissue Viability Clinic, and St Vincent De Paul Residence for the elderly (SVPR). Primarily, demographic data of the patient was collected. Moreover, a wound swab for culture and sensitivity was taken from the wound pre-cleaning and post-cleaning twice with saline as advised by the antibiotic team using the Levine technique. The Bates Jensen Wound Assessment Tool (BJWAT) was then filled up by the researcher, and antibiotics were administered according to the algorithm. Patients were then assessed during two more visits.

Results: Analysis of the results indicate that the algorithm created by the MDH antibiotic team was validated, as results indicate that all parameters of the BJWAT obtained a $p<0.001$. Furthermore, p=0.01 was obtained when compliance was assessed. Severity was found to be significant with a $p=0.05$, whilst risk was not significant with $p=0.446$.

Conclusion: Hence it can be concluded that the algorithm is validated. This study will benefit patients, and also to stakeholders, in reducing the unnecessary use antibiotics, which increase antibiotic resistance and also reduces medical costs and hospital stays.

OP5.30

Pharmacoepidemiology of epilepsy in a paediatric neurology clinic

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Introduction: The WHO's report on 'Priority Medicines for Europe and the World' includes children among 'special groups' whose needs must be prioritised. This study investigated whether local practice in the management of paediatric epilepsy followed principles of rational prescribing and whether Maltese children with epilepsy had access to the best available care.

Methods: The clinical records of 76 children with a diagnosis of epilepsy were reviewed. Schedule V records were reviewed to determine how many children in Malta were receiving free antiepileptic drug therapy. Data was input into a spreadsheet and analysed.

Results: The lowest prevalence of children with epilepsy in this group was in Gozo while the highest was in the South Harbour district. Older AEDs were the most commonly used – especially valproate (40.8%). Lamotrigine was the most commonly prescribed newer AED (19.7%). The most commonly prescribed AED combination was of valproate with lamotrigine. 48.7% of children were receiving AEDs as monotherapy. 35.5% were in remission and off AED therapy on the 31st December 2013.

Conclusion: Maltese children with epilepsy are treated using similar treatment protocols as in other countries. The geographic distribution of the condition and results of this study present opportunities for improving treatment, engagement and targeting interventions. There is a high need to educate the public about the importance of treatment, facilitate access to care and minimise the stigma associated with epilepsy. Clinical guidelines applicable to primary and secondary care scenarios can also be designed using this data.

Disclosure: This study was carried out in partial fulfilment of the requirements for a Masters Degree in Pharmacology/Clinical Pharmacology and supported by the Malta Enterprise, through the 'Get Qualified' Scheme.

OP5.31

The Belief about Medicines Questionnaire (BMQ) in the Maltese language

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Introduction: Having a better understanding of people's beliefs about medicines is important to identify the determinants which guide a person's careseeking behaviour and selfcare measures. The Belief about Medicines Questionnaire (BMQ), is a validated instrument assessing medication beliefs in general (BMQ General: harm and overuse subscales) and in specific conditions (BMQSpecific: concerns and necessity subscales) The principle aim of this study was to produce a culturally and contextually appropriate version of the BMQ in the Maltese language and to assess its psychometric properties.

Methods: The BMQ was translated and back translated

using standard methodology with the translation being based on the principles of the Skopos Theory. A total of four hundred chronically ill patients (100 each having a confirmed diagnosis of asthma, diabetes, depression and cardiovascular disease) were recruited through the outpatient clinics at Mater Dei Hospital. The Maltese version of the BMQ was administered to those patients who agreed to participate The psychometric properties of the Maltese version of the BMQ were evaluated in terms of internal consistency, reliability and validity of scale structure.

Results: Psychometric evaluation of the BMQ revealed satisfactory results for internal consistency (Chronbach'a α 0.480.73) and reliability ($p< 0.01$ and $p<0.05$), with principal component analysis confirming its original four factor structure. The psychometric properties of the BMQ in Maltese are in line with those of similar studies.

Conclusion: The Maltese version of the BMQ displayed acceptable psychometric properties making it a suitable instrument to measure patients' beliefs about medicines in the Maltese language.

OP5.32
Red cell transfusion: is one better than two?

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Introduction: Patient Blood Management (PBM) is "a multidisciplinary, evidence based approach to optimising the care of patients who might need blood transfusion" (www.transfusionguidelines.org.uk,2014). One recommendation is to transfuse one red cell unit (RCU) to non bleeding patients and reassess requirement for further transfusion.

Aim: To determine number of RCU transfused per episode in nonbleeding patients in Mater Dei Hospital (MDH).

Methods: 1051 RC transfusion episodes were requested between June and August 2013 of which 878 episodes were traced. 664 episodes could be analysed (omitting episodes not resulting in transfusion, paediatric patients, patients with documented bleeding and episodes with inadequate documentation).

Results: 61.3% of episodes were transfused two RCU (range: 46.15% cardiothoracic surgery to 90% renal). One RCU was transfused in 8.43% of episodes (range: 0% renal, oncology, obstetrics and gynaecology to 27.59% Cardiothoracic surgery). This figure was supported by another recent survey by the PaBloE (Patient Blood Management in Europe) group, which found that 62% of MDH clinicians opt to transfuse two RCU prior to reassessment for further transfusion (highest rate between 6 hospitals taking part in this survey followed by 33% Karolinska Institute, Sweden and Radboud University, Netherlands). Conversely, MDH reported the lowest rate of physicians opting for one RCU to be transfused prior to reassessment (MDH 29%; highest 90% Frankfurt University Hospital) (personal communication, PaBloE group, 2015).

Conclusion: Transfusion of two RCU before patient re-assessment is widespread within MDH. Transfusion of one RCU to non-bleeding patients with re-assessment after each unit reduces patient exposure to components and decreases need for donor availability and financial issues.

OP5.33
A closed cycle audit of coagulation screen requests of patients admitted to the Emergency Department at Mater Dei Hospital

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Introduction: Routine coagulation testing is widely practiced in the assessment of bleeding risk despite numerous studies identifying a poor predictive value of performing this test in emergency settings. This audit evaluated the appropriateness of coagulation screens requested from the A&E Department at Mater Dei Hospital Malta.

Methods: Retrospective analysis of 300 coagulation screen requests from the A&E Department over a one-month period was performed. Indications for a coagulation screen as proposed by the Royal College of Pathologists 2007 were used as a standard, and included: personal history of bleeding disorder, acute bleed/underlying coagulopathy, patient on anticoagulant therapy, history of liver disease presenting with bleeding/requiring surgery, obstructive jaundice, severe sepsis, paracetamol OD. A reaudit was then carried out following the introduction of poster guidelines of the indications for taking a coagulation screen, which were presented to all A&E staff and displayed in the department. Data collected included: appropriateness of coagulation screen requests based on the above indications, the number of coagulation screen tests requested 3 months pre and post the introduction of the poster guidelines.

Results: The number of appropriate coagulation screen requests increased from 36% to 85% from pre to post intervention, respectively. The number of coagulation screen requests over a 3-month period was reduced by 2124 post intervention when compared to the 3 months prior to the intervention. This corresponds to a saving of 14379 euros.

Conclusion: This audit highlights how simple interventions can improve clinical practice from both a patient and economical perspective.

OP5.34
Launching and running "SA Learn" - a safety alerting system for learning at Mater dei Hospital

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Introduction: It is estimated that 8 to 12% of patients admitted to hospitals suffer from healthcare related adverse events. WHO and EC recommendations promote the use of "Reporting for Learning systems" to capture such adverse events. The Patient Safety and Quality Improvement Team (PaSQIT) was tasked by hospital management to develop such a system, in order to improve patient safety at Mater Dei Hospital.

Methods: A PaSQIT working group was set up. After a literature review, the system was drafted and presented in four standard operating procedure documents covering the various aspects of the system, namely, "Generating Safety Alerts", "Collection, Archiving and Classification", "Investigation" and "Implementation and Dissemination of Learning". After a consultation period, the system was launched in April 2015.

Results: From April 2015 to August 2015, 70 safety alerts were received, 20 safety alerts graded as SAM1 (high risk), 22 were classified as SAM 2 (intermediate risk) and 28 were classified as SAM 3 (low risk). Root cause analysis and clinical reviews were used to investigate the serious alerts,

while the others were grouped for aggregate analysis. The results of the first few months of SA Learn will be presented including lessons learnt and improvement projects initiated.

Conclusion: In the first few months since its inception, SA Learn has been shown to be a useful and well accepted tool for the improvement of patient safety at Mater Dei Hospital. It is hoped that more doctors and healthcare professionals participate in this process of organizational learning from individual adverse events and near misses.

OP5.35

Prophylactic use of antibiotics in inguinal hernia repair

Samuel Anthony Galea, Charles Cini

Introduction: Inguinal hernia repair is considered a clean operation. The routine use of prosthetic material was previously an indication for regular antibiotic usage, in an attempt to minimise surgical site/mesh infection. Data advocating antibiotic use remains controversial.

Methods: A prospective audit was performed, collecting data about patients who underwent laparoscopic or open inguinal hernia repair during the period January-March 2014. Risk factors for infections and the use of prosthetic material were noted. The type antibiotics and the duration of use were recorded. Practices in antibiotics use were compared to the 'Guidelines for the proper use of antimicrobials for surgical prophylaxis', Mater Dei Hospital Infection control policy, Revised June 2013.

Results: A 100 patients were recruited, all of which had a synthetic mesh repair. Data regarding body mass index showed that 11% of patients were obese and 37% were overweight. 9% of the patients were diabetics. 91% of the patients had antibiotics given at induction of which co-amoxiclav was the most popular (75.3%), followed by flucloxacillin (28.5%) and ciprofloxacin (9%) for those with penicillin allergies. 3% of the patient who had antibiotics at induction had a course of antibiotics on discharge.

Conclusion: If guidelines are strictly adhered to and antibiotics are given to the obese and/or diabetic population only, then a total of 21% had optimal use of antibiotics. There is much space for improvement in the way antibiotics are administered. Better knowledge of guidelines should be sought as this decreases the costs and the possibility of development of antimicrobial resistance.

OP5.36

Appendicitis in the paediatric population: outcomes at Mater Dei Hospital

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Introduction: The diagnosis of appendicitis in children can be challenging. A negative appendicectomy rate (NAR) of 8.3% in paediatric surgical units contrasts with that of 13.4% in general surgical units. The objective of this study was to determine the outcome of appendicectomies performed in the paediatric population at MDH.

Methods: Patients aged 0-16 who had an appendicectomy performed between January 2011-July 2015 were enrolled in this study. Patients were stratified into four groups as follows; A:0-6 years, B:7-10 years and C:11-13 years, D:14-16 years. Patient demographics, pre-operative investigations and histology result post-operatively were collected.

Results: 392 patients (median age 12 years, mean age 11.5 years), were enrolled in this study. Group A had 43 patients (11%), Group B 98 patients (25%), Group C 103 patients (26%) and Group D 149 patients (38%). 179 were females (45.7%). On admission, 39.6% had a raised white cell count and 68.7% had an ultrasound performed. Of these, 47% of patients who had an ultrasound performed, had signs of appendicitis on imaging. Positive histology was obtained in 75.8% of specimens submitted, 17.45% of which, were complicated appendicitis. Overall NAR was 24.2%. Patients subjected to a period of active observation had a NAR of 9.2%.

Conclusion: Diagnosis of appendicitis remains a clinical decision which in some cases can be challenging. This study reveals an overall high NAR which may be related to a short period of active observation.

OP5.37

Bariatric surgery in Malta a taste of our results

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Introduction: Bariatric Surgery was introduced to Malta in March 2014. We audited our initial cohort of patients who underwent either a laparascopic gastric sleeve or gastric bypass operation, using an SF 36 patient satisfaction form and bariatric measurements.

Methods: Data was collected prospectively during the first 14 months of our bariatric service. Patients' initial weight, body mass index, excess weight and target weight loss was calculated. Operation type and peri-operative complications were recorded. Patient satisfaction was gauged using an SF 36 form and post-operative weight loss was recorded.

Results: 13 patients were included in this audit. 12 were female. All were Caucasian and Maltese. Age ranged from 22 to 62 years and the BMI ranged from 41 to 58 years. Weight ranged from 103 to 164 kg at the time of operation. 8 patients underwent a gastric bypass and 5 had a gastric sleeve. All were done laparascopically. Three type 2 diabetic patients showed remission of their disease while a quarter of hypertensive patients showed improvement, reflecting the metabolic nature of these operations. There was 100% satisfaction upon SF 36 assessment.

Conclusion: On the basis of our initial data, bariatric surgery appears to have had a beneficial effect on our pilot population. There seems to be a role in expanding this service in our department.

OP6.01

Psychotic experiences in adolescents: Causes and consequences

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Schizophrenia is a severe psychiatric disorder that imposes a substantial burden on sufferers, their families and society, and is one of the leading causes of disability worldwide. Despite increasing evidence of biological abnormalities associated with this disorder, the efficacy of current treatments remains limited, as do interventions for prevention of transition to disorder in high-risk samples.

Studies that capture individuals earlier within trajectories towards disorder allow the greatest opportunity to understand the mechanisms underlying the development of psychotic disorders such as schizophrenia. I will describe some of the work that we and others have conducted that has focused on the development of psychotic experiences within population-based samples in an attempt to understand more about the aetiology of psychotic phenomena and transition to clinical disorder over time, and discuss their potential to help identify modifiable targets for intervention.

OP6.02

Trends and patient characteristics of suicides in Malta

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Introduction: Though suicide is a very complex multi-causal event, a history of major psychiatric disorders as well as other psychosocial and personality factors are known to play a role. The aim of this study was to identify trends in suicides in Malta as well as conditions and precipitating factors contributing to suicide locally.

Methods: Number of deaths due to suicide by age group, gender and year of death were extracted from the National Mortality Register from 1995-2014 (N=462). More detailed analysis was conducted on a subset of suicides (2002-2013, N=293), by reviewing psychiatric notes at Mount Carmel Hospital as well as reviewing autopsy reports. Trends in suicide rates were analysed using Poisson regression.

Results: There has been a significant increase in suicide rate in all males (p=0.007) as well as those between 45-64 years (p=0.004) over the past 20 years. No significant increase was found in females. At least 50% of the subset studied had been in contact with the mental health services sometime in the life. Conditions and factors leading to suicide included mental ill health, physical illness and marital/ relationship problems amongst others. At least one fifth of persons with mental ill health who had committed suicide had a documented previous suicide attempt.

Conclusion: Though suicide rates in Malta are lower than the European average there is however a rising trend. High risk groups include middle aged men, people with mental health problems and persons with previous suicide attempts amongst others.

Disclosure: This study is being carried out in collaboration with Richmond Foundation.

OP6.03

A case control and follow up study of 'Hard to Reach' young people who also suffered from multiple complex mental disorders

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Introduction: IP was a new multidisciplinary team based within an inner city, walkin health centre, North East England (throughout 2011).

Methods: To describe the mental disorders and social function of the Hard to Reach Young People (HTRYP) from the InnovationsProject (IP) and compare to a matched sample from a Community Mental Health Team (CMHT) Phase 1 and 2: Retrospective review of clinical case notes of YP who attended the IP and CMHT. Phase 3: 24months follow up evaluation of the mental state and social function, using Health of the Nation Outcome Scales for Child and Adolescent Mental Health (HoNOSCA) and Children's Global Assessment Scale (CGAS).

Results: 36 referrals accepted by the IP, 31 met criteria for HTRYP, 15 were offered individually tailored therapy. IP group experienced more deprivation compared to the CMHT matched sample (n=115). At baseline the HTRYP had more mental disorders, higher severity scores and lower levels of social function (HTRYP HoNOSCA mean: 19.1 and CMHT mean: 11.2 p=<0.001, and HTRYP CGAS mean: 51.0, CMHT mean: 58.9, p=0.05). The HTRYP made significantly greater improvement compared to CMHTYP; (HoNOSCA p=<0.001 and CGAS p=<0.002). 13 HTRYP attended the follow up review at 24 months compared with 9 of CMHTYP. There was great variability in terms of social function between the YP within each sample.

Conclusion: The term 'HTR' describes a state which the YP may be at a particular point in their lives. A service which utilises a developmental theoretical framework, offers regular reviews and an individualised care plan, could reduce longer term morbidity and mortality suffered by HTRYP.

Disclosure: The Innovations Project was funded by the Strategic Health Authority. MD funded by the Malta Government Scholarship Scheme. NIHR portfolio study

OP6.04

Mental health problems in medical students at the University of Malta. A longitudinal study

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Introduction: Mental health problems amongst university students are known to be a cause not only of suffering but also of decreased academic performance and premature termination of studies. Universities abroad have seen an increasing prevalence of mental health problems. Medical students are identified in the academic literature as being at greater risk by nature of the stress of their course, competitive aspects and their inherent perfectionist and driving personalities.

Methods: A longitudinal study over four years, using robust screening questionnaires has explored depression, anxiety and suicidal thoughts, alcohol and drug problems and eating disorders. Study specific questions have also explored bullying, help seeking behaviour and effects on academic performance. The same cohort of students were followed up throughout their course.

Results: Initial results identify clinical anxiety and depression in 67%, 19% with hopelessness, thoughts of suicide in 9%, eating problems in 25%, possible alcohol problems in 31%, possible drug problems in 7%, bullying in more than 11%, seeking help in 7.4% and subjectively decreased academic performance in 35%.

Conclusion: The identified morbidity has prominent implications for the medical course, its methods, its structures, the support provided and future service development. These will be discussed.

Disclosure: University of Malta research grant.

OP6.05

A snapshot of child and adolescent inpatient psychiatric services in Malta: uptake and implications for future services

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Introduction: This retrospective study is a national snapshot of inpatient child and adolescent services over a five year period. It identified socio-demographic characteristics, psychiatric diagnoses and treatment and service contact and uptake.

Results: Between 2010 and 2014 there were 212 admissions to inpatient services. 57% of these were boys and 43% were girls. 70% of the sample were Maltese nationals. There was a steady increase of admissions over the period, with 31 inpatients in 2010 rising to 52 in 2014. 25% of these were readmissions. The largest age group was 15 to 18 years accounting for 58% of admissions. 11.3% were admitted under a Care Order and 23% had previous contact with other professionals prior to admission. 9% were referred on to adult services upon reaching 18. Conduct disorder was the primary diagnosis on discharge in 21% of cases and also accounted for the most bed nights.

Conclusion: This study was the first undertaking which attempted to chart the characteristics children and adolescents with co-morbid disorders in Malta. Although lacking generalisability to a wider audience it is an important first step in using researched evidence as a tool for future service policy and planning. Whilst the findings have shown that young people with co-morbid disorders in Malta share many similarities in characteristics with similar children and adolescents in other countries, this study has also revealed that there is a clear and pressing need to develop research systems and conduct more detailed enquiries.

OP6.06

pH and steroid orthoester hydrolysis

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Introduction: Orthoesters have an important role in organic synthesis and are used for various purposes. One of the main uses of orthoesters is as a protective group due to the ease with which they are hydrolysed to the parent compound using acid catalysis. However orthoesters can also be partially hydrolysed to add an ester group to a molecule. This study assessed the effect of pH on the partial hydrolysis of steroid orthoester.

Methods: The steroid orthoester was dissolved in methanol and hydrolysed using an acetic acid/sodium acetate buffer at a pH of 5. The reaction was then refluxed at 62°C. The same procedure was then repeated using oxalic acid at a pH of 1.4 instead of the acetic acid/sodium acetate buffer. The reaction using oxalic acid was conducted at 45°C ±5°C. Samples were then analysed using thin layer chromatography and high performance liquid chromatography.

Results: When sodium acetate buffer was used to catalyse the partial hydrolysis of the steroid orthoester the reaction was not successful. When oxalic acid was used as the acid catalyst, two products were obtained.

Conclusion: It was observed that when a weak acid (pH 5) was used to catalyse the reaction, hydrolysis of the steroid orthoester was not achieved. While when a stronger acid (pH 1.4) was used the reaction was successful. This indicates that the pH of the acidic medium used for the hydrolysis of orthoesters has an important effect on the outcome of the reaction.

OP6.07

Development of a greener selective acylation method for steroids

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Introduction: Solvents used in the synthesis of active pharmaceutical ingredients are mostly toxic to the environment. This study aims to synthesise a 17α,21 die-ster steroid using a greener method.

Methods: Selective acylation of the primary hydroxyl group at C21, in the presence of a secondary group at C11, of a 17αmonoester steroid was performed. The steroid was dissolved in ethyl acetate and reacted with acetic anhydride in the presence of tri-methylsilyl tri-fluoromethanesulfonate at 05°C followed by the removal of solvent using rotary evaporation. Samples were taken to monitor the reaction using thin layer chromatography (TLC) and high performance liquid chromatography (HPLC).

Results: In TLC chromatograms the compound with a retention factor (Rf) of 0.13, present in the starting material was no longer visible after adding the catalyst, showing that this compound was immediately used up. HPLC chromatograms showed that one of the peaks present in each of the reaction samples matched with the retention time (5.32 minutes) of the reference standard of the compound of interest. This indicates that the desired product might have been synthesised. As the reaction progressed, the concentration of the product decreased, while that of the impurity increased with the highest product yield estimated to be 49.59%.

Conclusion: A greener solvent, ethyl acetate, was used instead of dichloromethane. The reduction in the yield of the product may be attributed to the formation of the triester due to acylation of the secondary alcohol group in the starting material. The reaction should be stopped within 5 minutes when the highest yield is obtained.

OP6.08

Waste management in pharmaceutical processes

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Introduction: In 2011, 6,500 tonnes of waste including pharmaceutical waste, were incinerated at the Marsa Treatment Facility. No solvents were managed in the non-hazardous public landfills. Currently, in Malta, there are no facilities which cater for the recovery and disposal of pharmaceutical wastes such as solvent waste. Solvents are sent abroad where they are incinerated or recovered into the pure state. The aims of this study are to determine the current local scenario with respect to pharmaceutical waste processes, which options are available to dispose of or recycle solvents and whether it is feasible and cost-effective to set up a solvent recovery plant locally.

Methods: Structured and unstructured interviews were conducted with different stake holders in order to assess the local scenario. A cost-benefit analysis was carried out by indentifying the costs of equipment, electricity, labour and premises incurred to implement a local waste recovery system.

Results: Some methods used for the processing of solvent waste abroad include: waste solvent incineration and solvent distillation, for example, vacuum distillation and fractional distillation. Since different types and amount of solvent waste is generated by pharmaceutical industries in Malta, vacuum distillation would be the most appropriate method for the recovery of solvents. Locally, the most suitable solvent recovery plant is the ECOpure SR180V which works by vacuum distillation.

Conclusion: The cost-benefit analysis demonstrated that it is not feasible to build a solvent recovery plant in Malta. It is more costeffective to upgrade the local incinerator for the disposal of solvent waste.

OP6.09

Factors affecting the concentration of ciprofloxacin in ischaemic tissue

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Introduction: The efficacy of an antibiotic is often determined by how well it penetrates the tissue of interest. Ciprofloxacin is a fluoroquinolone antibiotic with excellent tissue penetration which is often given prophylactically or therapeutically to patients suffering from diabetic foot infections during debridement or amputation procedures related to these infections. The aim of this study was to determine which factors influence the concentration of ciprofloxacin in infected tissue of patients suffering from diabetic foot infections and peripheral arterial disease (PAD).

Methods: Blood and tissue samples were collected from patients who were admitted to Mater Dei Hospital for a debridement or amputation procedure over a 6 month period. Concentrations of ciprofloxacin in blood and tissue were determined using previously validated chromatographic methods and results were correlated to patient data and history.

Results: Blood and tissue samples were collected from 50 patients (33 male, 17 female; age 28-92 years). Forty-nine patients suffered from diabetes mainly type 2 diabetes (n=35). There was a significant positive correlation between the concentration of ciprofloxacin in the ischaemic tissue and the degree of PAD (p=0.00). A significant negative correlation was found between the concentration of ciprofloxacin and the number of different medications that these patients were taking (p=0.05).

Conclusion: PAD severity has an influence on the amount of ciprofloxacin reaching ischaemic tissue. Patients taking a greater number of medications to treat different co-morbidities had a lower amount of ciprofloxacin reaching the infected area.

Disclosure: We declare that the work is original, has not been published before and is not currently being considered for publication elsewhere. We wish to confirm that there are no known conflicts of interest that are associated with this publication and there has been no significant financial support for this work.

OP6.10

Design and optimisation of novel structures for the management of Alzheimer's disease

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Introduction: Literature indicates an association between Alzheimer's disease and the M1 muscarinic receptor. Specifically, it is known that abnormal tau phosphorylation causes hippocampal plaque formation which prevents entry of endogenous acetylcholine into the cognate M1 receptor ligand binding pocket (LBP), consequently impairing neuronal conductivity. This project aimed to use the antimuscarinic high-affinity antagonist tiotropium to design novel modulators of the M1 receptor.

Methods: To date, Xray crystallographic evidence describes exclusively the M3 isoform. A homology model was consequently created and tested for robustness using USCF Chimera. Tiotropium was extracted from the M3 LBP, docked into its M1 counterpart and conformational analysis performed. The optimal conformer was selected as a scaffold for the creation of a seed structure onto which novel molecules were introduced computationally using the Grow algorithm in LigBuilder.

Results: This process resulted in 200 molecules, classified into 12 chemical families. These were evaluated for Lipinski rule compliance, which reduced the molecular cohort to 124 in 11 chemical families. This was further analysed according to pharmacophoric structure and affinity. The highest-ranking structures in each family were proposed for optimisation and in vivo validation.

Conclusion: This study is valuable in proposing a homology model for the M1 receptor and for delineation of a pharmacophoric space in which novel molecular high-affinity Lipinski rule-compliant growth was computationally sustained.

OP6.11

Optimisation of novel selective cyclooxygenase2 inhibitors using resveratrol analogues as lead molecules

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Introduction: Cyclooxygenase (COX)2 catalyses the synthesis of prostaglandins which contribute to inflammation and cancer. Studies show that COX2 selective inhibitors have antitumour effects. However, their longterm use is limited by the risk of cardiovascular complications. COX2 is consequently a viable target for the design of inhibitors with an improved safety profile. This study considered resveratrol analogues which are selective COX2 inhibitors, namely 3,3',4',5 tetrahydroxystilbene and 3,3',4,4',5,5' hexahydroxy-stilbene, as lead molecules for the design of novel COX2 inhibitors.

Methods: Xray crystallographic deposition 3LN1, describing the bound coordinates of the celecoxib: COX2 complex, was selected from the Protein Data Bank. Celecoxib was extracted from the Ligand Binding Pocket (LBP) and its Ligand Binding Affinity (LBA) was calculated. 3,3',4',5 tetrahydroxystilbene and 3,3',4,4',5,5' hexahydroxystilbene were constructed and docked into the COX2 LBP. The 20 highest affinity conformers were generated, and LBA and Ligand Binding Energy (LBE) were calculated for each conformer. Graphs of LBA and LBE were plotted and the best conformers were identified. These conformers were edited to create seed structures with appropriately designated growing sites. Molecular growth was sustained and novel molecules were generated.

Results: 10% of the molecules derived from the seed of 3,3',4',5tetrahydroxystilbene and 10% of those derived from the seed of 3,3',4,4',5,5'hexahydroxystilbene were Lipinski Rules compliant. The LBAs (pKd) of these molecules ranged from 9.71 to 10.00, higher than that of celecoxib (7.40).

Conclusion: This study identified novel molecules which have high LBA for COX2, and oral bioavailability. These are suitable for inclusion into libraries of molecules which inhibit COX2 in order to be used in high-throughput screening.

OP6.12

Design of novel nonsteroidal structures capable of antagonism of the oestrogen related receptor alpha for the management of breast cancer

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Introduction: Oestrogen related receptor alpha (ERRα) maintains the growth of breast cancer cells by simulating oestrogen receptor function and vital cancer cell

metabolic processes. This makes ERRα a viable drug target specifically for ERnegative breast cancer management. The experimental steroidal molecule SR16388 is a high affinity inverse ERRα agonist and was used as a template for the in silico design of novel ERRα modulators. The aim was to eliminate the steroidal nucleus and associated adverse effects.

Methods: Protein Data Bank (PDB) Xray crystallographic deposition 2PJL describing the bound coordinates of the inverse agonist cyclohexylmethyl(1ptolyl 1Hindol3ylmethyl)-amine:ERRα complex was modelled in SYBYLX®v1.1 and the components separated. SR16388 was docked into the ERRα Ligand Binding Pocket (LBP) and conformational analysis was performed and the optimal scaffold for further modelling was identified. Structure Activity Relationship studies (SARs) guided the formation of seed structures onto which novel structures were computationally attached using the genetic algorithm embedded into the GROW module of LigBuilder®v1.2.

Results: A total of 310 molecules were generated (n= 67, 84, and 159 from seeds 1, 2 and 3 respectively). These were segregated into pharmacophorically similar families and ranked according to physicochemical properties and Lipinski Rule compliance.

Conclusion: The study was successful in the design of nonsteroidal ERRα high affinity structures that were also Lipinski Rule compliant. These were identified for optimisation and in vitro validation with a view to proposing lower side effect profile molecules suitable for long term use.

OP6.13

Audit of heart failure treatment in patients with an ejection fraction less than 50% on echocardiography

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Introduction: Ischaemic heart disease and heart failure (HF) account for 46.7% of all deaths in the Maltese islands. 3 classes of drugs are vital in the management of HF with left ventricular systolic dysfunction: angiotensin converting enzyme inhibitors (ACEI), beta-blockers, and mineralocorticoid receptor antagonists (MRAs). The aim of this audit is to verify whether patients diagnosed with HF are reaching the stipulated target doses according to guidelines, and to identify factors that influence HF treatment.

Methods: 150 patients who performed an ECHO in Mater Dei Hospital between May and August 2013, found to have an ejection fraction (EF) less than 50% were selected. Patients were contacted telephonically and asked about current treatment and doses.

Results: From 150 patients, 89 participated. Difference in EF between participants and non-participants, including deceased, was statistically significant (p=0.04). 73% were on ACEI/ ARB, 26% and 17% reaching target doses respectively. 49% were on beta-blockers, with 16% reaching target dose for carvedilol. Factors which positively influence appropriate ACEI/ARB treatment include cardiology follow-up (75% vs. 69%; p=0.08) and decreasing age (67.5% vs. 72%; p=0.048). There was no significant difference in gender and EF. There was trend towards positive influence for appropriate beta-blockers treatment with decreasing EF (p=0.06) and cardiology follow-up (p=0.08)

Conclusion: A significant number of patients are not on recommended HF medications and doses; especially the elderly, those with borderline/low EF, and those without cardiology followup. An educational campaign targeting general physicians should be instituted to ensure evidence-based management of all patients with a reduced left ventricular ejection fraction.

OP6.14

Predictors of outcome following myocardial perfusion scan

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Introduction: We sought to determine predictors of outcome following myocardial perfusion (MIBI) scanning, mainly myocardial ischaemia, myocardial necrosis, occurrence of coronary artery disease on coronary angiogram and 3 year mortality.

Methods: A sample of 479 patients who underwent MIBI during 2011 were investigated. Age, gender, full blood count, estimated glomerular filtration rate (eGFR), fasting blood glucose, liver and lipid profiles were evaluated. The presence of myocardial ischaemia, necrosis, positive coronary angiogram and 3-year mortality were noted. Data were analysed using IBM SPSS Statistics 23.0. Univariate followed by multivariate analyses were performed to assess for predictors of the above-mentioned outcomes.

Results: Twenty-three percent of patients exhibited ischaemia on MIBI. In univariate analysis, only higher RDW (red blood cell distribution width) showed a trend towards being higher in ischaemia (p=0.063). Myocardial necrosis was present in 34 patients; in multivariate analysis, only male gender was an independent predictor (*OR* 10.75;95% CI 2.52-45.66;p<0.001). Thirty-six patients had a positive coronary angiogram; in multivariate analysis, male gender (*OR* 2.59; 95% CI 1.15-5.85; p=0.022) and eGFR (*OR* 0.98; 95% CI 0.960.99; p=0.005) were independent predictors. At 3 years, 11 patients had died. Multivariate analysis revealed that eGFR was the sole predictor of mortality (OR 0.96; 95% CI 0.93-0.98; p<0.001).

Conclusion: In the study population, male gender was a predictor of myocardial necrosis and positive coronary angiogram while eGFR was a predictor of positive coronary angiogram and 3-year mortality. The results in the whole population of 1380 patients will be presented.

OP6.15

Uptake of unhealthy habits among Maltese grownup congenital heart disease patients

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Introduction: Most patients with congenital heart disease are followed up into adulthood. Follow-up became more structured from the early 1990s (individuals born after ~1976). We investigated differences in uptake of unhealthy habits by grown-up congenital heart disease (GUCH) patients (aged ≥16 years) when compared to the general Maltese population.

Methods: A specifically designed questionnaire modelled on 2008 European Health Interview Survey (EHIS) was given to consecutive GUCH outpatients between June 2013 and June 2014. Data on smoking, alcohol consumption and substance misuse was compared with that from 372 age and sex-matched EHIS 2008 responders (general cohort)

provided by the Department of Health Information and Research. Analysis was carried out using contingency tables.

Results: There were 125 GUCH responders (65 males; mean age 30.64 ± 12.80 years). There were significantly less smokers in the GUCH cohort (GUCH 18.4% vs general 32.0%, p=0.004), but no significant difference in alcohol consumption or substance misuse was noted. Analysis by age (born before vs after 1976) and sex revealed that the difference in smoking was only statistically significant for patients born after 1976 (p=0.011) and for females (p=0.013). Male GUCH patients showed a statistically significantly higher frequency of alcohol consumption when compared to general male counterparts (p=0.02).

Conclusion: Smoking is less prevalent among younger and female Maltese GUCH patients when compared to matched general population counterparts. Conversely, male GUCH patients drink alcohol more often than the general male population. More regular advice at clinical encounters might reduce uptake of these unhealthy habits.

OP6.16

Outcomes of transcatheter aortic valve implantation in Malta

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Introduction: Transcatheter Aortic Valve Implantation (TAVI) in patients turned down for surgical aortic valve replacement (sAVR) has been shown to offer significant prognostic and symptomatic benefit over conservative managment in the PARTNER B trial. TAVIhas been introduced in Malta for the treatment of severe symptomatic aortic stenosis. The aim of this registry is to monitor outcomes and complication rates of TAVI locally.

Methods: A prospective registry of patients undergoing TAVI in Malta has been kept since the programme started. Data regarding demographics, baseline characteristics, clinical history, reason for being turned down for AVR, procedure outcome and long term cardiovascular outcomes has been collected.

Results: Seventy-one patients (67.6% males) underwent TAVI between June 2010 and August 2015. The mean age was 76 ±8.16 years. An Edwards Sapien (ES) valve was used in 51 cases, while a CoreValve (CV) was used in 20 cases. The percutaneous trans-femoral route was used in 48 patients, while a femoral route using surgical cutdown was used in 4 patients. Nineteen patients underwent a surgical approach, 12 transapical and 7 using the direct aortic approach. The 30 day, 1 year, and 3 year mortality was 1.4%, 10% and 18.5% respectively. Peri-procedural stroke rate was 5.6%. Permanent pacemaker implantation rate was 10.9% and 41.2% when using the ES and CV devices respectively. 14.6% of percutaneous trans-femoral cases needed surgical intervention for vascular complications.

Conclusion: The outcomes from the TAVI programme in Malta has had excellent results comparable to international registries.

OP6.17

Haematological parameters in a trial of Perceval and Mitroflow aortic valve implantation

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Introduction: The Perceval tissue valve is a sutureless aortic valve that allows for fast implantation, reducing the morbidity of myocardial ischaemia. The Perceval valve uses similar valve leaflet treatment as the Mitroflow valve. We compared the haematological parameters in the first 20 patients receiving the Perceval valve with a propensity-matched control series of patients receiving Mitroflow valves.

Methods: Data was collected and completed at the point of discharge from hospital. Parameters included age, gender, length of stay, risk stratification scores, mortality and complication data, pre-operative stroke volume and ejection fraction, bypass and cross-clamp time, and preo-perative to post-operative day 7 blood test results. These were compared with the control series, matched for Euroscore.

Results: Results showed a statistically significant drop in platelet counts from day 0 to 6 ttest p=0.038, post-operative white cell counts p=0.034, and red cell distribution width (RDW) p=0.001 in the Perceval group as compared to the Mitroflow group. There was no difference in post-op haemoglobin levels. Logistic regression showed several predictors including cross-clamp time p<0.01, bypass time p<0.01, day 3 red cell distribution width p=0.02, and day 4 platelet count p=0.03.

Conclusion: The sutureless Perceval valve has the potential of shortening surgical time as compared to sutured valves. The low platelet counts in the initial post-operative period in the Perceval patients requires aspirin to be withheld initially. The drop may be due to platelet consumption onto the bare metal struts and may be mitigated by the introduction of a drug-eluting coating similar to the latest generation stents.

OP6.18

Longterm survival after aortic valve replacement: a twenty year relative survival study

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Introduction: This 20 year relative survival study investigates life expectancy in defined age cohorts and evaluates the role of patient, procedural and peri-operative variables on absolute survival after aortic valve replacement.

Methods: Absolute long-term survival variance was calculated using Cox regression analysis in 585 consecutive aortic valve replacement patients. Relative survival curves in defined age groups were constructed using age and gender-matched controls.

Results: There were 12 perioperative deaths (2.1%), and 11 further deaths (1.9%) during the first year. 154 patients (26.3%) died subsequently and 408 patients (69.7%) were alive after 20 years. Relative survival increased with age: in patients over 68 survival was equivalent to an age and gender matched population. Patient risk indicators for decreased absolute survival included age, Parsonnet score, additive and logistic

EuroSCORE, and for increased absolute survival included weight, body surface area, and stroke volume. Procedural risk indicators for decreased absolute survival included bypass time, use of a tissue valve, and prosthesispatient mismatch with size 19 valves, and for an increased absolute survival included use of a mechanical valve. Postoperative risk indicators for decreased absolute survival included ITU stay, ventilation time, transfusion, haemorrhage volume and new-onset atrial fibrillation/flutter. Strong risk indicators included intra-aortic balloon pump use, and dialysis.

Conclusion: Patients over 68 years discharged from hospital after aortic valve replacement had a similar 10year survival as an age and gendermatched population. In this age cohort surgery restored the patient's normal life expectancy.

OP6.19

Galectin3 levels in aortic stenosis patients

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Introduction: Aortic stenosis (AS) patients with increased myocardial fibrosis have a worse long-term outcome when undergoing aortic valve replacement (AVR). Galectin3 is a member of a family of β-galactoside-binding proteins that modulates cell to extracellular matrix interaction. Galectin3 level in the blood was shown to be a strong and independent predictor of heart failure hospitalisation and mortality in heart failure patients. The aim of this study is to look for a correlation between AS severity and blood galectin3 levels.

Methods: 69 AS patients together with 15 controls (7 with no AS, 8 with AVR or TAVI) were recruited for this study. All patients had an Echocardiogram, Galectin 3 and NTpro-BNP blood levels.

Results: Mean Galectin3 levels were 13.43ng/ml, 8.26ng/ml and 10.88ng/ml in AS patients, normal controls, and AVR controls respectively. There was a significant difference in Galectin3 levels between AS cases and normal controls (p=0.01), but no statistical difference between cases and AVR controls or between normal and AVR controls. No significant correlation between Galectin3 or NTproBNP levels and severity of AS. However, a reversed Ushaped curve was noted. There was a positive correlation between Galectin3 and NTproBNP levels (p=0.004).

Conclusion: This study did not show a correlation between Galectin3 levels and the severity of AS. However, this might be due to selection bias, as patients with severe AS and high Galectin3 levels might have undergone AVR or passed away.

Disclosure: Government PhD MGSS scholarship; University of Malta teaching resource funds.

OP6.20

ePortfolio for postgraduate medical training: the Malta experience

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Introduction: The ePortfolio is a dynamic, educational tool that records and facilitates the management of clinical and personal development through reflective learning. It exhibits the trainees' efforts, progress and achievements in one or more areas thus improving medical postgraduate training by enhancing the learning experience of our trainees and trainers.

Methods: Several foreign training institutions have their own training ePortfolio and in most countries this is speciality specific. The Malta Postgraduate Medical Training Centre (MPMTC) also felt such a need locally. A European Social Fund application was submitted and funding to create a local ePortfolio for all the medical specialities was awarded in October 2012. The software was developed over the last 30 months and was officially launched on the 24th April 2015.

Results: One hundred and fifty three (43.7%) trainees and 102 trainers have registered on the system in the first four months. After 3 months using the ePortfolio a 26-point satisfaction questionnaire is circulated electronically to the trainees. This shall be repeated after 6 months and after a year so as to gauge user satisfaction and so the MPMTC will be in a better situation to develop further the ePortfolio.

Conclusion: The local ePortfolio has been very well adopted by the various medical specialities, auguring well for the future. The overall satisfaction of the trainees who are already using it has been very positive (93% of respondents) expressing their satisfaction with the system. It is also helping to improve further the training programmes of the various specialities.

Disclosure: This project was cofunded by the European Union Social Fund (ESF).

OP6.21

Psychometric properties of the UMKCSOM Climate of Professionalism instrument

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Introduction: The learning of professionalism, primarily those moral and humanistic elements that underpin trust between doctor and society, often occurs within the 'hidden' curriculum. Since the learning environment critically influences professional behaviour of learners and faculty, assessment of the learning environment for professionalism is warranted. The UMKCSOM Climate of Professionalism instrument (UMKCSOM) offers a global measure of the climate of professionalism. This gives a measure of the perception of the frequency of professional behaviour (PB) and the teaching of professionalism (ToP) using a 4point Likert type scale. To be useful, the UMKCSOM must be reliable and valid. This study describes its psychometric properties.

Methods: The UMKCSOM was completed by 37 trainers (response rate 35.2%) and 64 trainees (response rate 53%). Reliability was assessed by Cronbach's α. Construct validity was assessed by Factor analysis. The level of significance was taken as p=0.05.

Results: Cronbach's α was good for the PB subscale alone (0.85), the ToP subscale alone (0.92) and both subscales combined (0.89). Principal Component Analyses gave a 4factor model explaining 64.78% of the total variance. Factor 1 corresponded primarily with role modelling and teacher qualities, Factor 2 with explicit teaching of professionalism, Factor 3 with demonstration of good professional behaviour and factor 4 with demonstration of inadequate professional behaviour. Factors 1 and 2 accounted for most of the variance.

Conclusion: The UMKCSOM distinguishes between professional behaviour and teaching of professionalism. Psychometric properties are adequate to allow for its use for assessment of the climate of professionalism.

OP6.22

Peer teaching in anatomy: does it really work? A cross-sectional, retrospective survey

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Introduction: During the last decade there was a raised global interest regarding the multiple benefits at different levels of formal peer teaching. This study aimed to explore the perceptions of first year medical students towards learning anatomy (using cadaveric specimens) through peer teaching.

Methods: A descriptive, cross-sectional, retrospective survey was carried out. Data was collected using an online questionnaire which was administered to all medical students who were in their second year of the Medicine and Surgery course and who had participated in sessions taught by their peers during their first year.

Results: 'Peer teaching' was reported to be one of the most effective methods of learning anatomy by more than half of the participants. Analysis of mean responses revealed that 'the peer teachers created a positive, nonintimidating learning environment'. Overall, participants gave positive feedback on their peer teachers. Seven categories emerged from the responses given by participants to why they would or would not recommend peer teaching. Ways of improvement as suggested by the respondents are also reported. Variables found to be significantly associated with the extent of learning through peer teaching included; gender, age, educational level and recommendations for peer teaching.

Conclusion: Peer teaching provides a sound platform for teaching and learning anatomy. This study brings to light the merits and demerits of peer teaching as viewed through the eyes of the peer learners. We hope that this study will encourage further discussions at higher levels in order to explore the feasibility of introducing formal peer teaching in the Maltese medical curricula.

OP6.23

The impact of the annual August trainee changeover on cardiac surgical outcomes in a single UK institution

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Introduction: It has been previously demonstrated that the month of August is associated with adverse patient outcomes, commonly attributed to trainee changeover and novice doctors. We sought to reevaluate this phenomenon at a UK-based specialist cardiac surgical centre with a focus on long-term outcome.

Methods: Prospectively collected data was obtained for all patients who underwent cardiac surgery at our institution between January and December 2013. Student t-test and Pearson's Chisquared test were used for statistical analyses.

Results: 165 patients (8.5% of the annual cardiac surgery workload) had operations in August. There was no difference in logistic EuroSCORE between August and the other months collectively (9.1±11.4 vs 9.8±12.4, p=0.496). Pre- operative (2.1±3.7 vs 2.5±4.6, p=0.353) and pos-toperative (10.2±6.0 vs 10.4±8.0) lengths of hospital stay were similar in both groups. Hospital mortality was higher in August (4.8 vs 2.0%, p=0.019). The difference at 90days (6.1 vs 4.1%, p=0.236) and at one year (9.1 vs 6.5%, p=0.199) was not statistically significant.

Conclusion: Inhospital mortality is higher for operations in the month of August.

OP6.24

Cardiac surgical training is safe for patients

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Introduction: We sought to evaluate the post-operative results of patients operated upon by trainees as the primary surgeon, at a single cardiac surgical centre in the United Kingdom.

Methods: Prospectively collected data were obtained for all patients who had cardiac surgery at our institution between January and December 2013. Patients operated by trainees were identified, and compared with propensity-matched control patients operated by consultant surgeons. Student's ttest and Pearson's Chisquared test were used for statistical analyses.

Results: During the study period, trainees performed, under direct consultant supervision, 482 surgical procedures of which 135 (28.0%) were urgent or emergent. There was no difference between trainee-led and consultant-led cases in logistic EuroSCORE (7.96±9.44 vs 7.72±9.52, p=0.691), operative time (227.1±64.8 vs 222.5±68.9 minutes, p=0.284), bypass time (95.1±42.9 vs 89.7±45.1 minutes, p=0.055), and aortic cross-clamp time (60.6±28.7 vs 57.0±32.8 minutes, p=0.072); hospital mortality (1.2 vs 2.3%, p=0.221) and 90-day mortality (2.5 vs 3.7%, p=0.266) mortality. Those patients operated on by trainees had a slightly shorter length of stay (9.2±5.2 vs 10.7±9.4 days, p=0.0023).

Conclusion: There is no demonstrable increase in operative times, morbidity or mortality associated with trainee-led cardiac surgical procedures performed under appropriate consultant supervision.

OP6.25

Evaluation of a teaching programme in an acute medical unit

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Introduction: Workbased education including learning and teaching are considered to be vital aspects of ongoing medical education. Acute medical units (AMUs) are busy departments where the opportunities for learning are substantial.

Methods: This cross-sectional survey evaluates the current state of postgraduate teaching in a busy Acute Medical Unit in a District General Hospital in the East of England. An electronic questionnaire was sent to all doctors who had worked in the department over the previous two year period. Descriptive statistical data analysis was performed on the obtained responses.

Results: There were 29 respondents representing a final response rate of 63%. The majority of respondents (75.9%) led at least one session with most agreeing that the opportunity had positively impacted on their teaching and presentation skills. The majority of respondents (85.7%) also agreed that the sessions were effective and translated adequately to their medical practice. Most respondents (89.7%) stated that the topics discussed were relevant to the daily practice of the unit with 65.5% indicating that their clinical decision making had been enhanced by the teaching on that subject.

Conclusion: In the future, it is hoped that newer evidence-based strategies for teaching will enhance the learning experiences in the Acute Medical Unit's educational programme by improving on an already positively received format. This survey demonstrates the overall positive impact that this training programme has after just two years of existence and it has been met by positive and constructive responses further indicating the need for such a teaching programme in the department.

OP6.26

Beware email invitations to submit a paper!

Justine Bugeja, Victor Grech

Introduction: Publishing is important for career progression. The traditional journal model results in subscribers bearing publication costs. The eagerness with which researchers seek journals for the publishing of their work, along with the internet, has resulted in the creation of a new model called Open Access (OA). Author/s or their institution/s pay an actual publication fee. This has in turn resulted in the creation of questionable journals which charge steep publishing fees.

Methods: Emails soliciting publication to one of the authors (VG) were collected for March 2015. Information collected included costs of OA publishing, and whether this information was readily available. Multiple solicitations from the same publishing house were counted only once. The appropriateness of said solicitations was also assessed, being considered appropriate if they suitably appertained to paediatrics, paediatric cardiology, or other topics with which the targeted author (VG) was familiar with.

Results: There were a total of 44 solicitations. 3 were duplicates. Out of 41 solicitations, 20 (49%) were appropriate. The open access fee was readily available in 27 out of 41 solicitations (66%). The open access fee averaged $475, ranging from $25 to $1500. The only journal which provided true OA was Medical Principles and Practice, with no fees charged whatsoever.

Conclusion: Potential authors should carefully investigate OA journals prior to choosing journals wherein to submit their work.

OP6.27

Assessing frailty and anaesthetic risk in the older patient

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Introduction: Frailty is an important assessment tool in the geriatric population, wherein decreased physiological reserve across multiple organ systems, leads to a diminished capacity to compensate effectively for external stressors. The aim of this study was to determine whether frailty correlates with anaesthetic risk in the older patient.

Methods: Frailty and anaesthetic risk were evaluated in the rehabilitation setting, at Karin Grech Hospital in Rehabilitation Ward 9. The former was quantified objectively using the Edmonton Frail Scale, whereas the latter was determined using the American Society of Anaesthesiologists Physical Status Classification System. The two were assessed blindly to limit researcher bias. Acutely ill patients were excluded from this study, on the assumption that their Edmonton frailty scores would be spuriously low. Spearman's correlation analysis was conducted to measure associations between anaesthetic risk and frailty.

Results: There were 26 patients evaluated: 77% were female. The mean age was 82 years (range 64-99 years). All patients were found to be frail; 69% scored as very frail on the Edmonton Frail Scale. Frailty was found to be positively correlated with anaesthetic risk (Spearman Correlation = 0.688, p=0.01). Regression analysis was conducted to account for potential confounders namely age and gender, with a resultant persistent positive correlation (r =0.662, p=0.001).

Conclusion: Frailty and anaesthetic risk were found to be strongly correlated in a population of older patients undergoing inpatient rehabilitation.

OP6.28

The use of enoxaparin in medical admissions to prevent hospital-acquired venous thromboembolism (VTE)

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Introduction: Venous thromboembolism has a high prevalence in hospitals with considerable morbidity, mortality and cost. In 2010, the National Institute of Clinical Excellence (NICE) issued guidelines aiming to decrease the number of VTE in inpatients. This audit aimed to assess the adequate prescription of enoxaparin as thromboprophylaxis (TP) in highrisk patients at Mater Dei Hospital.

Methods: Patients admitted under the care of seven medical firms from July 2013 to October 2013 were assessed. Risk factors for VTE and contraindications to TP were considered. Correct renal dosing of TP and appropriate enoxaparin use were noted. Patients on therapeutic doses of enoxaparin or on anticoagulation were excluded.

Results: A total of 558 admissions were analysed (51.1% males; 48.9% females). 167 patients (29.9%) were started on thromboprophylaxis; 159 had risk factors and from these 157 had no contraindications and 2 had contraindications to thromboprophylaxis. 8 patients on TP had no risk factors for VTE. 391 patients (70.1%) were not given thromboprophylaxis; 265 had risk factors for VTE with 84.9% having no contraindications to TP and 15.1% having contraindications. The remaining 126 patients had no risk factors for VTE. 14 patients had an eGFR <30ml/min/1.73m2; the dose was correctly decreased in 57.1% and not decreased in 42.9%. All patients with a normal eGFR were given the correct TP dose.

Conclusion: Thromboprophylaxis in patients with risk factors for hospital-acquired VTE remains inadequate. A modified treatment chart including a section for thromboprophylaxis or anticoagulation may be introduced to alert doctors to prescribe TP in high-risk patients to improve outcome.

OP6.29

An audit on testosterone therapy in adult males with androgen deficiency

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Introduction: Hypogonadism affects around 2.1% and 12.8% of adult males. The aim of the audit was to determine concordance with the Endocrine Society Clinical Guideline on testosterone therapy in adult men with androgen deficiency syndromes (2010).

Methods: Case notes of 235 patients prescribed testosterone esters between 2006 to 2014 were reviewed.

Results: Data analysis was carried out on 65% of the cohort (N=153). Patients complained of 0, 14, 58 hypogonadal

symptoms (N= 17%, 67% and 16% respectively). 76.5% of the patients had repeatedly low testosterone. 77% and 20% of the patients suffered from secondary and primary hypogonadism respectively. Patients suffering from secondary hypogonadism had thyroid-stimulating hormone levels (94%), serum prolactin (92%), serum cortisol (91%), growth hormone levels (89%) and iron studies (43%) taken. 77% of patients suffering from secondary hypogonadism had magnetic resonance imaging of the pituitary, with abnormality reported in 53%. 2.5% of these patients had computed tomography scan of the brain. No patient had a past history of breast or prostate cancer. Pre-treatment, patients were assessed for prostate pathology (7%), prostate-specific antigen (PSA) (39%) and bone mineral density (BMD) (33%). Patients were reviewed at 36 months (35%) and then annually (88%) after treatment initiation. Testosterone esters used and treatment outcomes in terms of sexual function and osteoporosis will be presented.

Conclusion: The audit identifies the need for detailed documentation of signs and symptoms and to reconfirm testosterone levels prior to starting treatment. Pre-treatment and follow-up BMD and PSA estimates are mandatory, with patient review at 36 months.

OP6.30

Detailed epidemiology and radiological geometric assessment of pituitary macroadenomas: a population based study

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Introduction: Pituitary adenomas are relatively common tumours with diverse clinical features and considerable health burden. Epidemiological data is important to quantify health burden. The aim of the study was to provide indepth epidemiological data on macroadenomas and radiologically characterise macroadenomas.

Methods: Population based retrospective analysis: Main outcome measures: prevalence rate 2014; standardised incidence rates (SIR) 2000-2014; retrospective analysis of baseline MRI. Patients: 173/136 patients with macroadenomas for prevalence/SIR estimates respectively, 122 baseline MRI for radiological characterisation.

Results: The prevalence for macroadenomas was 40.67/100,000 people and the SIR was 1.90/100,000/year. Giant pituitary adenomas (>40mm) constituted 4.8% of the whole cohort of PAs and the SIR was 0.18/100,000/year. Giant prolactinomas constituted 4.7% of all the prolactinomas and the SIR was 0.07/100,000/year, while giant NFPA constituted 6.0% of all NFPA and the SIR was 0.12/100,000/year. There was a statistically significant difference in the degree of suprasellar extension ($p<0.001$) and infrasellar extension ($p= 0.028$) between the different macroadenoma subtypes and in the suprasellar extension values (median suprasellar extension value NFPA 3.0mm; PRLoma 7.7mm; GHsecreting PA 1.7mm; $p<0.001$). Pituitary macroadenomas with cavernous sinus invasion were statistically significantly larger than those without cavernous sinus invasion ($p< 0.001$). NFPA had predominantly a superior extension into the cavernous sinus (63.6%) compared to the functional PAs who had predominantly an inferior extension into the cavernous sinus (59.1%) ($p=0.032$).

Conclusion: The various macroadenoma subtypes' epidemiological data are presented and differences between growth patterns among the various subtypes are highlighted.

OP6.31

A local study on patient knowledge on the use of botulinum toxin in neurological disorders

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Introduction: Patient education is central to clinical management as it allows for proper informed consent, as well as compliance and satisfaction with treatment. Our aim was to ascertain patients' knowledge regarding botulinum toxin in comparison with the general population, in order to identify areas of unfamiliarity with this medicine.

Methods: Patients receiving botulinum toxin for any neurological disorder over a 1-year period were identified. The control group consisted of age and gender matched individuals who have had no contact with the drug. Both groups were required to answer the 'Patient Knowledge Questionnaire on botulinum toxin Use in Movement Disorders', designed and presented by Schoffer et al. in 2007. We assessed the knowledge of our local population of patients and compared this to the control group using the Kruskall Wallis statistical test. Patients were also asked to grade the importance of counseling on various aspects of knowledge related to this drug.

Results: 69% of identified patients agreed to participate in the study. Patients felt that education on all aspects of treatment was 'very' or 'somewhat' important. Despite this, their knowledge about botulinum toxin was not significantly greater than that of controls ($p=0.134$). Patients were more confident in asserting whether a statement on the drug was correct or not ($p=0.03$), however, they were much more likely to answer erroneously ($p<0.0001$).

Conclusion: Patients are lacking in knowledge about botulinum toxin, despite recognising the importance of counseling about this treatment. An information leaflet has been drafted for the consenting of future patients.

OP6.32

An audit of respiratory assessment and noninvasive ventilation management in motor neurone disease

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Introduction: Motor Neurone Disease (MND) results in respiratory muscle weakness and respiratory failure with significant morbidity and mortality consequences. Non-invasive ventilation (NIV) improves quality of life in MND. Caring for MND in a multidisciplinary clinic has demonstrated better prognosis for survival than care from general neurology clinics and there is marked national variation in clinical practice. The aim of this audit was to review current respiratory assessment practice and to compare compliance to the levels advised by the NICE Guidelines in the Wessex Deanery.

Methods: MND patients currently under the care of our NHS trust were retrospectively reviewed through review of online and paperfile based records. The NICE CG105 Guideline Collection Tool was used to assist data collection.

Results: Of the 35 patients eligible for review, 26 were included (74.3%). Of the participants, 9 were male and 17 were female with a mean age of 65.5 years (range 44 – 87 years). Four patients had bulbar onset type (15.4%), twelve were limb onset type (46.2%) and the remainder (n=10; 38.5%) were of an atypical onset / undocumented. The majority of patients were reviewed more frequently than three monthly as required by NICE.

Conclusion: The care and management of NIV in MND patients was noted to be good with some areas of concern due to documentation limitations. Follow-up is conducted on a regular basis as agreed by NICE guidance and respiratory assessment is excellent. The areas for improvement were documentation methodology and respiratory referral in the community.

OP6.33

Male infertility at the male urology infertility clinic, Mater Dei Hospital Malta

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Introduction: Male infertility in the Maltese islands is poorly characterised. This retrospective study aims to determine whether the Maltese population, as presenting to the Male Urology Infertility Clinic (MUIC), is comparable to the patients attending the Institute of Reproductive Medicine of the University of Münster, a typical dataset quoted in the 2015 European Association of Urology (EAU) Guidelines on Male Infertility.

Methods: A total of 85 (n=85) patients with an average age of 35.3 years, range: 30-55, SD±4.9, attended the MUIC from 17/01/2015 to 01/08/2015. Clinical data pertaining to the complete cohort of the clinic's first intake was digitized from notes and analysed.

Results: The aetiological proportions of the MUIC and Münster cohorts were compared using the Chisquared test. All categories investigated showed no significant difference, excepting hypogonadism (p=0.034). Further subgroup analysis of the azoospermic subset (n=19) was also performed, though the numbers were too limited for a meaningful mathematical comparison. The commonest aetiology encountered within this subpopulation were anomalies of the cystic fibrosis locus. Five patients had polymorphisms of the CFTR gene, all of which exhibited 7T polymorphisms, including two which had concurrent 9T polymorphisms. A further patient was heterozygous for two separate CFTR gene mutations.

Conclusion: The aetiologies appear to follow those of a major European tertiary referral centre, with the difference being possibly attributable to the smaller number of patients investigated locally. Considering that this is the initiation of the MUIC program, case selection procedures may have prioritised certain characteristics of presentation, introducing a further confounding factor.

OP6.34

Thyroid aspiration cytology: a three year correlation study with histopathology

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Introduction: Thyroid gland fine-needle aspiration cytology (FNAC) is a routine diagnostic test for the evaluation of thyroid disease. The procedure is rapid, cost effective and safe, especially when the aspirate is ultrasound guided. The aim of this study was to correlate the cytological findings with subsequent histological follow up of the excised specimens in order to assess diagnostic accuracy and evaluate quality of cytopathology reporting at Mater Dei Hospital and to improve outcomes.

Methods: This study was conducted on all thyroid FNAs performed between January 2012 and December 2014. The cytological diagnosis was categorised using the Bethesda System for Reporting Thyroid Cytopathology. All FNAs were reviewed and compared to the subsequent histology when this was available.

Results: A total of 1076 FNA cases were included; of these 308 patients (29%) had a partial or complete thyroidectomy. The sensitivity, specificity, positive predictive value and negative predictive values of a thyroid aspirate for the detection of a neoplasm were 96%, 75%, 72% and 96% respectively. The specificity rises to 93% if benign aspirates which did not have follow up histology and are assumed to actually represent benign conditions are included.

Conclusion: Fine needle aspiration thyroid cytology is an effective and minimally invasive technique for the pre-operative assessment of patients with thyroid nodules. Diagnostic pitfalls include adequacy of the aspirate, overlapping cytological and histological criteria and diagnosis of suboptimal specimens.

OP6.35

Personalized medicine: KRAS genotyping of colorectal adenocarcinomas in Malta

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Introduction: Mutations in the KRAS oncogene are negative predictors of response of advanced colorectal cancer (CRC) to antiepidermal growth factor receptor (EGFR) antibodies. KRAS mutation analysis has been offered as part of the local genetics service for the past three years. The aim of this study was to assess the findings and correlate them to treatment outcomes.

Methods: All CRC cases referred to the Laboratory of Molecular Genetics for KRAS mutation analysis were included. Specimens (n=16) consisted of histological shavings from formalinfixed, paraffinembedded sections from primary or secondary tumours consistent with CRC. DNA extraction was followed by the detection of KRAS mutations using a highly sensitive realtime PCR kit which detects 1% mutant DNA in a background of wildtype DNA.

Results: To date, KRAS mutations were found in 56.25% of all the specimens tested. Two thirds (66.7%) of the mutations were found in codon 12, while the remaining third was found in codon 13. The absence of KRAS mutations made patients eligible for the addition of biological agents to chemotherapy; correlation of tumour genotypes with actual treatment outcomes will be discussed in detail.

Conclusion: KRAS mutations are highly prevalent in advanced CRC. The correlation of these mutations with lack of response to antiEGFR therapy highlights the importance of KRAS testing as a predictive tool in personalized medicine. Patients harbouring KRAS mutations can be directed to other treatment options with a higher chance of success. Future work will include continuous monitoring of findings as well as retrospective validation of results by Sanger sequencing.

Disclosure: KRAS testing was carried out through the Pathology Department, Mater Dei Hospital

OP6.36

Cost comparison of oral capecitabine versus intravenous 5fluorouracil/folinic acid in cancer based treatment

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Introduction: Fluoropyrimidines play a central role either as monotherapy or as part of a combination therapy in the management mainly of colorectal cancer. Due to poor oral absorption, 5Fluorouracil (5FU) is administered parenterally together with folinic acid (FA) for an improved response rate and survival time. With comparable efficacy and safety profile to 5FU, capecitabine was rationally designed as an oral tumour-activated 5FU prodrug thereby preventing complications and inconvenience of intravenous administration. The aim of this study was to compare direct costs associated with two chemotherapy regimens [capecitabinebased therapy versus 5FU/FAbased therapy] in patients suffering from malignancy.

Methods: A retrospective study was conducted over a 6 month period (January to June 2015) for all patients requiring 5FU/FAbased therapy as part of their chemotherapy protocol at Sir Paul Boffa Hospital. The economic implications associated with the administration of 5FU/FA were calculated and compared to that of capecitabine. Direct costs include expenses involved in drugs acquisition, consumables for reconstitution, intravenous infusion bags and hospital admission costs. Indirect costs involved in prescribing, quality control documentation, reconstitution and administration of the drug were not financially quantified.

Results: An average of 126±10 patients were administered 5FU/FA each month. 84±5 of these patients required hospitalisation for two nights for treatment with 5 FU/FA/oxaliplatin every fortnight for a total of 12 cycles. This amounts to €617,774.16±45937.26. On comparison, the total cost of capecitabine/oxaliplatin treatment regimen is €150,958.08±8985.60. Hence, a resultant costsaving amount of €466,816.08±36951.66.

Conclusion: Capecitabine offers a costsaving alternative to intravenous 5FU/FA for patients requiring hospitalisation in this clinical setting.

OP6.37

Cost implications of current dose rounding in high cost parenteral anticancer treatment and potential cost savings with a 5% dose rounding

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Introduction: Literature indicates that a 5% decrease in doses of parenteral anticancer treatment is practised and acceptable for a number of oncologists as a source of cost savings and waste minimisation. Locally, dose is rounded from the original prescribed dose to the nearest graduation on the syringe by the pharmacy reconstitution unit. The aims of the study were to explore the current variance in dose rounding from the original prescribed dose in high cost anti-cancer treatment, and to determine the potential financial benefits of up to 5% dose rounding.

Methods: A retrospective study was conducted over a 5month period for all patients at Sir Paul Boffa Hospital requiring parenteral anticancer treatment (monoclonal antibodies and cytotoxic chemotherapy) which cost ≥€50 per unit vial. Eight drugs were selected. The cost of the variance between the prescribed and the rounded dose was calculated and compared to theoretically reduced doses of 5%. A 10% variance, as cited in literature, was also calculated for trastuzumab as a monocolonal antibody with the highest consumption.

Results: In all, 671 doses of trastuzumab, rituximab, bevacizumab, pemetrexed, raltitrexed, topotecan, vinorelbine and ifosfamide were identified. Current dose rounding resulted in a cumulative cost increase of €278.62 for these selected drugs. A potential theoretical dose rounding of 5% translated in cost saving of €19,450.71. A potential cost saving of €21,154.20 was calculated when trastuzumab doses were rounded up to 10%.

Conclusion: Dose rounding of anticancer agents to 5% of the prescribed dose and 10% for trastuzumab could result in cost savings and waste minimisation.

OP6.38

Glucose deprivation affects pancreatic cancer cells survival: a new therapeutic approach

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Introduction: Pancreatic cancer (PC) is the fourth leading cause of cancer related deaths and available therapeutic strategies, based on conventional chemotherapy, result in a progressive resistance to treatment. As PC cells metabolism significantly diverges from normal cells, targeting cellular metabolism may represent a new therapeutic strategy. In this study we characterized the metabolic profile of PC cell lines and investigated their response to glucose deprivation.

Methods: BXPC3 and PANC1 cell lines were cultured in control medium (CM) or in glucose deprived medium (GDM). O2 consumption was measured by a Clark type electrode. OXPHOS enzyme complexes subunits were evaluated by Western blotting. MTS assay assessed cell viability, apoptosis and ROS were detected by flow cytometry following AnnexinV assay and DCFHDA staining, respectively.

Results: BXPC3 and PANC1 were assayed by a comparative analysis of the rate of mitochondrial respiration, displaying a lower efficiency of oxidative phosphorylation system by BXPC3. GDM culture increased mitochondrial respiration in BXPC3, upregulating OXPHOS enzyme complexes subunits expression with a significant increase in complex I and IV ($p<0.05$ versus CM). Interestingly, GDM culture significantly reduced cell viability in both cell lines compared to CM with BXPC3 showing a marked sensitivity to energy deprivation compared to PANC1 ($p<0.001$). Moreover, apoptosis and ROS measurement showed a remarkable cytotoxic effect in BXPC3 grown in GDM compared to PANC ($p<0.01$).

Conclusion: Our results reveal that the reduction of the glucose intake significantly affects the drug response in highly glycolitic cells. Defining the metabolic feature may represent an additional important target for developing new therapeutic strategies to overcome chemoresistance.

OP6.39

Assessing the quality and completeness of request forms in the histopathology department

Adriana Grech, Michelle Ceci, James Degaetano

Introduction: The histopathology department receives on average 70 specimens a day. These specimens are received from different departments and from different hospitals, including Mater Dei Hospital, Sir Paul Boffa Hospital/Sir Anthony Mamo Oncology Centre, Gozo General Hospital and also health care centres. Each of these specimens are sent with an accompanying handwritten request form, which must be filled in diligently. This request form includes details about the specimen and the patient it belongs to, which are crucial for a histopathologist to give an accurate pathological diagnosis. This audit aims to assess the quality and completeness of these request forms.

Methods: This was a prospective audit done over a span of 4 days, in which all request forms received on each day at the histopathology department were considered. Specimens that were sent as part of a clinical study and those which required further fixing or decalcification, were excluded from this audit.

Results: A substantially large amount of request forms lacked important information, which included fundamental details such as the patient's identity card number and other basic information like the patient's age and gender. Moreover there were some request forms which were completely illegible.

Conclusion: There definitely is room for improvement with regard to the submitting of histopathology request forms. Most problems that were identified, could very easily be avoided with some care and attention to what is required on the form. Inadequate request forms submitted to the laboratory create delays in issuing reports and hence reduce the efficiency of the department.

OP6.40

The efficacy of lymph node fine needle aspiration cytology

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Introduction: Fine needle aspiration cytology (FNAC) of lymph nodes is a safe, easy, cheap and quick tool, which involves the examination of a random sample of cells from a lymph node. To assess the distribution of diagnostic categories and the efficacy of lymph node fine needle aspiration cytology at our institution. These were compared to the literature.

Methods: All of lymph node FNAC cases taken between the 1st January 2012 and the 31st December 2013 were retrieved from our Laboratory Information System. A total of 300 cases were retrieved and then placed into one of six categories; Category 1: Nondiagnostic, 2: Reactive, 3: Probably reactive but lymphoma cannot be excluded, 4: Non-Hodgkin lymphoma, 5: Hodgkin lymphoma, and 6: Metastasis. These were then correlated with the histology of the lymph node excision specimens.

Results: The proportion of diagnoses placed under categories 1, 2, 3, 4, 5 and 6 represent 14%, 53%, 4.3%, 5.7%, 1.7% and 21.3% of the total respectively. The overall efficacy of FNAC showed a sensitivity of 84.5%, specificity of 99.3%, a false negative rate of 10%, a false positive rate of 0.7%, accuracy of 93.1%, positive predictive value of 98.8% and negative predictive value of 89.9%.

Conclusion: FNAC of lymph nodes is a very useful and effective tool in triaging patients with lymphadenopathy.

OP7.02

An observational study of obstructive sleep apnoea in Malta

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Introduction: The Maltese population has one of the highest BMIs. Up to 10% of the population suffers from diabetes, with coronary artery disease being the top cause of death. No data exists about OSA and associated comorbidities in Maltese patients.

Aims: To assess appropriateness of referrals to sleep laboratory; to describe local OSA population; to assess coexistence of OSA and CAD.

Results: 377 patients included, referred to the sleep laboratory between August 2010 & December 2011. Mean BMI: 37.31kg/m2. Mean AHI: 31.81. 86.21% diagnosed with OSA; 50.77% of these having severe OSA. Average HbA1c: 7.3%. 78 (20.69%) of 377 patients underwent coronary angiography; 46 (58.95%) being diagnosed with CAD. 43 (93.48%) of those having documented CAD also had OSA. A positive correlation found between AHI and BMI ($r=0.35$, $p=0.001$)

Conclusion: The local OSA population was severely obese with a mean AHI of 31.81. Referrals for investigation were appropriate in most cases (86.21%), more than half (50.77%) having severe OSA. 12% of patients referred for sleep study had documented CAD with the majority diagnosed with OSA (93.48%). The high mean AHI suggests that patients are being identified at a later stage of their disease. OSA is an independent risk factor for CAD and the two often co-exist. This is especially relevant in our local OSA population due to the high prevalence of diabetes and CAD. This study confirms that OSA within the local population is a potential major health problem that needs more research to describe the prevalence of the condition and associated comorbidities.

OP7.03

A local perspective on risk factors and short term outcomes in community-acquired pneumonia

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Introduction: Community-acquired pneumonia (CAP) remains a common serious infection in developed countries. Several studies have described factors that have been shown to influence CAP outcomes. This observational study sought to identify which risk factors are associated with short-term outcome in adult patients hospitalised with radiologically-confirmed CAP in Malta.

Methods: All adult patients admitted with a radiologically diagnosed CAP for 2 consecutive years were included in this retrospective observational study. Demographic data was collected. In-hospital stay was monitored to record duration of hospitalisation, complications, level of care required and outcome morbidity and 30-day mortality. A $p<0.05$ was statistically significant.

Results: Our cohort included 211 patients (mean age 77±12, 58.8% males). Mean duration of hospitalisation was 9.9±7.5 days. Regression analysis identified that an increased 30-day mortality was positively associated with increased CURB score (*OR* 15, 95%CI: 5.1-44.2 for CURB score of 3 and OR 13.2, 95%CI: 3.07-56.6 for CURB score of 4), radiological severity of pneumonia (OR 2.76, 95%CI:1.3-5.8),

and increasing age (OR 1.03, 95%CI:1.002-1.06). In contrast, mortality was lower in patients taking warfarin treatment on admission (OR 0.24, 95%CI: 0.11-0.52). Such patients also exhibited fewer complications when compared to the control group. Smoking history and the presence of comorbidities did not show statistical significance.

Conclusion: In hospitalised patients with CAP, increased 30-day mortality was increased with age, radiological extent and increased CURB65 score. Anticoagulation with warfarin seems to have a better outcome. Early identification of CAP patients at risk, can help decrease complications and improve outcomes.

OP7.04

Pulmonary rehabilitation in pulmonary fibrosis patients benefits of a 12 week programme

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Introduction: Pulmonary Rehabilitation (PR) is now well-established in the care of chronic obstructive pulmonary disease patients. Thus, it seemed reasonable to see whether this benefit extended to other notibly common respiratory conditions like pulmonary fibrosis.

Methods: Forty-six subjects diagnosed with pulmonary fibrosis were recruited in this study. A baseline assessment was carried out before enrolment into the programme which included lung function tests, haematological investigations, exercise tolerance and health related quality of life measures. A twice weekly, 12 week multidisciplinary PR programme was delivered. All participants were assessed at 4 weekly time points throughout the intervention.

Results: From the 46 subjects enrolled, 35 patients completed the full programme. Exercise tolerance as measured by the 6 minute walk test significantly improved after 12 weeks of rehabilitation by a total distance of 52-metres (p=0.002: SD=95.51: F=697.947: df=1, 34). Significant changes in this measure were recoreded by the 8th week and were maintained till the 12th week (p=0.002). According to the St George's Respiratory Questionnaire (SGRQ), there was only a significant improvement in symptom domain (p=0.004: SD=18.84: F=105.368: df=1,34) noted by the 8th week of rehabilitation.

Conclusion: From this study, one can note that this PR programme resulted in significant improvement in the functional aspect as measured using the 6 minute walk test and symptomatology as recorderd by the SGRQ.

OP7.05

The effects of pulmonary rehabilitation (PR) on inflammatory markers in stable chronic obstructive pulmonary disease (COPD) patients

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Introduction: COPD is characterised by persistent and progressive airflow obstruction with enhanced chronic pulmonary inflammatory responses, possibly also having a systemic component. In view of the current debate, this study explores the response of several inflammatory markers commonly elevated in COPD patients following PR.

Methods: Forty-nine patients participating in a 12 week PR programme were screened for a series of inflammatory markers. White blood cell count (WBC), Erythrocyte Sedimentation Rate (ESR), C Reactive Protein (CRP), eosinophils and neutrophils were taken at 4 weekly time points during the intervention and repeated at 28 and 52 weeks after completion of the programme. Serum Amyloid A (SAA) was measured at baseline, 8th and 12th week and exhaled nitric oxide was measured at the start and end of PR.

Results: No significant changes in these markers was noted with this intervention. However, at 8 weeks, CRP [mean value 8.93mg/L (SD:7.99) to 11.88mg/L; (SD:14.08)] and ESR [mean value 16.83mm/h (SD:12.37) to 21.98mm/h (SD:18.66)] showed an impressive peak which however was not statistically significant. SAA levels were significantly higher at 8 weeks as compared to baseline (z=2.114, p<.05). In the final 4 weeks there was a decline to starting levels. This increase was not related to a rise in WBC, eosinophil and neutrophil counts. Exhaled nitric oxide levels decreased from 20.58ppb (SD:17.44) at baseline to 16.9ppb (SD:8.10) at 12 weeks.

Conclusion: Exercise delivered through a PR programme did not result in any statistically significant change in the inflammatory markers.

OP7.07

Mental health literacy what we don't know, we fear!

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Introduction: The Malta Health Literacy Survey, 2014 revealed that 45.6% of respondents found it "fairly difficult", "very difficult" or "didn't know" how to find information on managing mental health problems. This contrasts with the European Health Literacy Survey, 2012 finding of 37.2%. Whilst investment in health promotion for physical diseases is justifed, adequate local investment in public mental health remains lacking. This study aims to introduce the concept of mental health literacy, analyse the social determinants of persons experiencing difficulty with this question, and propose recommendations for action.

Methods: Following a literature review, an analysis was carried out using the anonymised dataset (n=1514) of the Malta Health Literacy Survey in relation to a number of social determinants.

Results: From records available for analysis, 46.5% of males and 48.1% of females had difficulty with the relevant question, with women experiencing more difficulty. 50.4% of those aged <25 years and 50.0% of those aged >76 years also experienced difficulty. 47.9% of persons in the Northern Harbour compared to 41.2% in the Western district experienced difficulty, whilst 33.3% of those in the "very difficult" response group were from the South Harbour. 13.9% of persons in the "very difficult" group gave a bad/very bad self-assessed health status compared to none in the "very easy". 58.4% of the "very difficult" group had one or more long term illness, compared to 35.7% of the total sample.

Conclusion: The analysis indicates the need to invest in public mental health, targeting women, youths, the elderly, and the Northern and South Harbour districts.

OP7.08

Pilot testing international diabetes definitions

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Introduction: Lack of consensus prevails regarding the definition of impaired fasting glucose (IFG). The World Health Organization (WHO) defines IFG as a fasting glucose (FBG) > 6.1mmol/L whilst the American Diabetes Association (ADA) defines it as FBG > 5.6mmol/L. Both set its upper limit at <7mmol/L. IFG cases are at higher risk for impaired glucose tolerance (IGT) and diabetes type 2 (T2DM).

Methods: An ongoing prevalence study in Malta followed ADA criteria for IFG and performed 2 hours, 75g oral glucose tolerance tests (OGTT) on all IFG cases among participants. Initial FBG and subsequent OGTT results were compared to WHO criteria. Data for the first 3 months are presented.

Results: Of 314 persons tested, 70 fell in the IFG range and required OGTT testing. Among these, 1.4% (n=1) qualified as diabetic; 12.9% (n=9) had impaired glucose tolerance (IGT); 50% remained in the IFG category (n=35) while 35.7% (n=25) were normoglycemic. Initial fasting levels of 36 cases fell within IFG range (WHO criteria). Yet, OGTT revealed 22 as having subsequent fasting levels of <6.1mmol/L i.e. no longer IFG. Ultimately, OGTT testing revealed 40.9% as normal, 45.5% as IFG, and none fell in the DM criteria. The only T2DM case had an initial fasting of >5.6<6.1mmol/l i.e. IFG by ADA criteria. However, OGTT here revealed fasting >7.0 and an abnormal 2nd hour level.

Conclusion: WHO criteria lacked sensitivity and missed the T2DM case here. Contrastingly, ADA criteria lacked specificity but ultimately had higher sensitivity and enabled DM identification.

Disclosure: University of Malta, Alf Mizzi Foundation, Atlas Insurance and RIDT as main funding sources

OP7.09

Teenage delivery rates in Malta

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Introduction: Teenage deliveries are associated with poorer health outcomes, increased chances of the mother leaving school with little or no qualifications and an increased risk of living in poverty. Developed countries have documented recent decreases in teenage pregnancies. This analysis aims to examine rates of teenage deliveries (<18 years) in Malta over the past 15 years.

Methods: Data for all births and deliveries on the Maltese islands is routinely collected by the National Obstetrics Information System (NOIS) within the Directorate for Health Information and Research. Anonymous data on teenage deliveries occurring between 2000-2014 were obtained from NOIS and analysed using MSexcel and chi-square test for trends.

Results: In the 15 year period 2000-2014, a total of 60,380 deliveries and 61,365 births were registered with NOIS, of these 1,259 deliveries and 1,268 births occurred to mothers <18 years. The rate of deliveries in teenage mothers shows a steady increasing trend between 2000-2009, from 1.81% (n=78) in 2000 to 2.72% (n=112) in 2009 (p=0.001), followed by a very significant decrease in the past 5 years from 2.35% (n=93) in 2010 to 1.07% (n=46) in 2014 (p<0.0001). Data on terminations of pregnancies in the UK and Italy on women residing in Malta show no significant changes over the time period.

Conclusion: Malta is currently experiencing a decrease in teenage deliveries; the reason for this is unclear and merits further research into possible related factors. The literature documents several sociocultural factors as influencing teenage delivery rates, including education, sexual behaviour, terminations, low family socio economic status and family disruption.

OP7.10

Life expectancy, mortality and elections: are elections bad for our health?

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Introduction: Examination of trends in Malta shows a visible stagnation of life expectancy around general election years. This study seeks to explore this phenomenon through epidemiological analysis.

Methods: Dates of general elections for the period between 1985 and 2013 were obtained. Cause specific mortality data was extracted from the Malta National Mortality Register and included all-cause mortality, circulatory diseases, ischaemic heart disease, cerebrovascular disease, other heart diseases and suicides. These were examined on the basis of literature from other countries. Age specific mortality rates for the same period were calculated. Data was analysed using Poisson's regression.

Results: A significant increase in mortality during election years resulted for circulatory diseases (p<0.005; IRR 1.058; 95% CI 1.029 – 1.087), cerebrovascular disease (p<0.005; IRR 1.09; 95% CI 1.03 – 1.15) and heart failure (p<0.005; IRR 1.36; CI 1.28 – 1.45). An increased mortality also occurs during pre-election years for circulatory disease (p<0.005; IRR 1.046; CI 1.017 – 1.075) and heart failure (p<0.005; IRR 1.33; CI 1.25 – 1.42) and during post-election years for cerebrovascular disease (p<0.05; IRR 1.08; CI 1.02 – 1.15) and heart failure (p<0.005, IRR 1.19; CI 1.11 – 1.27), with respect to other years. Less suicides take place during election year than any other years.

Conclusion: This study confirms earlier local work which found an association between acute cardiac coronary events and election years. Further research on individual physiological and psychological responses around election times is warranted to provide evidence for awareness amongst the general public and health care workers during election times.

OP7.11

Catheter-related peritoneal dialysis infections in Malta

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Introduction: Catheter-related infections (CRIs) are still a cause of morbidity and mortality in peritoneal dialysis (PD) patients. The epidemiology of CRIs in Malta is largely undocumented.

Methods: This was a prospective study on all prevalent PD patients in Malta between 2013 and the first quarter of 2015. Analyses of CRI rates and microbiology was done. PD catheter-related infections included both exit-site and tunnel infections. Exit-site infections were defined according to the recommendations of the International Society of Peritoneal Dialysis (ISPD). A peritoneal exit-site scoring system was incorporated according to ISPD guidelines.

Results: CRIs for 2013, 2014, and first quarter of 2015 were 0.35, 0.91 and 0.85 episodes/patient/year at

risk respectively. The relatively low value in 2013 coincided with a relatively high number of relapse episodes, mainly of *Staph aureus* and *Pseudomonas aeroginosa* infections. Gram-negative organisms accounted for 50.6% of infections. The predominant Gram-positive infections were due to *Staphylococcus* and that for Gram-negative due to Pseudomonas. There was no PD related mortality during these years, unlike the previous five year period 2008-2012, with a total PD infection rate of 4.4%.

Conclusion: Peritoneal dialysis catheterrelated infection rates have improved over last year. Mortality rates have drastically decreased. The predominant organisms remain *Staphylococus aureus* and *Pseudomonas aeroginosa*, similar to universal variation. Possible salient factors in amelioration of rates included the introduction of local guidelines, increased awareness of infection control, increasing educational efforts and an active interdisciplinary approach between the Nephrology and Infection Control Department.

OP7.12

Seasonal variation in the peritoneal dialysis related infections in Malta

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Introduction: There are limited studies which investigate the effect of seasons on the incidence of peritoneal dialysis related infections (PDRI) and microbiology, especially in the Mediterranean basin. Our aim was to explore this association in Malta.

Methods: All PDRI occurring between Jan2008 and Dec2012 were retrospectively studied using a local electronic database system.

Results: A total of 137 patients were followed-up for a median of 32.5 months (range:281). During this time; 19% never had PDRI, 11.7% transferred permanently to haemodialysis and 6.6% received a kidney transplant. All cause mortality was 0.09/patient-year-at-risk and the rate of peritonitis related death was 0.02/patient-year-at-risk. A total of 279 PDRI were identified, equating to 145 catheter related infections (CRI) and 144 peritonitis episodes (including 10 catheter related peritonitis). A significant peak in the overall PDRI (0.85 vs. 0.64/patient-year-at-risk, $p<0.0001$) and overall peritonitis episodes (0.49 *vs.* 0.31/patient-yearat-risk, $p<0.0001$) was noted in spring when compared to autumn. The overall CRI were significantly higher in winter when compared to autumn (0.49 *vs.* 0.34/patient-year-at-risk, $p<0.0001$). Spring was associated with the highest incidence of coagulasenegative *staphylococci* (0.22 *vs.* 0.08/patient-year-at-risk, $p<0.0001$) and *streptococci* (0.13 *vs.* 0.04/patient-year-at-risk, $p<0.0001$) whereas winter was associated with peak incidence of *pseudomomas aeruginosa* (0.17 *vs.* 0.09/patient-year-at-risk, $p<0.0001$) when compared to autumn.

Conclusion: This is the first study which examines the effect of seasons on the incidence of PDRI in Mediterranean region. Spring is associated with the highest incidence of overall PDRI and peritonitis episodes; winter is associated with the highest incidence of CRI, whereas autumn confers some protection against infection.

OP7.13

A Maltese perspective on the microbiological prevalence, pathogenicity, distribution and metamorphosis of antibiotic susceptibilities of uropathogens over the past years

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Introduction: Bacterial resistance is an emerging threat to the medical health care system on an international scale. Genitourinary tract infections are among the commonest culprits of this health burden. Concomitantly, investment in antibiotic production has dwindled. To counteract such imbalance, various hospitals have adopted an antibiotic stewardship policy.

Methods: The urine isolates of an entire National Health Scheme for the years 2005 to 2013 were retrospectively analysed using World Health Organisation and other international agency criteria for the formulation of a non-nosocomial acquired (NNA) and nosocomial acquired (NA) definitions of urinary tract infection (UTI). Structured Query Language was used to separate the isolate data into NAUTI and NNAUTI, to depict the emerging uropathogen resistance patterns and outline the relative species prevalence.

Results: Over a 9year period, a total of 33,986 positive specimens were analysed (22,267 NNAUTI and 9,068 NAUTI). For purposes of clear group separation, 2,651 specimens were excluded. The total antibiotic sensitivities for each cultured microbe were 532,326. *Escherichia coli* was found to be the most causative microorganism for both NA and NNAUTI.

Conclusion: There are distinct NA and NNA bacterial population frequency and resistance evolution. Analysing this diversity and change will form the foundation of our national antitiotic stewardship dissemination plan to limit waves of resistance and preserve our antibiotic armamentarium.

OP7.14

A reaudit of the management of acute infective admissions to Mater Dei Urology Unit

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Mater Dei Hospital

Introduction: Urinary tract infections are common and range from simple cystitis to urosepsis with shock requiring urgent treatment with potent antibiotics.

Methods: A prospective audit included all patients admitted to urology at Mater Dei Hospital with any urinary tract infection between 23rd March 2015 to 8th June 2015. A custom designed Access® database was used to register data including demographic data, nature of infection, antibiotic use, microbiological investigations, management and outcome. The management of these cases was compared to the European Association of Urology 2015 guidelines.

Results: 52 patients required inpatient care for urological infections during the study period. Ten cases were post-operative complications, mostly associated with prostate biopsy. The most common infections were urosepsis (10), obstructive pyonephrosis (9) and uncomplicated cystitis (9), with the most common causative organism being *E. Coli*. Urine and blood cultures were requested in the majority of patients (51) and the most common empirical antibiotics used were ciprofloxacin and piperacillin/tazobactam. Urine cultures were positive in only 18 patients and blood cultures in 5 patients. The antibiotic regimen was changed accordingly

in all 23 patients with positive cultures. Most of the patients (44) did well with intravenous therapy alone; a small number required additional surgical procedures. One patient passed away as a result of severe sepsis. The antibiotic management complied with the mentioned guidelines in 43 out of 52 cases.

Conclusion: Urological infections remain a common cause for unplanned admissions to urology. Most patients improve significantly with antibiotic therapy which is in line with guidelines in the majority of cases.

OP7.15

Nephrolithiasis, stone composition, meteorological conditions and seasons. Is there any connection?

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Introduction: The effects of seasons and meteorology on the incidence of nephrolithiasis have been studied in various regions around the globe, but seldom in the Mediterranean basin. This retrospective analysis aims at investigating these putative effects in the Maltese Islands, whose climate is typically Mediterranean, followed by a systematic review of literature.

Methods: All self-submitted kidney stones at Mater Dei Hospital between Jan2009 and Dec2011 were included. Stone submission rate and chemical composition were analysed according to seasons and corresponding meteorological data.

Results: A total of 389 stones were analysed. Mean age of patients was 47.8±14.8 years and males composed 75.6% of the study population. A higher stone submission rate occurred in summer compared to winter (31.6% *vs.* 20.8%, p=0.01) and in the warm period compared to the cold period (57.1% *vs.* 42.9%, p=0.0001). A significant correlation was established between the number of stones and mean monthly temperature (r=0.69, p=0.01), mean monthly maximum temperature (r=0.70, p=0.01) and mean monthly Humidex (r=0.67, p=0.03). The majority of stones contained calcium (83.3%), combined with oxalate (77.6%), phosphate (14.7%) and carbonate (2.8%). Some stones (11.8%) contained a mixture of >1 negatively charged molecules. Urate (11.6%), cysteine (4.6%) and ammonium-magnesium-phosphate (0.5%) constituted the rest. There was no association between chemical composition and seasons. Literature review included a total of 21 articles. Ambient temperature and warm seasons were the most commonly identified risk factors for nephrolithiasis.

Conclusion: A significant association was established between ambient temperature and stone submission rate, which was significantly higher during summer and warm months.

OP7.16

Adverse events following intravesical Bacillus Calmette-Guérin therapy in Mater Dei Hospital, Malta

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Introduction: Intravesical administration of Bacillus Calmette-Guerin (BCG), following transurethral resection of bladder tumour, has been shown to reduce recurrence and progression in appropriately selected patients with non -muscle invasive bladder cancer. The aim of the study was to report the local incidence and range of side effects experienced by patients managed with intravesical BCG.

Methods: All patients who received at least one dose of intravesical BCG treatment at Mater Dei Hospital in 2014 were included in the study. A database including demographic, histological and chronological data, together with complication type, degree and treatment required was created. The Clavien-Dindo Classification of compilations was used to stratify complications by severity. Patient medical files were reviewed and the patients were invited to take part in this audit via a telephone survey

Results: The total number of patients included were 55. 22 of these experienced at least 1 adverse event with BCG, whilst 33 had no complications. 1 patient had 3 adverse events, 7 patients had 2 adverse events and 14 patients had 1 complication. 54 patients were documented to have had induction BCG, with maintenance BCG in 32 patients. 30 patients recurred whilst on treatment, 1 patients progressed to muscle invasive disease and underwent radical cystectomy, whilst 3 patients died of bladder cancer. No death as a consequence of intravesical BCG therapy recorded.

Conclusion: Intravesical BCG therapy remains one of the mainstay therapies in the management of bladder cancer. The majority of adverse effects recorded were self-limiting or easily treatable with oral analgesics or antibiotics.

OP7.17

Quality of informed consent for elective transuretheral resection of the prostate (TURP) in Mater Dei Hospital

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Malta Foundation Programme

Introduction: Patients should be fully informed of the benefits and risks of an elective procedure through informed consent. Failure to obtain consent and document adequately may lead to medicolegal issues, and patient dissatisfaction.

Methods: The aim of this audit was to assess the quality of consent form completion, legibility, and patient satisfaction; and achieve a more accurate consent process for TURP procedures performed at Mater Dei Hospital. A list of patients who underwent a TURP procedure between January 2012 and April 2015 was obtained, and patients selected at random. The quality of consent form completion and legibility was assessed by retrospectively analyzing patient files using a proforma. The patients were contacted, to assess satisfaction with the consent process.

Results: 43 patient files were analysed. The patient details (83.7% n=36), signature of doctor (100% n=43) and signature of patient (93% n=40) were the categories most often documented. The intended benefits were never documented, whereas bleeding (34.9% n=15) and urinary tract infection (34.9% n=15) were the complications most often documented. Urethral strictures and TURP syndrome were never documented by the doctor. 14% (n=6) of the consent forms analysed included an illegible component. 36 patients were contacted; 67% (n=24) were satisfied with the consent process.

Conclusion: This audit demonstrated that there was a considerable amount of undocumented data, highlighting the need for increased awareness of the importance of documentation. The type of procedure, intended benefits and the complications (general and specific) need to be given attention. Efforts should also be made to eliminate illegibility.

OP7.18

Demographic changes Impacting obstetric practice in Malta: a review of 61,336 births

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Introduction: Over the past 15 year significant changes have occurred in the demography of births in Malta. In 2001

the percentage of non-Maltese babies was 4.5% while in 2014 this has risen to 17%.

Methods: A total 61,336 births occurring from 2000 till 2014 were assessed. The data on 78 variables concerning patient characteristics, obstetric history, antenatal care, mode of delivery and neonatal outcome was provided by the National Obstetric Information Unit. The majority of deliveries 56,113 occurred to Maltese nationals. The other nationalities included 1,763 from the Africa, 513 from Asia and the Middle East, 1,630 from Eastern Europe, 1,316 from Western Europe and 241 Americas and Oceana.

Results: Significant differences between variables of mothers hailing from the African continent and the other groups were noted. Mothers from the Africa were significantly younger (27.1+/8 years national average (NA) 28.5), higher parity (0.88 per patient, NA 0.16), higher stillbirth rates (2.1/1000 NA 1.2/1000), unbooked cases/nonattendance for antenatal visits and highest Caesarean section rates (37.37%, national rate 31%) in particular Emergency Caesarean Section rates (19.9%). The first minute APGAR scores were significantly lower (8.32+/3.5, NA 8.95 +/ 4.2). However there was no significant difference in the 5 minute APGAR score.

Conclusion: This study identified a subgroup of pregnant women of African origin who are at risk of adverse pregnancy outcomes. This subgroup of women requires added support in antenatal care possibly by improving communication and offering outreach assistance to compensate for the poor antenatal attendance.

OP7.19
Who gets pre-eclampsia in Malta?

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Introduction: Pre-eclampsia remains a "disease of theories". Despite the growing body of research exploring this multifactorial disorder, the aetiology of pre eclampsia remains elusive. Pre-eclampsia is exclusive to human pregnancy and defined as new hypertension presenting after 20 weeks with significant proteinuria. The study aimed to explore the risk factors associated with pre-eclampsia in the Maltese population.

Methods: Case-based non-identified data of a number of variables were obtained from the National Obstetric Information system for the years 2000 to 2014 (both years included). The Statistical Package for Social Sciences (version 23) was used to analyse the data using logistic regression.

Results: The total number of cases studied was 380. Risk of developing pre-eclampsia seems to be higher amongst primaparous women ($p<0.001$), women with secondary and postsecondary education ($p<0.001$), pregnant women with multiple pregnancies ($p<0.001$), smokers ($p=0.023$), women who underwent artificial reproductive interventions ($p<0.001$) and women with a history of pre-gestational diabetes ($p<0.001$). Moreover, an increase in both age ($p<0.041$) and body mass index ($p<0.001$) was found to be significantly associated with the risk of developing pre-eclampsia. On multiple variate analysis all risk factors retained their independent significance with the exception of cigarette smoking.

Conclusion: This study highlights the main risk factors associated with pre-eclampsia in the Maltese population. In this way health professionals will be in a better position to intervene at an earlier stage. Prevention and early detection of pre-eclampsia remain the ultimate goal to ensure better outcomes for the mother and her infant.

OP7.20
The first 100 cycles

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Introduction: Following the enactment of the Embryo Protection Act in December 2013, patients have been treated for primary infertility using assisted reproductive technologies (ART) at Mater Dei Hospital (MDH). Previous to that, couples had to undergo treatment privately, or else go to clinics abroad. The current legislation states that during every cycle, only 2 oocytes (or 3 oocytes in very exceptional circumstances) can be fertilized and the rest of the oocytes frozen for future use. The first case of oocyte pick up and embryo transfer at MDH was on the 30th January 2015.To date, the cycles have been carried out in groups of 30 couples approximately every 2 months.

Methods: This is a prospective observational study, where the details of the parameters and outcome of the first 100 cycles of in vitro ferilization (IVF) and intracytoplasmic sperm injection (ICSI) carried out at the ART Clinic at Mater Dei, are outlined.

Results: To date, there has been a 28% success rate, with the main outcome being pregnancy. ICSI and Day 3 embryo transfer have been carried out in the majority of cases. Both fresh and frozen oocytes have been used. Sperm retrieved using testicular sperm aspiration was used in 3 cases of severe oligospermia. The first livebirth from the first IVF cycle of January 2015 was born by Caesarian section in October 2015.

Conclusion: In spite of all the hurdles of starting off a new IVF lab, the first 100 cycles carried out at MDH gave promising results in terms of pregnancy outcome.

OP7.21
Advanced maternal age and pregnancy outcome – a review of 39,683 births

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Introduction: The aim of this study was to compare the pregnancy outcomes of women with advanced maternal age (>35 years) to women aged 20 – 29 years.

Methods: All mothers aged 35 years and over and mothers aged 20 – 29 years who delivered a singleton baby between 1st January 2000 and 31st December 2014 were studied. The data was obtained from the National Obstetric Information System.

Results: A total of 39,683 mothers were assessed. In the 20 – 29 years cohort included 31,037 mothers while 8,646 patients were 35 years and over. In the 20 – 29 year age group 67.77% of mothers delivered vaginally while 27.73% delivered by caesarean sections. Contrastingly 56.73% of mothers with advanced age delivered vaginally and a significant 40.08% delivered by Caesarean sections. The mean birth weight of neonates of mothers aged 20 – 29 years was 3228.89g while the mean birth weight of neonates of the elderly mothers was 3208.52g (p value: 0.300653). There was also no statistical difference between the two average Apgar scores at 1 min

(p=0.748359). Live births and neonatal survival up to 28 days occurred in 99.09% of babies delivered by mothers of 20 – 29 years and 98.87% of babies delivered by mothers with advanced maternal age.

Conclusion: Mothers with advanced maternal age were found to have a significantly higher Caesarean rate when compared to younger aged mothers but there was no statistical difference in the neonatal outcomes.

OP7.22

Maternal weight gain in pregnancy

Silvaine Marie Dalli, Theresia Anne Dalli, Estelle Abela, Isabelle Saliba

Introduction: Maternal BMI should be calculated during the first antenatal visit and the mother should be counselled regarding appropriate weight gain, exercise and diet. The higher the BMI at onset of pregnancy, the less the weight gain during pregnancy should be, as high BMI increases the need for medical inductions or emergency Csections. There is also an associated increased risk of complications including shoulder dystocia and postpartum haemorrhage.

Aim: To assess maternal weight gain during pregnancy in mothers delivering at MDH and the foetal weight at birth.

Methods: Data was collected after delivery from the antenatal and delivery records over a number of weeks. Maternal BMI and age at onset of pregnancy were noted. Weight gain, medical conditions which complicated the pregnancy and foetal weight were also recorded.

Results: From a total of 153 mothers, 1% were underweight at onset of pregnancy, 47% were within normal range, 29% were overweight and 22% were obese. An average weight gain of 12.55kg was noted, with the higher weight gain seen in those with a normal BMI. Foetal weight was also noted with 21% of babies born to obese mothers having either low or high birth weight compared to the 6.9% born to those having normal BMI. In total, 188 mothers were included but 19% did not have data at onset of pregnancy whilst 26% were not having regular weight checks.

Conclusion: The importance of educating expectant mothers regards diet and exercise and of doctors being meticulous and monitoring weight gain to be able to advise accordingly.

OP7.23

Risk factors analysis as a diagnostic aid for the diagnosis of gestational diabetes mellitus

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Introduction: Gestational Diabetes Mellitus (GDM) is an important medical condition that is defined as any degree of glucose intolerance with onset or first recognition in pregnancy.

Methods: 309 pregnant ladies were invited to attend for a 75g OGTT between 24 and 32 weeks of gestation [28.85 weeks ± 1.65 weeks] after an overnight fast of at least 8 hours.

Results: The results show that the pre-pregnancy BMI and 3rd trimester BMI are the most common statistically significant risk factors in the cohort. Both pre-pregnancy BMI and the 3rd trimester BMI yielded a good sensitivity of 63.46% and 63.5% and a specificity of 58.4% and 62.6 % respectively. Both pre-pregnancy BMI and BMI in the 3rd trimester showed a statistically significant risk factor with a p-value of 0.004 and 0.0005 respectively. Combining the biochemical screening with 3rd trimester BMI gave a sensitivity and specificity of 86.5% and 62.6% respectively

Conclusions: The risk factor analysis shows that an elevated BMI is the best clinical risk factor with an acceptable discriminatory power by itself. A possible algorithm would be to screen all pregnant women by a fasting blood glucose sample [FBG]. If one uses an FBG and BMI estimation as a screening method it will identify 86.5% of diseased individuals [GDM cases] and wrongly identify 37.4% of obese non-GDM mothers as diseased [obese non-GDM]. This would result in only 13.5% of GDM women being missed while requiring only 54.4% of women that are of normal BMI with a normal FBG to undergo a formal OGTT.

OP7.24

Thyroid dysfunction in pregnancy – a pilot analysis of a Maltese cohort

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Introduction: Maternal thyroid dysfunction has been associated with adverse obstetric and neonatal outcomes. The impact of isolated hypothyroxinaemia in this setting remains a source of considerable medical debate. This study aimed to investigate the relative frequency of thyroid disorders in an exploratory cohort of Maltese pregnant women and pregnancy outcomes arising in patients with such thyroid dysfunction.

Methods: Women attending for their antenatal booking visit had blood sampled for thyroid profile (thyrotropin and free thyroxine [FT4]). Routine maternal clinical data (past medical and obstetric history, age, body mass index) were additionally recorded. Antenatal complications, maternal and neonatal outcomes were traced for each patient/neonate after delivery.

Results: 33 out of 93 patients (mean [SD] age = 29.18 [5.12] years) had biochemical evidence of isolated hypothyroxinaemia at booking. 55 patients were euthyroid. Two patients were diagnosed with subclinical hypothyroidism. Single patients were noted to have overt hypothyroidism, subclinical hyperthyroidism and overt hyperthyroidism (Graves thyroiditis). While over half (42) of recruited mothers were overweight or obese, we report no significant differences in maternal thyrotropin and FT4 levels across maternal body mass index categories between euthyroid patients and those with isolated hypothyroxinaemia. The latter did not impact on gestational age at delivery, neonatal birth weight and Apgar scores.

Conclusion: Isolated hypothyroxinaemia constitutes the commonest thyroid abnormality amongst pregnant women in the Maltese Islands, with rates approaching those seen in iodine deficient regions. Exploratory evidence suggests no adverse impacts on perinatal and neonatal outcomes. Further research is warranted in this field.

OP7.25

Pathophysiological mechanisms of absence seizures

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Introduction: Absence seizures (ASs), consisting of loss of consciousness and 3Hz spike-and-wave discharges (SWDs) in the EEG, are a feature of many generalized epilepsies and the defining seizure type of childhood/juvenile absence epilepsy. Despite being considered relatively benign, absence epilepsy involves learning difficulties, behavioural disorders and other psychiatric conditions, and monotherapy

with gold-standard anti-absence drugs is only effective in only 50% of patients. Nevertheless, our limited knowledge of the pathophysiological mechanisms underlying absence seizures has so far precluded the identification of novel molecular/cellular targets for these idiopathic epilepsies.

Conclusion: In my lecture, I will discuss how advances in human genetics have provided limited breakthroughs, whereas imaging, electrophysiology and optogenetics (in humans and in different experimental models) have unravelled key pathophysiological mechanisms of novel potential therapeutic targets. In particular, it is now well documented that SWDs are not generalized form their start, but begin from a localized (frontal) cortical area, from where they then spread to other cortical areas and to the thalamus. Moreover, an increased function of extrasynaptic GABAA receptors (eGABAARs) (due to a decreased activity of a GABA transporter) is necessary and sufficient for the expression of absence seizures. The importance of this experimental finding is supported by human data showing that in contrast to convulsive epilepsy drugs that increase GABAAR activity worsen absence seizures, and by finding that knockdown of one of the eGABAAR subunits rescues the experimental absence phenotype. Thus, direct or indirect modulation of eGABAAR function can provide suitable alternatives to current medication for these idiopathic epilepsies.

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OP7.26

A critical role for serotonin 2A (5HT2A) and 2C (5HT2C) receptors in modulating experimental absence seizures

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Introduction: Absence seizures, with their characteristic EEG spike and wave discharges together with concomitant lack of consciousness, are the hallmark of childhood absence epilepsy. ASs involve abnormal firing in corticothalamic networks. Unfortunately, ethosuximide, the firstline anti-epileptic drug, controls ASs in only 50% of patients. There is, therefore, the need for discovery of new treatments for this type of epilepsy. Serotonin and its 5HT2 receptors, known to modulate corticothalamic circuitry, might represent promising candidates.

Methods: We used EEG recording in freely moving animals to investigate the role of 5HT2A and 5HT2CRs on the control of SWDs in GAERS rats via systemic pharmacological injection of selective ligands.

Results: 5HT2A antagonist TCB2 treatment (0.03, 0.3, 3 mg/kg, i.p.) decreased dose-dependently SWD activity, while the selective antagonists M100,907 (0.5, 3 mg/kg, i.p.) and MDL11,939 (5 mg/kg, i.p.) increased the length of ASs and blocked TCB2 effects. 5HT2C agonists lorcaserin and CP809,101 suppressed dose dependently epileptic activity an effect blocked by antagonist SB242984.

Conclusion: In conclusion, both 5HT2A and 5HT2CRs control negatively the expression of ASs in GAERS, with only a potential tonic role for 5HT2ARs. Moreover, a dysfunction of 5HT2A and 5HT2CRs might be involved in the pathogenesis of absence seizures and selective agonists at these receptors might be potential new anti-absence drugs. Crucially, the 5HT2CR potential therapeutic effect could readily be assessed, since lorcaserin is already on the market.

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OP7.27

Transient modulation of olfactory information processing by the brainstem dorsal raphe nucleus

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Introduction: The neuromodulator serotonin (5HT) originating from neurons in the brainstem raphé nuclei (RN) is involved in many brain functions including the regulation of sensory perception and mood and is the major target in several psychiatric disorders. RN neurons show slow state dependent fluctuations in their firing rate, but also respond to sensory events including olfactory, auditory and somatosensory stimuli with transient (< 1 sec) modulation of their firing, but little is known about how 5HT impacts sensory processing.

Conclusion: These results identify the origin of olfactory input to the RN and argues that the olfactory system can regulate its own activity via LH and OFC derived transient firing rate changes in RN neurons. Olfactory information processing may thus be placed under the control of hypothalamic and higher order behavioral states and conditions.

Disclosure: Hungarian Scientific Research Fund, Hungarian Brain Research Program, Human Frontier Science Program.

OP7.28

Impairment of synaptic homeostasis in Parkinson's disease: a highdensity EEG study in different stage of the disease

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Introduction: Recent evidence in animal models have shown that an impaired synaptic homeostasis (SH) underlies the appearance of levodopa-induced dyskinesia (LID) attesting the importance of homeostatic adjustments of network excitability occurring during sleep. In order to confirm these findings in human, we submitted 29 Parkinson's disease (PD) patients with different stage of disease to an all-night highdensity EEG (hdEEG) study.

Methods: We performed an hdEEG (256 channels) in three PD patients groups: (i) de novo (n=7), (ii) advanced (n=12); (iii) dyskinetic (n=10). An age-matched control group was also subjected to the same hdEEG study (n=6). Slow wave activity (SWA) with an average spectral density between 0.5 and 4 Hz, was computed for NREM epoch and then normalized by the average SWA across all NREM epochs in the recording time. We compared the average SWA of early (the first five deciles) and late (the last five deciles) NREM sleep.

Results: We found that there was a difference between normal subjects and PD patients in terms of the physiological reduction SWA power, i.e. synaptic strength. Of interest, we found a difference within the three groups of suggesting a not adequate synaptic down-scaling during NREM sleep in patients with LID.

Conclusion: Our results are consistent with an impaired SH in patients with PD that is more pronounced in those patients with dyskinesia.

OP7.29

GuillainBarré syndrome in Malta

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Introduction: Since the near global eradication of poliomyelitis, GuillainBarré syndrome (GBS) has become the commonest cause of acute neuromuscular paralysis. Despite available treatment, GBS still results in a significant amount of morbidity and mortality. Our aim was to conduct a retrospective analysis of the epidemiology and management of GBS in Malta.

Methods: All cases of GBS presenting between 2002 and 2012 were identified and studied.

Results: The incidence of GBS ranged from 0.25 to 3.58 per 100,000 per year, with 80% admitting to an antecedent infection. Contrary to available European data, 74% of nerve conduction studies were of the axonal subtype, while only 15% were of the demyelinating subtype. Typical albuminocytological dissociation in the cerebrospinal fluid was present in 62%. Lung function tests were performed in only 4%. Most patients were treated with intravenous immunoglobulins, while 9% also received plasma exchange. 28% of patients required ITU/HDU admission. Autonomic involvement and neuropathic pain were observed in 26% and 36% respectively. No thromboembolic events were reported. There was a dramatic improvement in the Modified Rankin scale between presentation and follow-up. 74% of patients were discharged within 20 days; 17% of these were transferred to a rehabilitation hospital. We report a mortality rate of 0%.

Conclusion: This is the first national study on GBS. Most of our data is in concordance with international data, save for the predominance of the axonal subtype. This suggests the possibility of a specific aetiological agent with resultant cross-reactive antibody production and axonal damage.

OP7.30

A retrospective cross-sectional analysis of CT brain scans in elderly patients presenting with acute confusion at the emergency department

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Introduction: Acute confusion is a common presenting complaint at the Emergency Department (ED) which is often investigated with Computed Tomography (CT) brain scans. The practice of requesting routine CT brain scans in confused elderly patients at the ED at Mater Dei Hospital was evaluated.

Methods: A retrospective cross-sectional analysis was conducted on all triage entries of patients over 70 years presenting at the ED with acute confusion during January 2014 to June 2015. The case notes, official radiology reports and hospital-based software were used as data sources. Odds ratio with 95% confidence intervals were calculated in order to determine risk factors for a positive CT brain scan finding.

Results: The cohort consisted of 194 elderly patients with the mean age being 82 years. Amongst the 139 (71.6%) patients who had a CT brain scan performed only 9 (6.4%) patients had acute positive radiology findings, of which 5 (3.60%) were ischaemic strokes, 3 (2.16%) were cerebral hemorrhages and 1 (0.72%) had post traumatic fractures. Twenty-three (16.5%) patients had no identifiable reason for a CT brain scan to be ordered. A statistically significant association between the presence of acute CT brain scans findings was found in patients with head injury (OR 4.50, CI 1.00-20.16), neurological signs and symptoms (OR 3.39, CI 0.68-16.96), loss of consciousness (OR 3.36, CI 0.84-23.43), falls (OR 2.67, CI 0.67-10.56) and presence of anticoagulants/antiplatelets (OR 2.48, CI 0.60-10.36).

Conclusion: Improving the ordering efficiency of CT brain scans can reduce financial costs and unnecessary waiting time at the ED.

OP7.31

Recurrent cerebrovascular events in the Maltese population

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Introduction: A recent metaanalysis (Mohan et al, 2011) cites an 11.1% cumulative risk of stroke recurrence one year after the initial, index stroke. Targets of this study were determining Maltese recurrent cerebrovascular event types, demographics, national recurrence rates, and comparing treatment and comorbidities of recurrent stroke patients with appropriate controls.

Methods: Patients with a diagnosis of stroke or transient ischaemic attack (TIA) in 2012 were recruited and followed for two weeks, six months and one year post index event. Subjects with recurrent events were compared to controls (randomly selected patients who had a single stroke/TIA).

Results: 570 patients were recruited, of whom 47 had recurrence within one year. 57.4% were males and 42.6% were females. 53.2% of the second episodes were ischaemic, 8.5% were haemorrhagic, while 38.3% were TIAs. One-year cumulative risk for recurrent cerebrovascular events was 8.25%. The calculated incidence rate of recurrent events is 90 per 1000 strokes/TIAs per year. Statistical testing confirmed matching demographic features between recurrent event subjects and the control group. No statistically significant differences were noted on Chisquared analysis of arterial territory, type of stroke, co-morbidities and all treatment. It was noted that more patients in the control group were receiving loop diuretics and this nearly reached statistical significance (p=0.081).

Conclusion: The calculated national cumulative risk for recurrent cerebrovascular events is slightly lower than that quoted by Mohan et al. No significant differences were noted between cases and controls. Further studies are needed to characterize patients at increased risk, so as to target management accordingly.

OP7.32

Breast cancer patients diagnosed by national breast screening programme

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Introduction: Breast cancer is the most common cancer in Malta. A National Breast Screening Programme (NBSP) was introduced in 2009 for women in the 50 to 60 year old age group.

Methods: The first 112 patients diagnosed by the NBSP were compared to a matched control group of symptomatic patients randomly selected from the Breast Clinic. The files of all these patients were reviewed retrospectively. In the screening group there were 94 patients with invasive cancer and 18 patients with ductal carcinoma in situ (DCIS) while in the control group there were 114 patients with invasive cancer and 3 with DCIS.

Results: In the screening group, 81 (86.2%) patients with invasive cancer underwent wide local excision (WLE)

and 13 (13.8%) underwent mastectomy. In the control group 88 (77.2%) patients with invasive cancer underwent WLE and 26 (22.8%) had a mastectomy. Out of all the patients in the screened group with DCIS, 12 (66.7%) underwent WLE and 6 (33.3%) underwent mastectomy. In the control group only 3 patients had DCIS and these were all treated by WLE.

Conclusion: The average Nottingham Prognostic Index (NPI) of the screening population with invasive cancer is (3.28 (95% CI)) and is lower than the NPI of the control group is (3.74 (95% CI)).This study shows that in the screening group there is a higher percentage of patients with DCIS when compared to the control group. Furthermore, the screened group patients with DCIS were more likely to undergo mastectomy than those with invasive cancer.

OP7.33

Time-frames in the management of new case breast cancer patients undergoing surgery with intention to treat in Malta in 2014: a retrospective analysis

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Introduction: Approximately a third of new cancer cases in Malta yearly are cases of breast cancer. GLOBOCAN estimates anticipate a further increase. Ensuring timeliness in breast cancer care impacts prognosis. The Agatha Breast Unit (ABU) at Mater Dei Hospital (MDH), Malta, sees the vast majority of breast cancer cases. The aim of this study is to retrieve data for service dates in the management of breast cancer patients in order to identify pitfalls in patient care, suggest improvements and provide a framework for the implementation of the first breast cancer management pathway in Malta.

Methods: Data protection unit approval was obtained. Newly diagnosed patients who underwent surgery with intention to treat under the care of the ABU in 2014 were included. Service dates were collected from each patient's physical case file at MDH and Sir Anthony Mamo Oncology Centre, iSoft, the ABU database and PACS. Service dates were audited from initial referral, first contact at ABU, all steps of investigations including triple assessment, surgery, all steps of management at oncology as well as multidisciplinary team meetings.

Results: Preliminary data shows a mean 74 day wait from first contact to surgery for patients referred from screening and 53 days for patients referred to ABU from classical routes. Triple assessment completion mean was 15 days. Further results are pending and will be in hand by end October 2015.

Conclusion: Delay from first contact to surgery is acceptable for symptomatic patients but delayed in screen referred patients. Further conclusions are pending.

OP7.34

Preoperative axillary ultrasound staging in breast cancer surgery

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Introduction: While essential in breast cancer management, the extent of axillary surgery could lead to substantial morbidity. Pre-operative axillary ultrasound staging is an essential modality to guide the extent of axillary surgery so as to ensure optimal tissue resection while minimising patient morbidity. Our aims were to identify the proportion of patients who underwent axillary ultrasound and calculate the test's sensitivity and specificity.

Methods: We conducted a retrospective survey of the 2014 incident breast cancer cohort undergoing surgery at Mater Dei Hospital. We calculated the proportion of patients who had a pre-operative axillary US report from iSOFT. The sensitivity of axillary US was determined by calculating the proportion of patients with an US report of malignant nodes having lymph node metastasis in the surgical specimen.

Results: 196 patients were identified of which 35.7% (95% CI 29.0, 42.4) had an electronically documented pre-operative axillary US report. 29.7% of reports had normal nodes, 54.7% indeterminate nodes and malignant nodes in 15.6%. The crude sensitivity of axillary US was 60% with a specificity of 68.4%.

Conclusion: Data was communicated at the breast cancer multidisciplinary team meeting (April 2015) and to radiologists with interest in breast cancer. If malignant axillary lymph nodes are detected and biopsied/FNA pre-operatively confirming metastasis, axillary clearance should be performed thus avoiding sentinel lymph node biopsy. At present, an axillary clearance without histologically proven malignant axillary nodes should not be performed in in view of low sensitivity and specificity of US alone. A tentative reaudit is scheduled for January 2016.

OP7.35

Bilateral breast reduction surgery at Mater Dei Hospital: analysis of physical and psychological symptoms using the BREAST Q

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Introduction: The literature describes the high patient satisfaction rate after breast reduction. In this retrospective study, we use the BREASTQ to analyse satisfaction with breast appearance and physical, psychosocial and sexual wellbeing of patients who underwent bilateral breast reduction (BBR) at Mater Dei Hospital (MDH). We also looked into whether age, comorbidities and weight of breast tissue removed makes a difference to the overall satisfaction rate.

Methods: Permission to use the BREASTQ questionnaire and translate it into Maltese was obtained from Mapi Reasearch Trust. The questionnaire was offered either in Maltese or in English, after an official translation was produced following a linguistic validation process. All patients who underwent BBR at MDH under the care of both consultant Plastic Surgeons were invited to complete the BREASTQ questionnaire via a telephone call and asked to come to MDH to fill it in. Other patient specific information was obtained from their hospital notes.

Results: We hope to demonstrate a better quality of life following surgery and aim to compare the results of this study to others carried out worldwide. In this way we can better understand the local situation and see where there is the room for improvement.

Conclusion: In this world of evidence-based medicine, the BREASTQ is ideal for a holistic approach in analysing patient satisfaction after BBR. Having local data at hand makes it easier for patients who are interested in undergoing the surgery to associate themselves with other local individuals.

Disclosure: BREASTQ translation fees were kindly sponsored by Collis Williams and Silderm.

OP7.36

Improving skin graft meshing

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Introduction: Conventional skin grafting meshing allows skin grafts to increase in size in one dimension. Changes in the pattern of meshing were investigated to optimize recipient site coverage area whilst keeping a small pore size.

Methods: Different meshing patterns were modeled as auxetic 2Dsheets with a rotating quadrilateral mechanism using rotating squares, types I/II rectangles, types α/β rhombi, and types Iα/Iβ/IIα/IIβ parallelograms. The Poisson ratio, fractional pore coverage and maximum pore size were measured for various degrees of rotation.

Results: Space-filling rotating units included squares, types I/II rectangles, type α rhombi and types Iα/IIα parallelograms may be useful skin meshing patterns. All these patterns showed a negative Poisson ratio over some degrees of rotation becoming wider when stretched uniaxially (auxeticty). With rotating squares and type II rectangles, the Poisson ratio was negative at all times. The fractional pore coverage was lowest in the rotating squares pattern.

Conclusion: Skin meshing can be optimized using meshing patterns that produce rotating squares resulting in in a larger area of coverage, thus reducing the donor site size, whilst maintaining small pore sizes, lessening the distance for cellular ingrowth and improving wound healing times. The auxetic patterns described are particularly suited for grafting domed areas.

OP7.37

A review of cutaneous squamous cell carcinoma excisions: a 5 year follow-up study

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Introduction: Cutaneous squamous cell carcinoma (SCC) is the second commonest cutaneous carcinoma. The mainstay of treatment is surgical excision. Recurrences and metastasis occur more commonly in the first 2 years. This study looks at the data of SCCs excised in 2009, and followed up for a 5 year period to assess recurrence and/or metastasis.

Methods: All SCCs excised at the Plastic Surgery Unit in 2009 were included in the study. Data was collected from the theatre registry, iSOFT clinical manager and PACS.

Results: 79 patients were included in the study. 7 patients had synchronous lesions. 24 patients had metachronous lesions. The average size of the lesions was 16.7mm, with an average depth of 3.8mm. The most common site to develop a SCC was the scalp (23.7%). 92.2% of all lesions were completely excised. 33.3% of incompletely excised lesions were reexcised and had remnant carcinoma. 69.9% of lesions were well differentiated, 27.4% were moderately differentiated and 2.74% were poorly differentiated. Recurrence occurred in 4.3% of lesions at an average of 15.5 months after excision. 50% of recurrences resulted from lesions which were incompletely excised. Metastasis occurred in 5.38% of patients, at an average of 18.8 months after primary excision.

Conclusion: This study gives a local picture of the presentation and treatment of cutaneous squamous cell carcinomata that is very similar to that described in the literature. Although a larger cohort of patients is required to more accurately assess recurrence, metastasis and mortality rates, these rates fall well within international standards.

OP7.38

Audit of the introduction of a see-and-treat clinic in the Plastic Surgery and Burns Unit, Mater Dei Hospital

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Introduction: A weekly seeandtreat clinic was introduced in January 2014. Patients referred for benign procedures were asked to attend the Plastic Surgery and Burns Unit (PSBU) early morning (instead of the outpatient department), reviewed by a consultant plastic surgeon and offered an immediate procedure with the aim of reducing the number of patient hospital visits, and eliminated the waiting time from assessment till surgery.

Methods: A list of procedures performed under local anaesthesia from February till May of 2014 was obtained from the PSBU theatre registry. Patient files were reviewed and the date of the referral of the patient to hospital as well as the date of operation was noted. The nature of the procedure (benign, malignant) was also noted. This data was compared to the same period in 2013.

Results: 50 additional procedures were performed between February and May 2014 compared to 2013. 57% (146) of procedures were of a benign nature in 2014, compared to 47% (97) in 2013. The average time from referral to operation for benign procedures was 4.8 months in 2014, and 1 month for malignant procedures, compared to 6.5 months and 1.1 months respectively in 2013.

Conclusion: This audit shows an increase in the number of procedures performed, as well as a reduction in the time from referral to treatment. The increase in procedures was mainly in those of a benign nature, without affecting the number of malignant procedures performed (110 vs 109) and the time from referral to excision of these lesions.

POSTER PRESENTATIONS

P1.01

Investigation and management of diabetes in antenatal patients

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Introduction: The diagnosis of gestational diabetes mellitus (GDM) in Malta is based on the American Diabetes Association (ADA) guidelines. International Association of Diabetes and Pregnancy Study Group (IADPSG) guidelines have more stringent criteria for diagnosis. The aim of this audit was to assess adherence of current practice to ADA guidelines. Patients whose random blood glucose (RBG) levels fell under IADPSG criteria were also reviewed to identify patients diagnosed with GDM otherwise not identified on the basis of ADA criteria.

Methods: The medical data of patients attending for a booking visit in April and May 2014 at Mater Dei Hospital was reviewed. Blood results were obtained from iSoft clinical manager, focusing on the booking RBG, follow-up fasting blood glucose (FBG) and oral glucose tolerance test (oGTT).

Results: Out of a total of 819 cases, 13 patients had an RBG above the upper limit set by ADA. Out of these, 3 patients were followed up with an FBG and 4 with an oGTT and 3 patients had no follow-up blood glucose testing done. A follow-up post-partum oGTT was done for only one patient. 355 patients were identified to have an RBG level above the upper limit of the IADPSG guidelines; 35 patients had an oGTT, out of which 13 patients would be classified as having GDM.

Conclusion: Lack of adherence to ADA guidelines for GDM screening was noted. Moreover, GDM was diagnosed in patients who did not fall under ADA criteria for screening, questioning their suitability for the Maltese population.

P1.02

Clinically significant antibodies identified in obstetrics and gynaecology patients: a retrospective analysis

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Introduction: Allo-antibody formation arises upon a sensitising event occurring when there is exposure to red cells carrying foreign antigens, which are lacking on the patient's red cells. When these antibodies are clinically significant, they may cause mild to severe post-transfusion reactions. Additionally, these antibodies may cause haemolytic disease of the fetus and newborn (HDFN) if detected during pregnancy.

Methods: A type and screen is performed on all requests for blood at the Mater Dei Hospital Blood Bank. Pregnant ladies are also screened in a similar way (antenatal screening). Any detected antibodies are identified using the column agglutination technique. Requests from all gynaecology and obstetric wards at Mater Dei Hospital received between May 2009 and May 2014 were analysed.

Results: There were 1417 patients with a positive antibody screen (286 of which were duplicates, i.e. there was more than one request for screening). 150 patients had clinically significant antibodies and, in total, 167 antibodies were identified (17 cases had more than one antibody). The most common clinically significant antibodies identified were: anti-E (19.8%), anti-K (16.8%) and anti-c (13.2%). Anti-K and anti-c were more prevalent in obstetric cases, while anti-E was more commonly found in gynaecology patients.

Conclusion: It is essential to identify allo-antibodies in patients prior to transfusion and during pregnancy, as this influences patient management. For transfusion purposes, antigen-negative units have to be selected, and this sometimes requires collaboration with the transfusion service for adequate provision. During pregnancy, antibody titres are worked out to assess the severity of HDFN caused by the antibody.

P1.03

Operative management of severe post-partum haemorrhage

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Introduction: Severe postpartum haemorrhage (PPH) is a major obstetric emergency. When medical management does not control the haemorrhage, surgical methods are employed.

Methods: This study was a review of deliveries over a ten tear period in Malta's government hospitals. Operative interventions to arrest post-partum haemorrhage were analysed. The operative interventions included B-Lynch and peripartum hysterectomy. Peripartum hysterectomy cases included, were those performed after 20 weeks' gestation, and happening between 24 hours and 6 weeks postpartum.

Results: Over a ten year period 2004 to 2014, there were a total of 44,284 deliveries. In this period 14 documented deliveries had to undergo a peri or postpartum hysterectomy, a rate of 0.316 per 1000 deliveries. 8 cases out of these 14 (57.14%) were related to emergency deliveries. The use of the b-Lynch was documented only once. The most common indication for peripartum hysterectomy was abnormal placentation, including placenta praevia and morbidly adherent placenta (50% of cases). 10 cases (71.42%) had a history of previous caesarean deliveries, a defining risk factor for abnormal placentation. Use of blood products was also studied. Maternal morbidity noted in 5 cases (35.71%) including 2 cases of bladder injury, 1 case of ureteric injury, 2 cases of sepsis, and one case of pelvic haematoma. No maternal mortality reported.

Conclusion: The study confirms peripartum hysterectomy is a rare event, with possible serious complications. All obstetricians should be aware of predisposing risk factors. Senior members of the obstetric and the anaesthetic team should be involved early on in the management of severe post-partum haemorrhage.

P1.04

Lifestyle factors affecting the risk of recurrent miscarriage in the Maltese population

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Introduction: Recurrent miscarriage (RM) is defined by two or more failed pregnancies. It affects approximately 1% of families trying to conceive and may have a significant biopsychosocial burden. RM is associated with anatomical, genetic, endocrine, thrombophilia, immunological, infective or environmental factors. In more than 50% of cases it is idiopathic. RM can increase the risk for depressive and anxiety disorders, coronary artery disease, ovarian cancer, pre-eclampsia and may increase mortality.

Methods: To assess the effect of different factors on the order of miscarriage, data was gathered from all females (n=56) attending the Recurrent Miscarriage Clinic between January-2014 and June-2015. Data gathered included Body Mass Index (BMI), Order of Miscarriage, ultrasound (US) screening for anatomical abnormalities and presence of smoking or excessive alcohol consumption.

Results: Of the women attending the Recurrent Miscarriage Clinic within the set timeframe, the Average Order of Miscarriage (AOM) was as follows: AOM for females with BMI of 20.0 – 22.9 was 2.08 (n=13) whilst that for females with BMI of 29.0 – 31.9 was 2.44 (n=9). AOM for non-smokers was 2.33 (n=45) as compared to 2.27 for smokers (n=11). AOM for

normal ultrasound findings was 2.16 (n=32) as compared to PCOS with AOM of 2.29 (n=7), presence of fibroids in utero with AOM of 2.83 (n=6) and presence of an arcuate uterus with AOM of 2.60 (n=5).

Conclusion: In conclusion, RM is affected by a number of factors, most of which can be managed in order to increase the chance of a successful pregnancy, in turn improving the biopsychosocial outcome.

P1.05
Adolescent pregnancies in Malta

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Introduction: Teenage pregnancy has a significant impact on society, globally contributing to maternal and child mortality and to the cycle of poverty and ill-health, in part due to the associated socio-economic factors which contribute to pregnancy at a young age.

Aim: To compare Maltese adolescent pregnancies to European countries.

Methods: Maltese data from 2008 to 2012, was compared to that of other EU countries. Adolescence was defined as less than 19years of age. Onset of labour, mode of delivery and parity were also analysed.

Results: Overall in EU countries, teenage pregnancies have decreased from 2008 till 2012; in Malta a similar decrease was noted. However, the rate in Malta is noted to be higher than the average in the EU, ranking seventh from a total of 28 countries. Although birth rate in Malta has been on a slow increase, adolescent pregnancies have decreased slightly. From a total of 788 teenage pregnancies from 2008 to 2012, only 7% had had a previous live birth. Of those who deliver during adolescence, only about 6% have an elective C-section. The rest either go into labour spontaneously or had an induction of labour. Of the latter about 80% had a normal vaginal delivery – the rest had an emergency C-section or an instrumental delivery for foetal distress or no progress.

Conclusion: The impact of such pregnancies on the mother and her child must be analysed to better understand what needs to be done to offer the necessary infrastructure for help and support.

P1.06
Shoulder dystocia in Malta – A European Comparison

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Introduction: Shoulder dystocia is an obstetric complication during cephalic deliveries whereby the foetal shoulders get impacted against the maternal pelvic bones after the head is delivered usually due to malrotation. Risk factors include foetal macrosomia, maternal diabetes and maternal obesity.

Aim: To compare Maltese data of shoulder dystocia with European data.

Methods: Data was collected from the Maltese National Obstetric Information System hospitals for the years spanning from 2000 to 2012. Data was then compared to European.

Results: There were 258 cases of reported shoulder dystocia during the studies period from a total of 52,623 births. Incidence rate of shoulder dystocia in Malta from 2000 to 2012 was of 0.49% which is comparable to the European rate quoted in literature of 0.58% to 1.4%. The highest occurrence locally was in 2007. One can also note a general trend of decrease in the number of cases with shoulder dystocia.

Conclusion: From the data available, Malta has a lower rate of shoulder dystocia when compared to our European counterparts. Knowledge of the rates of shoulder dystocia and comparison with other centres allows for better monitoring and thus prevention of such occurrences. This also helps in implementing strategies such as obstetric emergency drills to decrease such occurrences.

P1.07
Anomaly Scans – A 1 year plus review at Mater Dei Hospital Obstetric Unit

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Introduction: Fetal anomaly scan are usually done between 18 to 22weeks of gestation. They are an essential aide for pre-natal fetal anomaly diagnosis whilst offering time for discussion at feto-maternal meetings for further management and care.

Aim: Review of anomalies picked up at the Anomaly Scan over an 18 month period.

Methods: All fetal anomalies picked up at Mater Dei Hospital obstetric ultrasound unit were reported and catalogued for the months between February 2014 till August 2015. All were discussed at the monthly Feto-Maternal meeting and outcome recorded.

Results: 26 foetal anomalies were picked up. Some fell under more than one heading of anatomical system. Most common were cardiac anomalies (8) followed by neurological and gastrointestinal anomalies (7cases each). Urogenital (3), skeletal (1) and iatrogenic (1) followed. 4 cases were classified under other since did not fit any particular system. There were 9 foetal demises intra-utero or after delivery.

Conclusion: The fetal anomaly scan at 18 to 22weeks is a useful milestone during pregnancy to detect major abnormalities and plan before-hand for deliver and care whilst counselling psychologically to parents to be.

P1.08
Importance of Antenatal screening and diagnosis in Maltese Medical Practice

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Introduction: Antenatal screening and diagnosis is an important aspect in antenatal care. With improved methods for screening and diagnosis, the accuracy of such investigations is high. Internationally all pregnancies are screened in first and second trimester. Most countries also perform tests in the third trimester. In Malta screening is sporadic, and most patients are actually not screened by certified professionals. Antenatal knowledge of foetal well-being has multitude of benefits to the parents, obstetricians, paediatricians and other specialities like paediatric surgeons, neurosurgeons, maxillofacial and plastic surgeons who will care for the baby once delivered. Knowledge of a foetal condition is vital for planning. In a small number of cases there is possible intra-uterine surgery in tertiary centres abroad, whereas in most cases planning of the timing, method and place of delivery. Knowledge of a condition allows discussion about the limited use of resuscitation procedures performed by paediatricians after delivery. Planning on timing of delivery with NPICU considering the limitations of space and resources is essential to allow paediatricians to be able to work with the adequate resources. Antenatal knowledge helps parents to deal with the news and plan with the medical professionals without the postpartum pressure. Antenatal screening also has important medico-legal implications as failed diagnosis can result in a worse foetal and/or maternal outcome, whereas false positive results which could result in extra stress and unnecessary procedures.

Conclusion: A proper multidisciplinary Foetomaternal Medicine Unit involving Obstetricians, Paediatricians, Psychologists, Midwives and Surgical specialists is required to allow an organized screening program.

P1.09

The use of amniotic fluid index *vs* deepest vertical pool in the Maltese population

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Introduction: Both AFI and DVP are measures of the amniotic fluid volume antenataly and are an indicator of foetal well-being. The more measurements an index requires, the more risks of error and unnecessary interventions. Aim: To check if there is a difference in using AFI vs DVP

Methods: 46 low risk antenatal patients with singleton pregnancies were evaluated for AFI and DVP between 36 and 40 weeks of gestation. Their pregnancy outcome was noted and results analysed using the unpaired student T-test.

Results: Out of the 46 patients, 39 delivered normo-vaginally between 38-41weeks with 2 requiring instrumental delivery due to prolonged second stage and 5 requiring an emergency caesarean section 4 for no progress and 1 for foetal distress. All babies were born with good apgars at 10minutes from birth. Comparing AFI to DVP, AFI varied from 5.3 to 24.86cm with a mean of 13.91cm (SD: 1.107). DVP varied from 2.54 to 7.94cm with a mean 4.54cm (SD: 2.845, $p<0.001$).

Conclusion: There was no difference between AFI and DVP indices making both suitable options to measure amniotic fluid index.

P1.10

Assessment of renal function in pregnancy: are we using the proper reference ranges?

Edith Sciberras, Sarah Sultana Grixti, John Mamo

Introduction: Reference values are usually defined based on blood samples from healthy men or non-pregnant women. This is not optimal as many biological markers changes during pregnancy and adequate reference values are of importance for correct clinical decisions. The aim of the study was to determine if trimester specific ranges should be used for serum creatinine.

Methods: This retrospective study, included 189 healthy females with uncomplicated pregnancy booked for lower segment cesearian section from January 2015 to June 2015. Their serum creatinine during the third trimester was recorded using Isoft clinical manager and this value was compared to the reference values for serum creatinine (44-80 micromoles/litre) given by the lab at Mater Dei Hospital. All data was kept anonymized.

Results: 29.1% of the patients had a creatinine that is below the range offered by the lab.

Conclusion: Without adequate reference intervals, there is both an increased risk of missing important changes due to pathological conditions and to erroneously interpret normal changes as a pathological event. This study highlights that there is a need for further population and trimester specific studies in order to determine whether trimester specific ranges should be employed in the local setting.

P1.11

Can the antenatal booking visit reduce caesarean section rate?

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Introduction: The objective was to assess any difference in Caesarean Section Rates of an Obstetric Firm between two time periods following intervention at booking visit.

Methods: From the 1/5/2012 the management of pregnancy and delivery was not only discussed verbally with the woman but the steps of the whole process were documented on the co-operation card and hospital notes. Spontaneous vaginal delivery was encouraged in all women where considered safe. In the majority of women a gestation of 41+3 weeks was advocated.

Results: Between May 2010 till April 2012, 681 were delivered under the Firm concerned while between May 2012 till May 2015, 686 women were delivered. The booking visit occurred significantly earlier in group 1 (15 weeks) when compared to group 2 (17 weeks). Induction rates rose from 24.6% (Group1) to 28.2% (Group 2). The vaginal birth after Caesarean section increased non-significantly by 4.9%. The caesarean section rate decreased non-significantly from 28.8% to 27.4%. The emergency Caesarean section rate decreased non-significantly 17.62% to 14.72%.

Conclusion: Downward trends in the Caesarean Sections rate and increased rates of vaginal birth after Caesarean section were noted when comparing both periods under study. Proper documented counselling at 17 weeks gestation gives timely direction to all the stakeholders involved including the parents.

P1.12

Antibiotics prophylaxis in Caesarian sections

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Introduction: Postpartum infection is a major cause of maternal morbidity and its incidence is greatly increased in delivery by Caesarian section. Prophylactic antibiotic use has been shown to significantly reduce this risk. This audit compares the adherence to antibiotic prophylaxis in Caesarian sections before and after an initiative to promote the antibiotic guidelines with the obstetrics and gynaecology department of Mater Dei Hospital.

Methods: The sample included patients undergoing Caesarian sections at Mater Dei Hospital in October 2014. The clinical notes and treatment charts were reviewed to assess antibiotic prophylaxis. After our quality improvement project, a re-audit was performed in December 2014. Quality improvement project during November 2014 the educational campaign took place. The promotion included the use of posters, repeated emails and education of personnel during induction meetings to the department. Standard used local guidelines recommend a single dose of intravenous co-amoxiclav 1.2g. In penicillin-allergic patients intravenous clindamycin 600mg should be used.

Results: During October 2014 data was collected from 54 cases and adherence to guidelines was 5.5%. Following the educational campaign data was recollected and 70 cases were assessed; adherence to guidelines was 50%. In all cases of non-adherence, the correct antibiotics were prescribed for a longer period than recommended.

Conclusion: Our simple, low cost initiative had drastic effects on adherence rates. Guidelines are still not being adequately followed in a large number of patients. We suggest further education of doctors, nurses and midwives via lectures and during departmental meetings.

P1.13

Neonatal group B Streptococcal disease in Malta

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Introduction: *Streptococcus agalactiae* (Group B streptococcus) is an important cause of early onset neonatal sepsis (EONS), presenting <7 days from birth, which may be may be prevented by the administration of intrapartum antibiotic prophylaxis to mothers at risk. The aim of this study was to describe the incidence, outcome and maternal risk factors for GBS sepsis in neonates.

Methods: All neonates aged <7 days who had *Streptococcus agalactiae* isolated from the blood or cerebrospinal fluid from December 2008 till July 2014 were identified. Neonatal and maternal data were collected retrospectively from their case notes.

Results: Over the 5 ½ year study period there were 18

neonates with EONS caused by GBS resulting in an incidence rate of 0.72/1000 live births. The mortality rate reached 11.1% (2/18), and 12.5% (2/16) of survivors had an adverse neurodevelopmental outcome. The following maternal risk factors for EONS were identified: GBS isolated from a high vaginal swab in 16.7% (3/18), premature delivery in 31.2% (5/16) and prolonged rupture of membranes (>18 hours) in 37.5% (6/16), of who 33% had fever during delivery. None of the parturient mothers were given intrapartum antibiotic prophylaxis.

Conclusion: GBS is still an important cause of EONS in Malta. Administration of intrapartum antibiotics to mothers with risk factors for GBS sepsis can potentially result in a reduction in the incidence of EONS.

P1.14
Varicella Seropositivity in the antenatal population

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Introduction: Chicken pox in pregnancy is associated with increased maternal mortality and morbidity from pneumonitis, encephalitis and hepatitis as well as foetal varicella syndrome and varicella infection of the newborn. To identify the frequency of varicella seropositivity and thus immunity to chickenpox in the local antenatal population. A secondary aim is to audit the current local practices regarding antenatal varicella serology testing.

Methods: A random sample of pregnancies was obtained from local registries. The patients whose varicella serology was tested were recorded.

Results: Of the 545 patients studied, 121 patients (22.2%) were tested for the presence of Varicella IgG antibodies. 82.6% of the local population tested was noted to be positive, 12.4% tested negative with the remainder 4.1% having an indeterminate result.

Conclusion: The prevalence of immunity for the varicella zoster virus is slightly lower at 82.6% in the local setting as compared to UK data. Whilst universal serological screening is not recommended, in view of the psychological consequences that expectant mothers endure, mothers-to-be without a history of exposure to Varicella or those coming from tropical or subtropical countries may be considered for antenatal serological screening. Varicella vaccination is an option for non-pregnant women of reproductive age who are seronegative for Varicella. Seronegative pregnant women with a significant exposure to varicella may be considered for varicella zoster immunoglobulin within ten days of exposure.

P1.15
Preventing post-partum haemorrhage in patients with cardiovascular disease

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Introduction: Cardiovascular disease causing fixed cardiac output states result in patients being exquisitely sensitive to the haemodynamic changes imposed by post-partum haemorrhage (PPH). This case report discusses a potential role for compression sutures in preventing post-partum haemorrhage in patients with cardiovascular disease having a lower segment caesarean section (LSCS).

Methods: A 31-year-old pregnant with monochorionic twins presented at 36 weeks gestation complaining of increasing shortness of breath and chest pain on exertion. The patient was known to suffer from moderate sub-aortic valvular stenosis. A repeat echocardiogram showed a peak gradient of 58mmHg from 42mmHg 9 days previously. In view of the maternal cardiac decompensation, the multidisciplinary team decided to expedite delivery. During LSCS a prophylactic compression B-lynch suture was employed. A lower dose of syntocinon of 2 units over 10-20minutes was used.

Results: The uterus remained well contracted and a syntocinon infusion was not required in the intra- or post-operative period.

Conclusion: According to national registries since 2005 pre-existing maternal cardiovascular disease was noted in 0.003% of Maltese pregnancies. Of the 124 expectant mothers with cardiovascular disease 46 were delivered by LSCS. Compression sutures are used as first line surgical management of PPH when routine medical management has failed. In patients with cardiovascular disease PPH can prove to be especially difficult to manage since syntocinon and overzealous correction of haemodynamic instability with fluids may result in cardiac decompensation and fluid overload. The use of prophylactic compression sutures during LSCS may help prevent PPH effectively, whilst utilizing lower doses of syntocinon.

P1.16
Relationship between maternal and foetal cord blood thyroid status – an exploratory study

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Introduction: The association between cord blood thyrotropin (cbTSH), cord blood thyroxine (cbT4) and obstetric, maternal and neonatal factors has been the subject of considerable interest in the recent past. We sought to explore the impact of this relationship in a University Teaching Hospital in Malta.

Methods: Pregnant women had thyroid profile measured at the antenatal booking visit. Past medical and obstetric history, maternal age and maternal body mass index were additionally recorded. Antenatal complications, maternal and neonatal outcomes and cbTSH and cbT4 values were traced for each patient/neonate following delivery.

Results: Data was collected from 93 patients (mean [SD] age=29.2 [5.1] years). Of these, 55 patients had normal thyroid function tests while 33 had isolated hypothyroxinaemia. There was no association between maternal booking thyroid profile and cbTSH and cbT4 levels. We report a negative correlation between maternal age at booking and cbT4 at delivery. (Spearman's rho=-0.227; p=0.046). There was no significant correlation with cbTSH. Similarly, there was no significant relationship between cbTSH / cbT4 and maternal BMI, mode of delivery, gestational age at delivery, neonatal birth weight, neonatal gender and Apgar scores.

Conclusion: To our knowledge, this is the first study investigating the relationship between cbTSH and cbT4 levels and perinatal, maternal and neonatal factors in a Maltese cohort. Results obtained justify embarking on a larger scale study.

P1.17
SNP in GDM and obesity

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Introduction: A complex interplay of obesity and inflammation combined with environmental influences lead to a change in the metabolic profile in pregnancy leading to the development of gestational diabetes.

Methods: We studied 309 random pregnant women that resulted in 61 GDM mothers analysed according to the IADPSG criteria and 248 normal women that were used as controls. The sample was further divided into lean and obese according to a BMI of under or over 30 respectively.

Results: FABP2 was significantly different between the GDM and the control cases in the homozygote state. FTO was statistically significantly different in those hetero and homozygous pregnant mothers in the cohort with a BMI of less than 30kg/m^2 divided into controls or GDM.

Conclusion: FABP2 was the only SNP to be statistically significant between the GDM and the control cases. It reached nearly statistically significance when the obese group was divided into those with normal biochemistry against those with GDM. FTO was the SNP to show statistical difference in the lean cohort between the control and the GDM cases. This proves that FTO is linked to the metabolic status associated with GDM. This study proves once more that single gene polymorphisms cannot explain the complex interplay of factors that characterize a complex disease such as gestational diabetes where gene to gene interaction, summative gene effects and gene-environment interaction have not been taken into account.

P1.18
Third trimester composite screening protocol for GDM

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Introduction: Screening methods using simple composite screening with a FBG and adiposity may effectively help reduce the need for OGTT in low resource countries.

Methods: The study was a prospective, non-interventional study carried out on 1368 pregnant women from around the Mediterranean. The population was divided into two groups: A: women diagnosed to have GDM according to the ADA criteria; and B: women found to have a normal glucose tolerance (NGT). Each of the two groups was divided into four sub-groups: 1: women with a FBG >5.1 mmol/l; 2: BMI >30kg/m^2 with FBG 4.5-5.0 mmol/l; 3: BMI <30kg/m^2 with FBG 4.5-5.0 mmol/l; 4: BMI >30kg/m2 with FBG <4.4 mmol/l; and 5: BMI <30kg/m2 with FBG <4.4 mmol/l

Results: Women with a FBG≥5.1 mmol/l are considered as suffering from GDM (73.9% of GDM cases, 9.8% of normal glucose tolerance [NGT]); Women with a FBG≤4.4 mmol/l are considered as normal (10.1% of GDM, 57.7% of NGT); and Women with FBG values of 4.4-5.0 mmol/l are considered as suffering from GDM if they are adipose. This would further correctly identify 5.9% of the GDM cases but wrongly identify 14.2% of the NGT women. An OGTT would then only be required in lean women whose FBG screening test was 4.4-5.0 mmol/l who account for only 17.6% of the population.

Conclusion: It is reasonable to adopt a composite screening protocol to identify GDM women especially when one considers that the adipose pregnant NGT woman carried similar risks and should receive similar lifestyle and nutritional advice as the GDM woman.

Disclosure: MDSG Study Group

P1.19
Available nutritional substrates in women with GDM

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Introduction: The present study investigates the physiological interrelationships in GDM between glycaemic levels and lipid metabolism.

Methods: The study was a prospective, non-interventional study carried out on a convenient sample of 178 pregnant women in Greece and 309 women in Malta who were not known to suffer from any form of carbohydrate metabolism problems outside their pregnancy. The study population was subdivided into two groups: A. women with normal glycaemic indices as defined by the IADPSG criteria [n=328]; and B. women identified as suffering from GDM [n=159].

Results: The lipid levels including cholesterol [p=0.03] and HDL [p=0.01] were all statistically reduced in the GDM group. LDL was similarly reduced but the difference did not show statistical significance. Triglycerides were statistically elevated [p<0.0001]. Maternal body weight correlated positively with the glycaemic indices reflected by the fasting blood glucose [p=0.002], AUC [p<0.0001] and HOMA-IR [p<0.0001]. It correlated inversely with cholesterol [p<0.0001], HDL [p<0.0001] and LDH [p<0.0001], but positively with triglycerides [p<0.0001]. The glycaemic indices correlated inversely with cholesterol, HDL and LDL, but positively with triglyceride. The infant birth weight correlated positively with maternal BMI, the glycaemic indices and triglycerides levels. It correlated negatively with cholesterol and HDL levels.

Conclusion: It would appear that in the presence of elevated glycaemic indices, the lipid levels represented by cholesterol, HDL and LDH are proportionately decreased. In contrast triglycerides are increased. This interrelationship appears further to relate to maternal body weight with obese women tending to have higher glycaemic indices and triglycerides but lower lipid levels.

Disclosure: MGSD study group

P2.01
The prevalence of parent reported food hypersensitivity at school entry in Malta

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Introduction: This research aimed to provide local statistics in the area of food hypersensitivity (FHS) in the paediatric population, as the prevalence of such allergic and non-allergic food hypersensitivity (intolerance) to food in Malta at the present time is previously undocumented.

Methods: Between January and March 2015, every school in Malta which included Year 1 children aged 5-to-6years (N=83 schools) was invited to participate in this research study. Participant schools (n=42) were then provided with a questionnaire to be distributed to those parents who had previously reported FHS to the school through the health information sheet.

Results: The point prevalence for food hypersensitivity in the 5-to-6 year old participant population in the study was found to be 3.4%. This prevalence is lower than internationally reported levels. Of the foods causing hypersensitivity in the studied group, milk and milk products were the main causes, affecting 38.9% and 30.6% of participant children respectively, followed by tree nuts which affect 22.2%.

Conclusion: The 3.4% point prevalence of Year 1 children with FHS in Malta indicates the need for school policy guidelines

in this area. Such local statistics also show that the Health Department needs to plan in this field. This could possibly include the set-up of a state clinic that holistically assists all patients with heightened reaction to food.

P2.02

An audit on the outcome of preterm babies born at 25-30^{+6} weeks of gestation

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Department of Paediatrics, Mater Dei Hospital

Introduction: Determining the neurodevelopment at 12 months post conceptional age (PCA) of preterm infants after discharge from the NPICU at MDH.

Methods: Preterm infants of gestational age 25-30^{+6} weeks who were admitted to NPICU between 15th March 2011 to 14th March 2014, were identified. Neurodevelopmental outcome at 12 months PCA was recorded.

Results: 75 preterms were identified, 39 of which were randomly assigned under the care of Dr Paul Soler. Of these, 6 babies (15%) died from related complications; 8 (20.5%) were lost to follow up; 25 (64.1%) were assessed at 12 months PCA as out patients. Of these, 20 preterms had a normal neurodevelopmental examination; 4 showed global developmental delay; and 1 patient had an evolving left-sided hemiparesis secondary to right parieto-occipital cystic periventricular leukomalacia. During their stay at NPICU, 2 preterms had necrotizing enterocolitis, 2 developed chronic lung disease and 3 were diagnosed with retinopathy of prematurity.

Conclusion: Preterm infants of gestational age between 25 and 30^{+6} weeks are at significant risk of mortality (15%). The majority of survivors (80%) were found to have normal neurodevelopmental milestones at 12 months PCA, while 20% had global developmental delay or motor impairment secondary to brain injury associated with severe prematurity. It is encouraging to note that 80% of the preterms who were followed up, had no adverse sequelae.

P2.03

A review of attendances at Paediatric Accident and Emergency Department at Mater Dei Hospital for neurological complaints

Stephen Attard, Bettina Gauci, Amaris Spiteri, Adriana Warrington

Introduction: Attendances at paediatric accident and emergency department (A&E) during a six month period were reviewed, to determine the proportion of children with neurological complaints, type of symptoms and the outcomes in terms of admissions, discharges and out-patient referrals.

Methods: Neurological complaints were classified as (a) febrile convulsions, (b) unprovoked seizures, (c) status epilepticus, (d) headaches, (e) altered consciousness, (f) acute ataxia, (g) flaccid weakness, (h) visual loss, or (i) others. Outcomes of these attendances were also recorded as either admission, referrals to out-patient clinics or discharges from A&E.

Results: A total of 7670 children attended paediatric A&E during the study time of which 352 (4.5%) presented with neurological complaints. 173 children (49%) presented with headache, 54 (15.3%) presented with unprovoked seizures, 51 (14.4%) presented with febrile convulsions, 34 (9.6%) presented with altered consciousness and the remaining 40 children (11.7%) presented with various other complaints. 24.8% of children who presented with headache were admitted, 34.1% were referred to out-patient clinics and 41% were discharged. In contrast, 75.5% of children you presented with unprovoked seizures were admitted, 22.2% were referred to out-patient clinics and 3.7% were discharged. There were no deaths.

Conclusion: 1 in 20 children who attended paediatric A&E presented with neurological complaints. One half of these children presented with headache, around one third presented with seizures (febrile and unprovoked), around 10% presented with altered consciousness. Around a half of these children were admitted, a quarter were discharged home and the other quarter were referred to out-patient clinics.

P2.04

Public knowledge relating to head lice in Malta

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Introduction: Head lice are very common wherever children aggregate in close groups, particularly in schools and refugee centres. Although most families will experience head lice in at least one member, public misconceptions relating to lice and their treatment abound, and this study set out to assess this problem.

Methods: Over a six day period, all Maltese nationals presenting with diverse complaints to one public dermatology clinic (Boffa Hospital) and one health centre clinic (Floriana), were invited after verbal consent to fill a brief (5 minute) dedicated questionnaire that covered simple questions on lice, their prevention and treatment.

Results: Five declined to participate whilst 200 attendees, with a 160:40 female:male ratio, aged 17-77 years (mean 46.2), completed the questionnaire anonymously. Participants included individuals spanning 49 diverse jobs, of which 55 were housewives, 26 clerical workers, 25 health related workers and 17 worked in schools. 147 had children of which 75 (51%) had had lice aged between 2-12 years (mean 6.1). From the total of 200, 161 (81%) knew what lice were, and 135 (68%) were correct regarding the mechanism of spread. In contrast, 99 (50%) believed that lice resulted from poor hygiene and just 75 (38%) would have treated this condition appropriately.

Conclusion: Although the general public awareness on lice and its mode of spread was good, only a minority were sufficiently knowledgeable regarding prevention and treatment. A focused public campaign may help dispel myths and improve overall understanding of this common infestation.

P2.05

First urinary tract infections in infants less than 2 months of age

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Introduction: Guidelines on imaging following first urinary tract infections (UTIs) have been published since 2007. There is a paucity of evidence regarding investigation in infants <2 months of age. We reviewed our experience with UTIs in this cohort.

Methods: All infants <2 months of age presenting with a UTI between 2009-2013 were included. UTI was defined as a growth on urine culture; mixed growths were only considered if the urinalysis and microscopy (U&M) was suggestive and the CRP raised. We documented the method of collection, U&M, micro-organism, CRP and any imaging.

Results: 130 infants were included. There were 161 growths: 88 (54.66%) were from catheter specimens, 18 (11.18%) were from clean catches, 16 (9.94%) were from bag specimens. For 39 (24.22%) growths the method of collection was unknown. U&M was suggestive in 60 infants (46.15%) and omitted in 9 (6.92%). CRP was raised in 52 infants (40%) and omitted in 29 infants (22.31%). The commonest micro-organisms were E.coli (47.20%) and *E. faecalis* (18.01%). 87/130 (66.92%) infants had a renal ultrasound; 19/87 (21.84%) were abnormal. 53/130 (40.77%) had an MCUG;11/53 (20.75%) were abnormal. 42/130 (32.31%) had a DMSA scan; 6/42 (14.29%) were abnormal. 7/130 (5.38%) had a DTPA scan; 2/7 (28.57%) were abnormal.

Conclusion: NICE guidelines recommend ultrasound

imaging for first UTI in all infants <6 months and MCUG/DMSA scan with abnormal ultrasound or atypical/recurrent UTIs. In our series, the diagnostic yield from imaging was low. We would recommend ultrasound in all infants with first UTI <2 months with further imaging in selected cases.

P2.06

Vitamin D status in children with renal disease

Gianluca Bezzina, Valerie Said Conti

Introduction: The purpose of this study was to assess the Vitamin D status of children attending the outpatients renal clinic, allowing us to determine the prevalence of Vitamin D deficiency in Malta, where children presumably get adequate sun exposure all year round.

Methods: 61 children were enrolled in the study. 19 had congenital renal tract anomalies, 10 had meningomyelocoele, 7 had Bartter's syndrome, 5 had congenital nephrotic syndrome and 20 had a variety of renal conditions. The serum concentrations of Calcium, Phosphate, Total 25(OH) Vitamin D, Creatinine, Alkaline Phosphatase and PTH were recorded. A total 25(OH)VitD concentration of 31-100ng/mL was considered to be sufficient, a concentration of 20-30ng/mL insufficient, whereas <20mg/mL was considered to be deficient.

Results: 31 boys and 30 girls, ranging in age from 2 months to 16 years were included. Of the 61 subjects, 18% were found to be Vitamin D deficient, with total 25(OH)VitD concentrations of <20ng/mL. 44% were found to have insufficient 25(OH) VitD concentrations, with the remaining 38% having sufficient concentrations of 25(OH)VitD.

Conclusion: A significantly large proportion of the paediatric renal patients were found to have insufficient or deficient concentrations of Vitamin D. This raises concern towards the need for adequate monitoring of Vitamin D status and Calcium metabolism. Optimisation of Vitamin D levels is of utmost importance, given the morbidity and mortality that is associated with inadequate mineral metabolism seen in renal disease.

P2.07

Urinary tract infections in premature infants less than 37 weeks gestation on the neonatal intensive care unit

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Introduction: The prevalence of urinary tract infections (UTIs) in preterms is reported as 4-25%. Previous studies have not found an increased incidence of underlying anatomical anomalies in this cohort and there is no consensus on imaging. We sought to describe our experience.

Methods: Infants <37 weeks gestation on the unit between January 2008-December 2013 diagnosed with a UTI were included. Data collected retrospectively included gestational age, gender, presenting signs, CRP, micro-organism cultured from urine, cerebrospinal fluid and blood, and imaging studies performed.

Results: 10 of 1869 (0.53%) preterms had a UTI. 8 (80%) were male. Presenting features included apnoea (n=2), jaundice (n=1), irritability (n=1), weak cry (n=1), hypothermia (n=1), pallor (n=1), tachypnoea (n=1), anaemia (n=1), vomiting (n=1). Micro-organisms from urine included *E. faecalis* (37.5%), *E. coli* (25%), *Proteus mirabilis* (12.5%), *Enterobacter aerogenes* (12.5%) and *Morganella morganii* (12.5%). No fungal organisms were cultured. 6 had a CRP between 6-50mg/L, 1 had a CRP of <6mg/L. There was no concordance between urine, blood and CSF cultures. 5 (50%) infants had a renal ultrasound. All were normal. One preterm had an MCUG and DMSA scan, both of which were normal. None of the infants presented with recurrent UTIs following discharge from the unit.

Conclusion: The incidence of UTIs is less than reported in the literature. Few preterms underwent imaging studies, all of which were normal. Underlying anatomical abnormalities predispose to recurrent UTIs but none of the infants had subsequent UTIs, suggesting that no serious anomalies were missed. We suggest that this cohort does not require intensive imaging.

P2.08

Does the current gentamicin dosing regimen in neonates result in safe serum levels?

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Department of Paediatrics

Introduction: Gentamicin is used empirically in neonatal sepsis. In neonatal intensive care units gentamicin use is guided by protocols because of its narrow therapeutic window and the potential risk of oto- and nephrotoxicity. We aimed to determine if the current gentamicin prescribing practices on the Neonatal and Paediatric Intensive Care Unit (NPICU) at Mater Dei Hospital result in safe trough levels.

Methods: All neonates on gentamicin were recruited in the study carried out on NPICU from 2013-2015. Participants were stratified according to birth weight as follows: <1.5kg, 1.5-<3kg and ≥3kg. Risk factors for gentamicin toxicity and the first gentamicin serum trough levels were recorded. A gentamicin concentration of ≥2mg/l was taken as indicative of potential toxicity. Group differences were analysed using a z-test.

Results: A total of 119 neonates were recruited, 90% of who had safe gentamicin levels. Of the 41 babies with a birth weight ≥3kg (mean gestation 38.7 weeks), 39 (93%; 95% Confidence Intervals [CI]: 85-100%) had safe gentamicin trough levels. Safe levels were recorded in 55/61 (90%; 95%CI: 82-98%) of neonates weighing 1.5-<3kg (mean gestation 35.9 weeks). In comparison 13/17 (76%; 95%CI: 56-96%) of neonates weighing ≤1.5kg had gentamicin levels below the threshold of toxicity. Differences in the proportion of neonates with gentamicin levels <2mg/l were not significant between the groups. Of the 13 babies with high gentamicin levels, 38% (5/13) had risk factors known to potentially cause high gentamicin levels.

Conclusion: The current gentamicin prescription practices on the NPICU result in safe serum gentamicin trough levels.

P2.09

Building a multidisciplinary team to manage antenatal hydronephrosis

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Introduction: Antenatal hydronephrosis is detected in 1 in 200 pregnancies and half will have normal postnatal scans. Management by a multidisciplinary team will facilitate early treatment to minimise or prevent progressive renal damage and avoid over-investigation and unwarranted parental anxiety.

Methods: Consecutive postnatal referrals with antenatal hydronephrosis to the nephrologist in 2013 were reviewed. Age at referral, antenatal findings communicated to parents and paediatricians, age at first ultrasound, clinical course, subsequent imaging and any intervention were noted.

Results: Twenty-four infants were referred. First referral was to nephrology in 16 (67%), urology in 7 (29%) and 1 (4%) was to a general paediatrician. Antenatal diagnosis included hydronephrosis (5), hydronephrosis with specified side (5), bilateral hydronephrosis (4), bilateral hydronephrosis with degree of severity (6), left hydroureter (1), renal pelvis dilatation (3). 10 families (41%) were well-informed and 2 families (8.3%) presented antenatal reports at first visit. 15/24 (62.5%) postnatal ultrasounds, 9/19 (42%) MCUGs, 7/11 (63%) DMSA scans, 7/9 (77.7%) DTPA scans were abnormal. 7 infants (29%) required surgical intervention, 15 (62.5%) required prophylaxis,

9 (37.5%) presented with a urinary tract infection after 2 months of age.

Conclusion: The diagnostic yield from postnatal imaging is high. Information communicated to paediatricians is insufficient to council parents adequately antenatally. Most parents were not given formal antenatal reports and were unaware that antenatal scans are relevant during the first postnatal interview. A multidisciplinary team including the obstetrician, foetal ultrasonographer, paediatric urologist and paediatric nephrologist is essential to provide adequate antenatal counselling to worried parents and timely postnatal management.

P2.10

Screening for congenital hypothyroidisim in Malta

Tara Grima, Paul Soler

Introduction: Congenital hypothyroidism (CHT) is defined as thyroid hormone deficiency present at birth. The incidence of congenital hypothyroidism in Malta is 1 in 1,450. The clinical features of CHT may be very non-specific and a delay in the diagnosis may lead to irreversible cognitive impairment and loss of IQ points. The aims of this audit are: (1) to determine the sensitivity and specificity of the screening test using cord blood, (2) to determine the suitability of this method for mass screening, and (3) to determine the incidence of CHT in the Maltese population.

Methods: A retrospective analysis of the total number of live births from May 2013 to May 2015 (use official data from NSO/Obstetric dept) which had their cord blood taken to check their thyroid function tests. Those that were positive for congenital hypothyroidism were called again and the blood sample repeated (positive recall). From the positive recalls the true cases of congenital hypothyroidism were found.

Results: The total number of live births was 7,492. The number of births with a positive cord blood and needing a repeat was 1,748 however from these only 4 cases were actually found to have congential hypothyroidisim. Therefore, our form of testing has a sensitivity of 25% and specificity of 77%.

Conclusion: There is a high number of patients having false positive cord blood results with only few patients having congenital hypothyroidism. This raises question about our method for testing for congenital hypothyroidism.

P2.11

Rising trends in the prevalence of wheezing, rhinitis and eczema in 5- to 8-year old Maltese children over a decade (ISAAC - Malta)

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Introduction: The prevalence of asthma, rhinitis and eczema has been increasing worldwide, as a result of which, these allergic conditions became some of the most common conditions of childhood. The International Study of Asthma and Allergies in Childhood (ISAAC) was the largest standardised worldwide epidemiological research programme ever undertaken on allergies in children. The aim of our study was to investigate the current prevalence and severity of childhood allergic conditions in Malta, and analyze time trends by comparing the results with data obtained from phase 3 of the ISAAC study in 2001, in which Malta participated.

Methods: The same validated standardized ISAAC questionnaire and protocol was used.

Results: Data was obtained from 3071 5- to 8-year-olds in 45 randomly sampled primary state schools over 2013 and 2014. 52.4% were boys while 47.6% were girls. Our results indicate a statistically significant rise in both the cumulative and current prevalence of wheezing, rhinitis and eczema in Maltese children over a span of 11 years.

Conclusion: This has important implications in terms of: quality of life, economic burden and mortality.

P2.12

An increase in the severity of wheezing and rhinitis but not eczema in 5- to 8- year old Maltese children over a decade (ISAAC - Malta)

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Introduction: The International Study of Asthma and Allergies in Childhood (ISAAC) is the largest standardised worldwide epidemiological research programme ever undertaken on allergies in children. The severity of a condition is a good measure of disease burden. The aim of our study was to investigate the current prevalence and severity of childhood allergic conditions in Malta, and analyze time trends by comparing the results with data obtained from phase 3 of the ISAAC study in 2001, in which Malta participated.

Methods: The same validated standardized ISAAC questionnaire and protocol was used.

Results: Data was obtained from 3071 5- to 8-year-olds in 45 randomly sampled primary state schools over 2013 and 2014. 52.4% were boys while 47.6% were girls. Data from our study shows that the prevalence of these 3 allergic conditions namely asthma, allergic rhinitis and eczema, has significantly increased. Our results indicate also a rise in severity of symptoms of wheezing and rhinitis ($p<0.05$) but not eczema in Maltese children over the last decade.

Conclusion: The substantial disease-related morbidity this produces needs to be ameliorated through better management of these conditions and further research in this area.

P2.13

The use of specific immunoglobulin E in the diagnosis of allergy in children

Tara Grima, Tara Giacchino, Elaine Pace Spadaro, Anne Marie Grima, Patrick Sammut

Background: Allergy is a common cause of morbidity with significant financial costs. Specific Immunolglobulin-E (s-IgE) is a useful tool in the investigation of children with suspected allergy. Knowledge of the indications and limitations of this test is essential.

Aim: To assess the use of s-IgE by paediatricians at Mater Dei Hospital.

Methods: A retrospective analysis of all s-IgE tests performed in children requested in 2014. Patients' files were used to collect the following information for each patient: clinical indication for testing, total IgE, s-IgE levels, action taken based on results.

Criteria and Standards: S-IgE testing was clinically indicated S-IgE requested was appropriate. Result had an impact on patient management. A standard of 100% for all criteria is the desirable end-point.

Results: A total of 74 children were included. The main indication for testing was food allergy (42%). The choice of s-IgE was appropriate in 66 % (n= 49). The results had a clear impact on patient management in 38 % (n=28).

Conclusion: There is a need for further education on the appropriate use of s-IgE. Large panels of S-IgE should be avoided as they represent inefficient use of resources. The choice of S-IgE should be based on the history, aided by knowledge of aerobiology in the case of respiratory allergy. There are large gaps in knowledge on local pollen aerobiology. The current

aeroallergen panel is likely to be inappropriate for the local population. Studies in this area are needed to guide clinicians.

P2.14
Improving the paediatric imaging service in Malta - a local perspective

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Introduction: In a quality imaging service for children, the diagnosis is made by specialists with appropriate expertise, imaged using dedicated facilities and equipment and where the child is at the centre of all decisions made. In this presentation we seek to outline the gradual tailoring of our department to this aim; spanning from migration to Mater Dei Hospital to the present day and the scope for the future.

Methods: The paediatric patient presents specific difficulties including poor cooperation, small size, radiation dose considerations and the limited availability of sub-specialist radiology expertise. In addition, the local paediatric patient is imaged in a department primarily set up for the needs of an adult population which presents further limitations as rooms and equipment cannot be permanently tailored to the needs of the paediatric patient.

Results: From the introduction of dedicated children's play areas to significant changes in fluoroscopic imaging; the appointment and training of subspecialised paediatric radiologists and the resulting changes to the local training scheme; the increase in multi-disciplinary meetings; introduction of distraction techniques and increase in use of sedation and general anaesthetic lists among others. Audits demonstrating reductions in radiation doses and improvements in the investigation of the urinary system are also presented.

Conclusion: We hope this presentation will not only showcase the advances made in local paediatric radiology delivery but also improve local clinician's familiarity with the range of services and how they are provided. This should in turn cascade to better information to patients and their families regarding their imaging experience.

P2.15
Capsule endoscopy in the Maltese paediatric population - a descriptive analysis of a 6 year experience

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Introduction: Capsule endoscopy (CE) was introduced in 2001 as a means to evaluate small bowel pathology. It avoids ionizing radiation, deep sedation, and general anaesthesia. Given the wide range of indications produced by American Society for Gastrointestinal Endoscopy (ASGE), the aim of this descriptive analysis was to evaluate all capsule endoscopy procedures carried out in the paediatric population in Malta.

Methods: This is a retrospective analysis of prospectively collected data of all paediatric patients requiring capsule endoscopy. The variables: demographics, clinical presentation, Indication, anthropometrics, Lewis Score, Weight, Height, completeness of study, quality of Success of Procedure, Gastric passage time, bowel passage time and impact of capsule endoscopy findings on clinical management were recorded and analysed using Microsoft Excel 2011®.

Results: 26 paediatric patients between the age of 5 and 18 were evaluated between 2009 and 2015. The main indication for capsule endoscopy was occult gastrointestinal haemorrhage and in 5 patients capsule endoscopy was used to assess for inflammatory bowel disease. Other indications include evaluation and follow up of gastrointestinal polyps, evaluation of non-specific abdominal pain, and to determine a cause for bacterial overgrowth. In all but one study, capsule endoscopy was inconclusive. No complications from capsule endoscopy were reported and all capsules were retrieved.

Conclusion: This descriptive analysis highlights the benefits of capsule endoscopy in paediatric patients as no complications were reported. This study helps with the understanding of this novel technology, ultimately improving the quality of life of our paediatric gastrointestinal patients.

P2.16
The use of blood products in paediatric oncology in Malta

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Malta Foundation Programme

Introduction: Blood product transfusions aim to improve the quality of life in patients suffering from various haematological conditions. Consumption of blood products is significant, with costs of unjustified blood product transfusions accounting for 9% to 44% of the total consumption in centres abroad.

Methods: Patient files were analysed retrospectively, between January and May 2014, for demographics, disease, type and amount of blood products used. The costs involved were obtained from the Blood Bank at Mater Dei Hospital. The standard used was the Supportive Care Protocols of Paediatric Haematology and Oncology, issued by the Great Ormond Street Hospital for Children.

Results: 9 children were transfused in this period, with a range of 1 to 20 blood products per patient, amounting to a total of 77 units. The haemoglobin levels before transfusing red cell products (RCPs) ranged from 3.1 to 8.6g/dL and the platelet counts ranged from 9 to $60x10^9$/L. The total cost over this 5 month period for the department was €17,950; while the total amount spent for tests done prior to ordering blood products was €3,276.34. RCP transfusions occurred 22 times, with only 1 instance where RCPs were transfused above 8g/dL. Platelets were transfused 26 times, with 11 instances of platelet transfusions occurring when the platelet level was above $20x10^9$/L.

Conclusion: There have been no previous studies in Malta that guide the administration of blood products in children. Children are even more susceptible to transfusions; as such a general consensus on transfusion guidelines in this population needs to be established.

P2.17
Do not 'be a man about it': an analysis of the lived experience of male survivors of child sexual abuse

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Introduction: Research on child sexual abuse (CSA) is focussed predominantly on female victims. The aim was to search the available evidence in order to understand the experience and repercussions of CSA on male survivors and how this impacts on clinical practice.

Methods: A search strategy was devised in order to systematically search the major databases relating to the research question. Standardised checklists were used to critically appraise the evidence found. Common themes from the chosen studies were described in a narrative review.

Results: The barriers to disclosure of male victims of CSA include a culture that rejects male victimization, fear of homosexual stigmatisation and confusion with regards to the victim's role in the abuse, especially if they physically responded or enjoyed sexual stimulation by their perpetrator. Other barriers include being disbelieved when attempting disclosure, shame, guilt, denial, fear and self-blame. Non-disclosure fails to initiate the healing process resulting in feelings of betrayal

and helplessness that leads to a vicious cycle of isolation and alienation. This often leads victims to report a loss of childhood and negative psychosocial experiences including severe outbursts of anger, early sexualisation, sexual problems and negative interpersonal relationships.

Conclusion: Male victims of CSA face unique struggles that make it particularly difficult for them to disclose or seek help from professionals, increasing their risk of negative outcomes. A more holistic and cost-effective response to CSA can be achieved by focussing on early preventative strategies and awareness campaigns that accept male victimisation. Training of multidisciplinary professions and targeted therapeutic services for these victims is required.

Disclosure: This research is based on work done for an MSc in Child Health at Warwick University which is partially funded by the Malta Government Scholarship Scheme grant.

P2.18

A resilience-based model to child sexual abuse

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Introduction: The multiagency response to child sexual abuse (CSA) across a number of countries tends to focus on risk management and often lacks a co-ordinated response and follow up within a timely manner. We aimed at searching the evidence around resilience and CSA in order to propose a framework that guides better practice for professionals working with victims of CSA.

Methods: A search strategy was devised and a systematic literature search of the major databases followed. Both qualitative and quantitative peer-reviewed studies that included resilience and its promotion in victims of CSA were included. Standardised checklists were used to critically appraise the evidence found.

Results: Children alleging CSA need to feel believed in order to continue disclosing and this must be central to every initial response. Resilience post-CSA can be achieved through managing both risk factors and promoting the child's protective factors, since both are cumulative. Risk management includes targeted intervention and preventative strategies. The most powerful resilient promoting factor in CSA is support and stability predominantly from family members, but also from close friends. Engaging in positive experiences at school and within communities also enhances resilience. Internal resilient promoting factors include a positive self-esteem and better adaptive coping skills.

Conclusion: A resilience-based model to CSA is child-centred and advocates for services to work together and provide a holistic and ecological response to CSA that incorporates the child's family. This response aims at improving outcomes, preventing re-victimisation and being more cost-effective through early targeted intervention.

Disclosure: This research is based on work done for an MSc in Child Health at Warwick University which is partially funded by the Malta Government Scholarship Scheme grant.

P2.19

Screening for sexually transmitted infections in children being assessed for suspected sexual abuse: who, when and how?

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Introduction: Sexually transmitted infections (STI) are rare in child victims of sexual abuse. Positive STI results have important health and medico-legal repercussions. We aimed at creating an accessible and easy to follow STI protocol for a tertiary safeguarding clinic at University College London Hospital (UCLH) which can be adopted by other centres.

Methods: UK National Guidance on the Management of Sexually Transmitted Infections in Children was used as the reference standard. This was combined with expert opinions from genito-urinary medicine and safeguarding specialists, as well as microbiology and virology health professionals at UCLH.

Results: Serology for HIV, hepatitis B, C and syphilis need to be taken at initial assessment. HIV serology needs to be repeated after three months unless the disclosure was made after three months. Nucleic acid amplification testing (NAAT) of urine is a non-invasive method of screening for chlamydia and gonorrhea. If the child was assaulted within the last two weeks, a repeat urine NAAT needs to be taken given the incubation period of chlamydia. Depending on the clinical suspicion and whether tolerated by the child, further swabs should be taken during examination as per protocol devised.

Conclusion: Given the importance of a positive STI result in children being assessed for suspected sexual abuse, both symptomatic and asymptomatic children need to be investigated thoroughly for STIs. A protocol that includes clear illustrations of which swabs to use for STI screening in children was devised for health professionals. This has been made easily accessible and is currently being audited.

P2.20

Audit of pain diagnosis in children with severe to profound developmental disability

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Introduction: Children with severe to profound developmental disability (SPDD) are at risk of unrecognised pain, due their communicative problems. The aim of this audit is to see if doctors are enquiring about and looking for the cause of pain in children with SPDD.

Methods: Standards used were taken from guidelines of the American society for pain management nursing (ASPMN) for pain assessment in non-verbal patients. Case notes of children with SPDD were trawled to find documented evidence that 1) Doctors were enquiring about pain, and 2) Doctors were going through a mental check list looking for potential causes of pain. The target for each standard was set at 90% An attempt was made to search for reasons why standards were not being met, and what could be done to improve the quality of pain management in these children.

Results: 56% of doctors had documented that they were enquiring about pain in children with SPDD 30% of doctors had documented that they were looking for common causes of pain in these children.

Conclusion: The agreed standard of 90% for both standards was not met. Proposals for change in practice were suggested and implemented.

P2.21

A pain observed: a phenomenology of the experiences of Maltese parents of children with severe to profound developmental disability

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Introduction: In spite of advances in pain assessment, children with severe to profound developmental disability (SPDD) still remain vulnerable to sub-optimal pain management because they are unable to communicate pain in the usual vocal way and have pain behaviours that are diverse to those found in typically developing children. The aim of this study was to explore the lived experiences of Maltese parents who face the problem of pain in their children with SPDD.

Methods: Interpretive phenomenological analysis (IPA) underpinned the study, and consisted of interviews with seven family units of children with SPDD, aged 18 months to 19 years.

Results: Four main themes emerged: 'a life of pain', forever doubting', 'embodied knowledge', and 'overwhelming emotions'.

Conclusion: Maltese parents felt that their children suffer from more pain than their unimpaired peers. Although confident that they can recognise their children's pain behaviours, the feeling of uncertainty is always present. They have learnt to cope alone, developing the skills to assess pain over the years that they have looked after them. The lived experiences of 'a life of pain' have resulted in feelings of helplessness and frustration. They felt that doctors often do not prepare them for the pain problem, have poor communication skills, show lack of empathy and do not involve them actively in decision making. Positive feelings included feelings of coping, joy and the love they feel for their children. Recommendations for practice and research in Malta are suggested.

P3.01

Inpatient coronary studies and intervention 2013 *vs* 2014

Matthew Mercieca Balbi, Jessica Sammut, Andrew Cassar, Kay Vanhear, Andrea Vella Baldacchino, Simon Paul Micallef, Trevor Tabone, Christabel Mizzi, Rebecca Dalli, Elizabeth Cassar

Introduction: We compared the inpatient waiting time for inpatient coronary imaging and intervention comparing 2013 to 2014. At the end of 2014 great importance was given by all the cath lab staff to decreasing waiting times for outpatient coronary angiography waiting time, we believed this also made a difference to inpatient waiting time during 2014, and a study was performed to ascertain this.

Methods: Patient details of all coronary angiograms invasive or diagnostic in 2013 and 2014 where obtained from the cath suite registry, we then compared admission data to cath study time.

Results: Result showed a statistically significant decrease by more than 24 hours in waiting time for inpatient coronary angiography in 2014 as compared to 2013, average waiting time now confirms with international guidelines which is a true accomplishment.

Conclusion: The strive to reduce outpatient waiting time for coronary angiography has lead to a decrease in waiting time for inpatient coronary studies which has thus lead to better standard of cardiology care.

P3.02

Assessment of the use of telemetry in the investigation of patients presenting with syncope to the Accident and Emergency Department at Mater Dei Hospital

Edward Grech[1], Mohamed Salem, Robert Camilleri
[1]Malta Foundation Programme

Introduction: Syncope is a common presentation to Accident and Emergency Departments and a common reason for hospital admission. Diagnostic tests are used to differentiate between the benign and more serious causes of a syncopal episode. Telemetry is one of the most important investigative tools in such a case. This study is intended to be in two stages. In the first part, presented in this conference, the extent of usage of telemetry in the workup of patients presenting with syncope to Mater Dei Hospital is examined. In the second part, an observation study of the rate of arrhythmia detection in patients with telemetry will be carried out.

Methods: The risk stratification scores according to the task force for the diagnosis and management of syncope of the European Society of Cardiology in 2009 are used to define the need for telemetry in one hundred local admissions with syncope. A retrospective analysis of the cases admitted with syncope would reveal the extent of the use of telemetry. The degree of appropriate usage of telemetry in investigating cases of syncope can be obtained from the results.

Conclusion: A suggestive history, clinical examination findings, patient comorbidities, electrocardiogram features and family history provide invaluable information in analysing syncope. The use of tests which are limited in availability, powerful in diagnostics such as telemetry, is currently being investigated through this study.

P3.03

Iron deficiency screening at Heart Failure Clinic

Mark Abela, Karl Sapiano
Mater Dei Hospital

Introduction: Studies have shown that patients with heart failure (HF) are prone to develop an active inflammatory state, with numerous studies having identified iron deficiency (ID) as an important prognostic predictor (independent of haemoglobin) for HF. In line with the European Society of Cardiology (ESC) heart failure guidelines, the aim of this audit was to compare local ID screening at heart failure clinic as recommended by the ESC.

Methods: A retrospective audit (June-August 2014) was completed to assess whether patients attending the HF clinic where being screened for ID and anaemia. A HF clinic database was used, together with blood results obtained respectively from Isoft. Data was then analysed using Microsoft Excel and summarised using percentages.

Results: A total of 275 patients attended HF clinic. Whilst all patients were screened for anaemia (with Haemoglobin and Mean Corpuscular Volume), 192 (69.82%) patients were not investigated fully for ID (missing tests or not screened at all). In summary, 83 (30.18%) had a ferritin assessed, 104 (37.82%) had a transferrin saturation (TSAT) tested, and 104 (37.82%) had an iron level. Blood results were also assessed with ID taken as a ferritin of <100µg/L or a TSAT of <20% and Ferritin of 100-299µg/L, using ESC recommended criteria. Out of the 83 patients fully investigated for ID, 46 (55.42%) had biochemical evidence of ID. Only 18 patients (6.54%) had a microcytic picture (MCV <76fL).

Conclusion: In conclusion, HF patients should be screened more thoroughly for ID as recommended by ESC guidelines.

P3.04
Anti-coagulation in patients with atrial fibrillation

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Mater Dei Hospital

Introduction: Atrial fibrillation (AF) increases the risk of stroke, congestive heart failure and mortality. Successful anticoagulation can reduce these complications. To achieve this risk reduction, anticoagulants such as warfarin must be in the correct therapeutic range (i.e. INR 2-3) for greater than 70% of the time. However, today novel anti-coagulants do not require repeated blood investigations. Thus, these newer drugs may prove more cost effective in comparison to warfarin.

Methods: A random sample of 360 patients with AF were selected from Anti-Coagulation Clinic. Their INRs over the past one-year period were recorded. The percentage of time the patients' INRs were within the therapeutic range was calculated. The average cost of warfarin was computed and compared with the cost of rivaroxaban per patient per year.

Results: 59% of patients were under-coagulated and 9.4% of patients were over-coagulated for more than 30% of their results. 80% of the patients were out of range for more than 30% of their results. Rivaroxaban in comparison to warfarin is on average 60% more expensive.

Conclusion: Majority of patients on warfarin are under-coagulated; thus, increasing cardiovascular complications and mortality. With the current prices of novel anti-coagulants, warfarin is more cost effective. However, patients that have recurrent admissions to MDH in view of symptoms or high INRs, may reduce costs in the health sector by changing to novel anticoagulants.

P3.05
Cardiopulmonary resuscitation in the Maltese islands - knowledge and skills on the wards

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Introduction: Early and effective cardiopulmonary resuscitation (CPR) improves the chances of survival in cardiac arrest patients. Healthcare professionals are most often the first responders when a cardiac arrest happens on the wards, requiring them to be competent and skillful in such a life-saving procedure.

Methods: A questionnaire was formulated in order to obtain information about the participants' demographics, CPR training and knowledge of CPR administration and it was distributed in various departments in two main state hospitals in the Maltese Islands.

Results: There were 78 participants from Malta and 47 from Gozo, the majority being females. The majority of the participants were nurses, with the rest consisting of nursing officers, carers and midwives. The average time period since last formal CPR training attended was 1-4 years. In Gozo, 25% claimed of rating 3 from scale of 5 of being confident in participating in CPR, followed by 19% rating 4. Better results were obtained from Malta. 95% claimed that CPR trolley is easily accessible and more than half (53.8%) perceived the need of daily CPR trolley checks. Overall, fairly good scores were obtained from the multiple-choice questions devised to assess knowledge about CPR.

Conclusion: The audit conducted emphasises the importance of increasing CPR knowledge and training. The results obtained reflect the need for further training, provided that resuscitation is unfortunately a frequent activity on the wards, especially on medical and acute wards. Participants strongly expressed their wish to attend formal simulation sessions to stay in touch with recent guidelines and practices.

P3.06
Is valve size more important than patient-prosthesis mismatch in long-term survival after aortic valve replacement?

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Introduction: The effect of prosthesis-patient mismatch (PPM) on long-term survival was evaluated.

Methods: The indexed Effective Orifice Area (EOA) for each size category and for the entire group was calculated in 565 consecutive patients undergoing aortic valve replacement. An indexed EOA of ≤ 0.85cm2/m2 defined moderate PPM and ≤ 0.65cm2/m2 defined severe PPM. The EOA's for the valves were obtained from independent researchers and derived from in vivo studies.

Results: 71% of patients had no PPM. There were 10 cases of severe PPM, all in patients receiving size 19 valves and 156 cases of mild PPM (33 in size 19, 111 in size 21, 8 in size 23 and 4 in size 25). Ninety-three cases of mild PPM occurred in patients over 70 receiving a xenograft, in whom a presumed relatively curtailed activity would reduce the impact of trans-valvular flow on trans-valvular pressure gradient. Our incidence of mismatch is lower than that quoted in other series using the same criteria. For size 19 valves, mismatch impacted negatively on long-term survival, with mortality increasing by 12.7% when compared with the other sizes.

Conclusion: Our results suggest that a size 19 valve was a more important predictor than valve type or model. Mismatch in larger sizes had no significant impact on long-term survival.

P3.07
Mechanical behaviour of stent designs finite element modelling techniques

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Introduction: Common problems in stent design include inaccurate placement due to foreshortening of the stent, flaring out of the edges and malposition from lack of conformability. Many of these effects are related to the mechanical behaviour of the stent, which in turn relate to its geometry and the material properties.

Methods: The mechanical behaviour of stent designs was investigated using finite element modelling techniques in order to be able to find possible solutions to mitigate some of these effects.

Results: Dog-boning occurs because the terminal rings of the stent have a different connectivity than those towards the inner regions. Shortening of the terminal strut length from 1:1 to 1:1.7 (58% reduction) relative to the middle strut length resulted in a change from 30% to a -30% diameter dog-boning. A 1:1.5 terminal to middle strut ratio eliminated dog-boning. During stent deployment, thin struts are prone to bending in the radial direction, a behaviour that may decrease conformability. It is possible to decrease the flexibility of thin beam-shaped structures by increasing their radial thickness from 1:0.5 to 1:1, leading to a 43% improvement in conformability. This also decreases the overall flexibility of the stent, making it necessary to include features, such as S-shaped entities, to allow flexing.

Conclusion: Careful design of stents may diminish inherent stent geometry problems such as foreshortening, dog-boning and conformability.

P3.08

Why paramedian sternotomy fails

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Introduction: Paramedian sternotomy is often listed as a causative factor for sternotomy dehiscence. Inadvertent paramedian sternotomy is thought to be a poor surgical technique, however no adequate explanation for the requirement of midline sternotomy has been suggested.

Methods: A comparison of sternal and paramedian median sternotomy incisions was made in 5 cadaveric sternums, by comparing sternal cortical bone calcification or radio-density in the path of sternal closure for both midline and paramedian sternotomies, in order to predict resistance to wire cutting through bone. The sternotomy path was defined as the cortex 1 cm from the planned incision.

Results: There was significantly stronger bone in the closure path of a midline sternotomy than in the closure path of a paramedian sternotomy, p=0.02. However, the difference in mineralization was present only in the anterior cortex (p=0.005), and not in the posterior cortex of the sternum in the midline (p=0.37, ns) due to the xiphisternum's location in the anterior sternal cortex. The highest degree of calcification was found in a vertical median strip of sternal bone, whilst the lowest occurred in the lateral sternal zones, with intermediate calcification present in the sternal mid-zone.

Conclusion: The results show that, whilst a perfectly midline sternotomy produces equal sides with high radio-density, a paramedian sternotomy results in unequal sides – a larger side with high radio-density, and a smaller side with low radio-density. This inequality leads to a high dehiscence rate since the strength of a closure is limited by its weakest part.

P3.09

Audit - post pacemaker insertion advice and care given to patients at Mater Dei Hospital

Doriella Galea, Yanika Gatt, James Farrugia, Sarah Cuschieri, Mark Sammut

Introduction: Pacemaker insertion is a daily procedure at Mater Dei Hospital where yearly, hundreds of patients have pacemakers inserted, for various cardiological problems. These are generally elderly patients. Current practice is to give advice by word of mouth while providing booklets in English postoperatively. Our aim is to assess patients' recollection of given advice, wishes and/or needs as to having more information given in the Maltese language.

Methods: Ethical approval was obtained from the Ethics committee after obtaining permission from consultant cardiologists performing pacemaker insertions at Mater Dei Hospital. Data of 45 patients who underwent the procedure was collected from the Catherisation Suite between March and April 2014. The patients were then contacted by telephone, verbal consent obtained, and asked questions as per questionnaire according to their language of choice (Maltese or English). Standard information booklet by the British Heart Foundation. 'Medtronic - For Your Pacemaker' booklet, which is provided to patients after the procedure.

Results: 73% of participants preferred the Maltese language, 25% had no preference and 2% preferred English. 50% of participants claimed that they were not given the booklet about pacemakers while 34% did not make use of the booklet because of language barrier and 4% were illiterate. Others felt that the information booklets were too long or deemed unnecessary. The majority of participants were happy with the advice being given pre-operatively, during consent and post-operatively.

Conclusion: The implementation of an information booklet in the Maltese language would be helpful to many patients who are more comfortable using the Maltese language.

P3.10

Cardiac rehabilitation in patients after percutaneous coronary intervention

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Introduction: A multidisciplinary cardiac rehabilitation (CR) program supports patients to implement long-term lifestyle changes to improve prognosis after percutaneous coronary intervention (PCI). The aims were to assess patients' response to the outpatient CR program offered at Mater Dei Hospital, follow-up patients to assess their progress with lifestyle changes and analyse pharmacist contribution in CR.

Methods: After obtaining informed written consent, patients who underwent PCI were followed during the CR program. A validated data collection form was completed at initial assessment (t=0), patients were followed during six educational sessions, and one-month after the sixth session (t=1). A validated follow-up form was completed at t=1. Comparison between t=0 and t=1 was undertaken.

Results: A total of 40 patients were recruited and interviewed at t=0. Thirty-two patients were male, mean age was 62 years (range 40-76) and myocardial infarction was the reason for PCI in most (26) patients. The majority of patients (28) attended all sessions and of these 21 patients attended at t=1. There was statistically significant improvement between t=0 and t=1 (p<0.05) for frequency of physical activity and changes in diet. The patients gave the pharmacist-led session about drug therapy a rating score of 4.62 out of 5.

Conclusion: CR is important for patients who underwent PCI since those who completed the program improved their lifestyle habits. Although patients rated the pharmacist-led session highly, pharmacist involvement should be extended to the initial assessment as well as the follow-up sessions rather than having only one educational session at the end of the program.

P3.11

Cardiac resynchronisation therapy in Malta: an evaluation of current practices

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[1]Department of Cardiology, Mater Dei Hospital, [2]Department of Cardiology, Mater Dei Hospital, [3]Department of Health Information

Introduction: Heart failure is a common medical condition which can cause significant morbidity and mortality. When lifestyle advice and medical treatment is not enough, implantation of a device that delivers cardiac resynchronisation therapy (CRT) may be indicated.

Methods: A retrospective cohort study was carried out. Data was collected for 100 patients who had CRT implantation until 2012. Demographic data, together with indications for CRT, device used and technique of implantation, complications, patient symptomatology and re-admissions with heart failure after implantation, and mortality data was collected. Pearson Chi2 and 2-sample t-test analysis was performed together with survival assessment.

Results: Descriptive analysis showed that there were more frequent implantation of devices in patients who had moderate

to severe heart failure symptoms, prolonged QRS duration >130ms and an EF <35%, despite optimal medical therapy. This was consistent with current recommendations. Analysis with Pearson Chi2 testing did not show statistical significance when the patients who were readmitted to hospital were analysed also for mortality (p=0.266). 2-sample t-test analysis of variables recorded for readmissions with heart failure and mortality showed that out of all the comorbidities investigated, there was a correlation with impaired renal function (p<0.001).

Conclusion: In most cases, current recommendations for CRT in Malta are being followed. The current pre-assessment clinic will re-inforce adequate selection of patients for device implantation, with extra care towards renal patients. Implementation of a new follow-up clinic for device patients should be introduced in order to further improve outcome in these patients and reduce hospitalisation and mortality.

P3.12
What do cardiovascular patients think about their referrals?

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[1]University of Malta; Imperial College London, [2]Medical School, University of Malta, [3]Imperial College London

Introduction: The referral process from primary to secondary care establishes the basis for subsequent care in chronic conditions. The aim of the study was to describe patient perceptions of the information in the Ticket of Referral (TOR) using cardiovascular referrals as an exemplar.

Methods: Consecutive cardiovascular referrals to MCC and Cardiology Outpatients were invited to participate anonymously in a brief semi-structured audio-recorded interview (Aug-Sep 2014). They ranked fields in the TOR on a scale of 1(essential) to 4 (should not be included), and identified the three most/least important fields. They indicated whether other information was required, and whether the inclusion of a checklist of cardiovascular risk factors would be helpful. Data was entered into Excel and analysed with descriptive statistics, ranking and content analysis.

Results: 53 patients were invited, three declined; most participants were over 50 years, 50% male, 50% female. Fields scored highly included 'Current treatment and allergies' and 'Clinical examination findings'; low scores were awarded to 'Next of kin,' 'telephone' and 'mobile' numbers'. The most important fields identified were 'Identity card number' and 'Reasons for referral'. Patient contact details including 'telephone number' and 'address' were identified as least important. Most patients did not consider other information was required; however, 96% considered it would be helpful to include cardiovascular risk factors.

Conclusion: 'ID number', and 'Reasons for referral' were identified as most important, with 'Current treatment and allergies' and 'clinical findings' highly scored. Patients considered the inclusion of relevant risk factors could be useful-which may be helpful for self-care.

P3.13
Transfer of ST elevation myocardial infarction patients by helicopter from Gozo General Hospital to Mater Dei Hospital

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[1]Malta Foundation Programme, [2]Department of Cardiology, Mater Dei Hospital

Introduction: The audit aims to identify the time consuming factors involved in transferring ST elevation myocardial infarction (STEMI) patients from Gozo General Hospital (GGH) to Mater Dei Hospital (MDH), to assess whether primary PCI is performed within 120 minutes as recommended by the European Society of Cardiology (ESC) guidelines and to estimate whether ferry transfers would be faster.

Methods: Data was retrieved using logbooks covering transfers between April and October 2014. Each stage of the transfer was analysed. The time of initial call from GGH was used as the start point. The transfer time had the Gozo ferry been used was estimated and compared to the total transfer time by helicopter.

Results: Five cases were analysed over seven months. The average time for helicopter transfer was 130.8 minutes. The time limiting factors identified were: Finding transfer anaesthetist (mean 20.5 minutes), transfer team preparation prior to dispatch (mean 22.5) and helicopter transit time (mean 76.75). Estimated transit times using the ferry ranged from 65 minutes less to 26 minutes more than actual helicopter transfer time (average 30.2 minutes less). The average estimated transfer time by ferry was 100.6 minutes. Only in one case was the transfer faster by helicopter; when ferries are less frequent.

Conclusion: Transit time was greater than the recommended 120 minutes in the majority of cases. Finding an anaesthetist and preparation for dispatch of the team are major contributing factors. Outside 21:45-06:00 ferry boat transfer is estimated to be faster and within ESC recommended time.

P3.14
Heart failure in geriatric population: an investigations audit

Paul Zammit, David Agius, Indika Thilan Perera, Santosh Kumar

Introduction: Heart failure (HF) is a complex syndrome that can result from any structural or functional cardiac disorder that impairs the ability of the heart to function as a pump to support a physiological circulation. The echocardiogram (echo) and electrocardiograph (ECG) are the most useful tests in suspected HF (Class 1 recommendation). Other recommended investigations include numerous blood tests and chest X ray.

Methods: An audit was carried out to see if these investigations were carried out in geriatric patients labelled as having HF. Epidemiological data was also collected. Data was collected from patient's medical records and from healthcare IT software (isoft). Diagnosis of HF was taken form the medical records

Results: All the recommended investigations excluding the echocardiogram were routinely done in the absolute majority of the 33 cases under study. CBC was taken in all cases while iron studies was the least blood investigation that was used (78.8%). In total 14/33 (42.4%) had an echo despite being diagnosed with HF.

Conclusion: Though most investigations are carried out this is not the case with echocardiograms. Ordering this test should be emphasised as it provides much detailed information about the heart. It also allows a working diagnosis and treatment plan for the patient.

P3.15
Sudden cardiac death in the Maltese population

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Introduction: Sudden Cardiac Death (SCD) in young adults (under 40years old) is a predominant cause of death locally (42%). About 30% of sudden deaths involving otherwise healthy individuals have no identifiable morphologic abnormalities thus the SCD is labelled as autopsy-negative

sudden unexplained death (SUD). Channelopathies such as catecholaminergic polymorphic ventricular tachycardia (CPVT), congenital long QT syndrome (LQTS), congenital short QT syndrome and Brugada syndrome leave no evidence to be determined by a mediolegal autopsy.

Methods: 60 SCD cases under 40years of age were identified from Mater Dei Hospital's mortuary records over the past 10 years. DNA, RNA and protein are being co-extracted from FFPE heart tissue. The extracted DNA will be genetically analysed to search for mitochondrial and nuclear mutations which could be associated with SCD including RYR2, CPVT, KCNQ1, KCNH2, SCN5A, KCNE1, KCNE2. Mitochondrial DNA sequencing will determine if certain mutations are specific to Maltese mtDNA haplogroups. The study will be extended to family pedigrees of these subjects to screen for the same mutations. A cohort of healthy individuals will be obtained from the Malta BioBank and screened for the same mutations as a control.

Conclusion: Postmortem genetic testing (molecular autopsy) is not routinely performed in SCD cases and is recommended to be part of a comprehensive medico-legal investigation in SCD cases without apparent cardiac disease. A postmortem diagnosis in SCD is important to assess the risk of other family members. Further deaths in the family may be prevented with lifestyle modifications and medication if available.

Disclosure: Funding: Malta Government Scholarship Scheme.

P3.16

Negative myocardial perfusion imaging scans - a three year follow up

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Introduction: Stress MPI provides useful prognostic information in patients with known or suspected coronary artery disease (CAD). Annualised cardiac event rate after negative MPI has been reported to be less than 1%.

Methods: Patients who underwent MPI in 2011 were selected and classified into patients with or without known CAD. Each MPI result was classified into normal, reversible and irreversible filling defects. Patients had three year follow-up for all-cause and cardiac mortality and coronary revascularization.

Results: 1300 patients had an MPI study performed in 2011. 18% of females and 26% of males had negative MPI. All-cause mortality during three year follow-up was 2% (0.6% annual mortality). Of these, 26% had cardiac death. 6% of patients with negative MPI had positive angiography during three year follow-up. Kaplan-Maier survival analysis showed that following negative MPI studies, there is no difference in i) all-cause and cardiovascular mortality between genders and ii) mortality in patients with known or unknown IHD.

Conclusion: Negative MPI studies are associated with a low annual all-cause and cardiac mortality, in both genders. Negative MPI studies in patients with known IHD are as reassuring as those in patients with unknown IHD.

P3.17

Cardiac resynchronisation therapy in Malta: an evaluation of current practices

Daniela Cassar DeMarco[1], Oscar Aquilina[1], Matthew Mercieca Balbi[1], Robert George Xuereb[1], Albert Fenech[1], Neville Calleja[2], Mark Adrian Sammut[1]

[1]Department of Cardiology, Mater Dei Hospital, [2]Department of Health Information

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Results: Descriptive analysis showed that there were more frequent implantation of devices in patients who had moderate to severe heart failure symptoms, prolonged QRS duration >130ms and an EF <35%, despite optimal medical therapy. This was consistent with current recommendations. Analysis with Pearson Chi2 testing did not show statistical significance when the patients who were readmitted to hospital were analysed also for mortality (p=0.266). 2-sample t-test analysis of variables recorded for readmissions with heart failure and mortality showed that out of all the comorbidities investigated, there was a correlation with impaired renal function (p<0.001).

Conclusion: In most cases, current recommendations for CRT in Malta are being followed. The current pre-assessment clinic will re-inforce adequate selection of patients for device implantation, with extra care towards renal patients. Implementation of a new follow-up clinic for device patients should be introduced in order to further improve outcome in these patients and reduce hospitalisation and mortality.

P3.18

Retrospective audit - postoperative atrial fibrillation after major cardiac surgery in 2012

Alexia Farrugia, David Cini, Jessica Camilleri, Jessica Sammut, David Sladden

Mater Dei Hospital

Introduction: Atrial fibrillation is a common postoperative complication of cardiothoracic surgery.

Methods: In this study all patients undergoing cardiothoracic surgery at Mater Dei Hospital in 2012 were recruited retrospectively (CABG, AVR and MVR). Their postoperative course was monitored using electronic case summary discharge letters, blood test results from iSoft and patient files.

Results: A total of 244 patients were recruited in our study, 25% of whom went into AF post-operatively (new-onset). Of these, 74.6% achieved sinus rhythm on discharge and in 60.3% this sinus rhythm was maintained. Atrial fibrillation was much more common in combined CABG and valve replacement surgery (53.8%) and in valve replacement surgery (35.5%) on its own rather than CABG (20.12%) on its own. The average length of stay was 9.9 days with 3.83 days in CICU. No specific predisposing factors were indentified meaning that AF is the result of surgery and very difficult to predict or prevent pre-operatively.

Conclusion: In conclusion, our rates of postoperative AF compared well to centres abroad. AF is a significant factor in increasing length of hospital stay in cardiac surgery patients.

P4.01

Genetic determinants of visceral adiposity in type 2 diabetes mellitus

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Introduction: Obesity is a heritable trait that arises from complex gene-environment interactions and is rapidly increasing in prevalence. It is defined by anthropometric measures such as the body mass index and waist circumference. A large number of SNVs have been repeatedly associated with visceral adiposity and related traits in various populations using a hypothesis-free approach. Despite the robust genomic association reported in the literature, GWAS-identified loci often show poor reproducibility and deficient phenotype associations when investigated in other populations. The aim of this investigation

was to study the relationship between polymorphisms having established association with BMI, waist circumference (WC) and related traits in the Maltese population.

Methods: We selected 55 SNVs having known association with BMI (n=32) and WC (n=23). They were genotyped using allele-specific PCR and a MALDI-TOF detection platform in 187 overweight/obese T2DM patients. Genotype-phenotype associations were examined for individual risk alleles and in an aggregate risk score, adjusting for age and gender.

Results: The genotyping call rate was 98.75%. Most of the SNVs genotyped were in intronic or regulatory genomic regions. A detailed ontological description of gene function, biological pathways and disease annotations using ToppGene is given. This section will describe the anthropometric and biochemical parameters of the study cohort, and their statistical association with individual genotypes at each risk allele.

Conclusion: This study is a continuation of previous work on the prediction of risk in Maltese T2DM patients, and adds value by exploring new genetic associations with clinical and biochemical phenotypes linked with the development of obesity and insulin resistance.

Disclosure: This study was supported by a research grant from the Faculty of Medicine and Surgery, University of Malta.

P4.02
Molecular screening of the human melanocortin 4 receptor (*MC4R*) gene in obese Maltese type 2 diabetic patients

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Introduction: Obesity is a complex trait that arises from the interaction between lifestyle and a number of genetic factors. It is a risk factor for cardio-metabolic diseases, including type 2 diabetes (T2DM). GWAS have identified associations between around 50 individual SNVs and non-syndromic obesity, as defined by the BMI, waist circumference and waist-hip ratio. The first gene shown to have unequivocal association with obesity was *FTO*. Subsequently, investigations into early onset/severe obesity have identified variants in genes acting on the central regulation of appetite. Of particular interest is the melanocortin 4 receptor (MC4R). This is the hypothalamic receptor for melanocyte stimulating hormone, and blockade of this signalling pathway leads to hyperphagia and reduced energy expenditure. A large number of studies have investigated the role of genetic variation in *MC4R*, and mutations in this gene represent the most frequent cause of early-onset non-syndromic obesity. **Aim:** of this investigation was to perform mutational screening of the *MC4R* exon in obese T2DM patients.

Methods: We sequenced the *MC4R* exon in 192 obese T2DM patients of Maltese ethnicity. The single 1000bp exon was amplified by PCR using ATCAATTCAGGGGGACACTG and TGCATGTTCCTATATTGCGTG primers. The purified amplicon was then sent for Sanger sequencing at GATC Biotech, Germany, followed by bioinformatic sequence analysis.

Results: *MC4R* sequence variants are uncommon in obese T2DM patients. This section will describe the clinical characteristics of the study cohort, the identified variants, and their predicted effects.

Conclusion: This is the first investigation into the prevalence, spectrum and functional characterization of *MC4R* variants in obese Maltese adults.

Disclosure: This study was supported by a research grant from the Faculty of Medicine and Surgery, University of Malta.

P4.03
Investigating the role of HSP27 lysine methylation in chemoresistant pancreatic cancers

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Introduction: HSP27 has been shown to be up-regulated following acquisition of chemoresistance in a number of cancers including pancreatic cancer, which is one of the hardest types of cancers to treat. The importance of phosphorylation post-translational modifications (PTMs) on HSP27 are well known but methylation is still unexplored. The aim of this study was to try and identify functional methylations on lysine residues in HSP27.

Methods: GEM-sensitive and GEM-resistant pancreatic cancer cell lines were cultured with and without Gemcitabine and then HSP27 and lysine methylation were checked by Western blotting. To explore the role of methylation on HSP27 in overcoming stress, cells were transfected with a FLAG-tagged lysine methyltransferase and immunohistofluorescence was performed with and without Gemcitabine treatment. In an attempt to elucidate the positions and degree of methylation in HSP27, stable HSP27-FLAG over-expressing Hek293 cells were transfected with the lysine methyltransferase construct and HSP27 was immunoprecipitated (IP) for mass spectrometric analysis.

Results: Western blotting presented different overall lysine methylation patterns following Gemcitabine treatment but no specific change in HSP27 methylation. The FLAG-tagged lysine methyltransferase appears to be located in the nucleus both before and after Gemcitabine treatment. The IP of HSP27 was successful but the MS analysis is still on-going.

Conclusion: It is evident that any changes in PTMs are constitutive and once they become active, persist even if treatment is not administered for an extensive period of time. This indicates that a signalling process is initiated which maintains the inclusion of such PTMs even in the absence of external stress stimuli.

P4.04
Molecular genotyping of the Kidd blood group system in Malta

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Introduction: The Kidd blood group antigens, Jk^a and Jk^b, are two of the main surface markers which are found on the red blood cells' membrane. The determination of whether a donor or a recipient has the Jk^a and/or the Jk^b antigens is crucially important in order to have a successful transfusion without the development of adverse incompatibility-related reactions. This research was performed to determine whether a molecular-based technique such as Polymerase Chain Reaction - Restriction Fragment Length Polymorphism analysis (PCR-RFLP) is a suitable alternative technique for distinguishing amongst the three different Kidd phenotypes.

Methods: After extracting DNA from 60 blood samples obtained from serologically-tested healthy blood donors who expressed at least one of the Kidd antigens, Polymerase Chain Reaction - Restriction Fragment Length Polymorphism (PCR-RFLP) analyses were carried out. The digested products were visualized on a 3.5% MicroABagarose gel allowing a high resolution separation of the fragments. The genotypes were noted and recorder for each case.

Results: The results of all molecularly tested samples were then compared with the ones previously obtained with

haemagglutination and a complete match was observed between the two. In addition, the statistical Pearson-Chi Square test and the Scatter plot clearly showed the relationship between both assays.

Conclusion: PCR-RFLP method was confirmed as a suitable alternative laboratory technique that can be used to determine efficiently the Kidd blood group of both donors and recipients, in an accurate manner without subjectivity as encountered in the case of haemagglutination. This research further facilitates the introduction of molecular-based techniques in molecular blood transfusion.

Disclosure: Funding: University of Malta

P4.05
Identification of a subset of B cells expressing the CD5 marker in humans

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Introduction: Development of lymphoproliferative disorders have been studied extensively, but the origin of subpopulations of B cells expressing the CD5 marker is still not fully understood. Of interest, Chronic Lymphobalstic Leukemia (CLL) and mantle cell lymphomas are characterised by a subset of B cells that express the CD5 marker.

Methods: A cohort of individuals (n=50) over 65 years of age and 20 neonatal blood samples were collected. Following mononuclear cell isolation, the cells were incubated with anti-CD5 (FITC), anti-CD19 (PerCP-Cy5.5), anti-κ and anti-λ light chain. At least 200,000 events were acquired on a FACS Calibur equipped with a 488 argon ion laser and 635 red diode laser (Becton Dickinson) and analysed with the CellQuest software system (Becton Dickinson). The ratio of κ+ and λ+ events was evaluated following gating of CD19+ subsets.

Results: The CD19+ fraction derived from neonate cord blood, are positive for CD5. From a cohort of 50 senior citizens, 25 samples were selected on the basis of the number of CD19+ events (>100 events). Immunophenotyping identified a CD19+ CD5dim fraction. Of interest, one of the senior citizens samples showed that 57.12% of the B cells were CD19+ CD5dim. In this sample, l/k ratio indicate a monoclonal origin.

Conclusion: In this study we identified a subset of B cells expressing low levels of CD5. Further characterisation of these cells is required. The ultimate goal of this study is to identify instigating carcinomatous factors that may stimulate B1 cells to transform into a CLL-like model.

Disclosure: Finding through the Faculty of Medicine and Surgery, University of Malta.

P4.06
Nandrolone affects Leydig cells function: a pilot *in vitro* study

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Introduction: Anabolic androgenic steroids (AAS) are some of the most commonly used drugs among athletes, frequently in combination with resistance training to improve physical performance, or for aesthetic purpose. A number of scientific reports showed the detrimental effects of AAS on different organs and tissues. In particular, AAS are known to suppress gonadotropin releasing hormone, luteinizing hormone and follicle-stimulating hormone. The evidence coming from studies performed on animal models suggest a direct testicular toxicity due to synthetic AAS use. However, the mechanisms causing this reduction have not been elucidated. The use of in vitro assays could help to assess the effects of AAS on Leydig cells and to understand the complex pathophysiology of AAS-induced reproductive disorders.

Methods: Quantitative PCR, western blotting and confocal microscopy was used to investigate the in vitro effects of nandrolone (one of the commonly used AAS) on the testosterone biosynthesis pathway in Leydig cells and on stress associated proteins.

Results: Nandrolone treatment resulted in a decrease in the expression of Cyp11A1 (cholesterol side-chain cleavage enzyme) and Cyp17A1 (17α-hydroxylase/17, 20 lyase), and upregulated STAR (steroidogenic acute regulatory protein) and HSD3B1 (3-β-hydroxysteroid dehydrogenase/δ-5-δ-4 isomerase).

Conclusion: These results shed light on the mechanisms that may determine a reduced production of testosterone in Leydig cells at the base of the male infertility of the AAS abusers. Further studies are necessaries to confirm these results and to better clarify the extent to which heavy AAS use might contribute to gonadal failure.

P4.07
Betulinic acid analogues induce maturation in HL60 acute myeloid leukaemia cells

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Introduction: Betulinic acid (BA) is a naturally occurring pentacyclic triterpenoid found in some plants, predominantly the bark of birch wood (Betula pubescens) from which it derives its name. It has so far been shown to have cytotoxic and apoptotic properties against a number of different cancer types such as brain tumours, ovarian cancer and HL-60 leukemia cell lines. It has been found to induce apoptosis by the inhibition of the topoisomerase enzyme involved in releasing the tension that builds up in the double helix as DNA is being unwound in DNA replication and transcription. As such these processes are unable to occur, giving it its anti-proliferative properties and make it a potential anticancer therapeutic agent. Furthermore, it has been shown that BA enhances DHD3 (vitamin D) induced differentiation in HL-60 acute myeloid leukemia cells. A number of BA derivatives were tested on HL-60 cells to assess induction of differentiation in the absence of Vitamin D3. NBT and MTT tests were performed on HL-60 cells exposed to with the different BA analogues as crude markers of differentiation and survivability respectively. This was then followed up by morphology analysis of the treated cells. The results show that these BA derivatives have both differentiation inducing properties and a cytotoxic effect (which vary depending on the derivative itself and also on the concentration used) on human HL-60 acute myeloid leukemia cells.

Conclusion: We have shown, through chemical analysis, that certain betulinic acid derivates can induce myeloid leukaemia cell differentiation even in the abscence of Vitamin D3.

Disclosure: These chemicals, the betulinic acid derivatives, were received through collaborations with labs in the EU funded "STEMCHEM" COST consortium CM1106

P4.08
Exploring the protein methylation profiles of different colon cancer sub-types

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Introduction: Colorectal cancer (CRC) is the third most commonly diagnosed cancer in Malta after lung and breast or prostate. CRCs are sub-divided into 9 categories, based on histology, and this diversity is reflected in cellular metabolism, proliferation, differentiation, and survival. All these characteristics can be influenced by protein methylation so the aim of this study was to investigate any observable differences in

methylation pattern between the different CRC sub-types.

Methods: Differences in levels of lysine and arginine methylation due to carcinogenesis were analysed by comparing the pan-methylation pattern in cancer cell lines with healthy tissue using 1-dimension sodium dodecylsulfate polyacrylamide gel electrophoresis (1D-SDS PAGE) followed by Western blotting. Addition analysis comparing normal culture condition with Foetal Bovine Serum (FBS) starvation was performed by a similar method.

Results: Preliminary data confirmed a change in the methylation pattern of colonic tissue following carcinogenesis. Mono-/di- methyl arginines were far less common than mono-/di- methyl lysines in the CRCs analysed, while no changes in either arginine or lysine methylation patterns could be observed following FBS starvation.

Conclusion: The CRC cell lines analysed presented a slightly different pattern from immortalised epithelium for both lysine and arginine methylation but the resolution offered by 1D-SDS PAGE was too low to provide a clear distinction between CRC sub-types based solely on methylation analysis. A greater variety of CRC cell lines is currently being analysed.

P4.09

Structural and functional analyses of the aryl hydrocarbon receptor interacting protein (AIP) and mutant derivative associated with pituitary adenomas in Malta

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Introduction: Germline mutations in the aryl hydrocarbon receptor interacting protein (AIP) gene predispose to pituitary tumourigenesis. The AIP gene codes for a 330 amino acid protein which functions as molecular chaperone and tumour suppressor. A novel missense mutation, designated as R9Q, was identified in an acromegalic Maltese patient. The same mutation was also reported in international patients, all characterised by an aggressive clinical phenotype.

Methods: Recombinant human AIP and AIP[R9Q] were purified to homogeneity from *E.coli* cells. Similarly, two binding proteins of AIP, heat shock protein 90 (HSP90) and phosphodiesterase 4A5 (PDE4A5) were also purified. Proteins were characterised structurally through *in silico* modelling and circular dichroism spectroscopy and kinetically through surface plasmon resonance.

Results: The AIP[R9Q] mutant showed an increased tendency to aggregate with temperature-induced unfolding and displayed changes in the hydrogen bonding network within the mutation region. This, however, did not influence the overall stability of the protein. AIP exhibited a three-fold higher affinity to HSP90 than the mutant counterpart, with K_D values of 4.8μM and 13.6μM respectively. AIP and AIP[R9Q] showed comparable binding to PDE4A5, with slightly higher affinity observed in the case of the mutant. This correlates with the biochemical data, obtained through a PDE enzymological assay, in which PDE4A5 showed a maximal inhibition of 56.6% ± 2.0 in the presence of AIP and 64.0% ± 0.8 when treated with equimolar AIP[R9Q].

Conclusion: Our results suggest that R9Q is a functional mutation which might predispose pituitary tumours by affecting the stability of complexes requiring HSP90 and/or by altering cellular cyclic AMP levels.

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P4.10

Decreased expression of *CIP2A* and *SETBP1* following drug-induced activation of the PP2A complex in triple negative breast cancer cell lines

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Introduction: Triple negative breast cancer (TNBC) patients derive little benefit from target-specific therapies due to lack of the favourable prognostic targets. Data from the cBioPortal for Cancer Genomics demonstrate that PP2A function is likely to be reduced in up to 60% of basal breast tumours. Tumours exhibit either homozygous deletion or underexpression of PP2A, but also overexpression of PP2A inhibitors namely CIP2A, SET and/or SETBP1. In this study we assess the effect of FTY720, an activator of PP2A, on breast cancer cell lines.

Methods: Twelve human breast cancer cell lines representing different breast tumour subtypes and a non-tumorigenic epithelial breast cell line were cultured. Luminex® bead-based multiplex assay was used to quantify transcript levels of PP2A and its inhibitors. FTY720 sensitivity was determined by MTT assays following treatment with incremental drug doses.

Results: *In silico* analysis of datasets show that CIP2A is significantly upregulated in the HER2+ and the TNBC patients. To support this, our data show higher expression of CIP2A in TNBC cell lines. In addition, the TNBC cell lines are more sensitive to low doses of FTY720. CIP2A and also SETPB1 are downregulated in TNBC cell lines following treatment.

Conclusion: The PP2A complex is perturbed in the majority of TNBC cell lines. Moreover, this subset of breast cancer cell lines with overexpression of PP2A inhibitors CIP2A and SETBP1 are sensitive to the PP2A activator, FTY720. This suggests a possible class of breast tumours that may be eligible to the novel PP2A activating targeted therapy.

P4.11

Expression of protein phosphatase 2 (PP2A) inhibitory subunits in breast cancer cell lines

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Introduction: PP2A plays an integral role in the regulation of a number of major signalling pathways involved in the maintenance of normal cell division and survival. PP2A endogenous inhibitory subunits, namely SET, CIP2A and IGBP1, commonly found overexpressed in cancer, can suppress this PP2A activity resulting in cell proliferation and survival. In this study we investigated the expression of PP2A inhibitory subunits in breast cancer cell lines and overexpressed SET, CIP2A and IGBP1 in selected breast cancer cell lines.

Methods: Twelve human breast cancer cell lines representing different breast tumour subtypes and a non-tumorigenic epithelial breast cell line were cultured. RT-PCR was used to quantify the transcript levels of PP2A inhibitory subunits. The SET, CIP2A and IGBP1 coding sequence were cloned in a mammalian expression vector. A transfection protocol was optimised to transfect selected cell lines. Western blot was used to quantify the protein levels of PP2A downstream effectors.

Results: Expression analysis showed that the MCF-7 and MDA-MB-453 breast cancer cell lines have the lowest endogenous levels of PP2A inhibitory subunits. Successful transfection of these cell lines with SET, CIP2A and IGBP1 constructs was confirmed by measuring the GFP expression using fluorescent microscopy and western blot analysis.

Conclusion: Overexpression of the PP2A inhibitory subunits allows investigation of differential expression, using a breast cancer cell model. Further studies include the isolation of polysome bound RNA followed by RNA sequencing, to identify potential therapeutic targets in breast cancer subtypes with high SET, CIP2A or IGBP1 expression.

P4.12
The fourth dimension of mitochondrial oxphos

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Introduction: Circadian rhythms in gene expression synchronize biochemical processes and metabolic fluxes with the external environment. The main organ controlling the diurnal rhythms is the suprachiasmic nucleus which is located in the hypothalamus pacing self-sustained and cell-autonomous molecular oscillators in peripheral tissues through neural and humoral signals. Even in the absence of external stimuli, all the cells exhibit intrinsic oscillation of clock genes.

Methods: HepG2 cells was synchronized using a protocol consists in a 2 hours serum shock followed by serum withdrawal. Every 3 hours for a total time of 24/30 hours the endogenous respiratory activity is assessed in intact cells by high resolution respirometry. Clock genes expression was observed by RT-PCR at different time points. mtDY-generation was detected by flow-cytometry following TMRM staining.

Results: We show a correlation between circadian oscillation of clock genes and mitochondrial respiratory activity (supported by flow-cytometric analysis of mt-DY-generation and ROS production). The treatment with dexamethasone show that the shifted circadian oscillation of clock genes matched the newly established period of the mitochondrial respiratory activity. The mitochondrial respiratory complexes content did not change following synchronization suggesting that the observed rhythmic changes of respiration were possibly due to changes in both/either the availability of reducing substrates and to regulatory post-translational modifications. We measured the expression level of nicotinamide phosphoribosyltransferase NAMPT, and we found that the transcript level of NAMPT followed oscillatory changes synchronized with both clock genes and respiration. The cellular content of total NAD matched the circadian oscillation of the NAMPT and the NAD+/NADH ratio was inversely correlated with the mitochondrial respiratory activity.

Conclusion: This results indicate the occurrence in HepG-2 cells of an autonomous clock genes-dependent and NAMPT/NAD-mediated circasemidian rhythm controlling the mitochondrial respiratory chain activity.

P4.13
Stability of ZFP36L2 mRNA targets in an erythroid model

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Introduction: Haematopoiesis requires a fine balance between progenitor commitment and proliferation *versus* differentiation. In decreased oxygen situations the balance is shifted towards proliferation. This is tightly regulated by the concert action of Erythopoietin (EPO), Stem Cell Factor (SCF) and Glucocorticoids (GCs). ZFP36L2 is a transcriptional target of glucocorticoid receptors in BFU-Es that rapidly decays mRNA.

Methods: A list of ZFP36L2 targets were selected using publicly available datasets. A starvation-stimulation experiment was performed and cells were exposed to combinations of EPO & Dexamethasone (ED) and SCF & Dexamethasone (SD), with or without Actinomycin-D. RNA was extracted and cDNA synthesised for qPCR. The degradation of ZFP36L2 targets was then investigated.

Results: There was an immediate increase in *ZFP36L2* expression after stimulation with combinations of ED and SD. With Actinomycin-D SD, there was no fold change observed signifying stability of ZFP36L2 under these conditions. A decrease in stability was noted with ED stimulation, when Actinomycin-D was present, implying ZFP36L2 has a short half-life under these conditions. Three of the identified genes were good ZFP36L2 targets.

Conclusion: In-depth understanding on erythroid renewal can be obtained by elucidating GC-triggered pathways, and their interplay with EPO/SCF. This gives better understanding of disease states, allowing novel therapies to be devised. This process could also be utilised for *ex vivo* expansion of normal progenitor cells, enabling the possibility of culturing erythrocytes for potential therapeutic use. Advantages include the reduction in alloimmunisation and potential infectivity of transfused erythrocytes; using these cells as drug vectors; and for research on the infectious/reproductive cycle of parasites.

P4.14
Triple-negative breast cancer cell-lines are sensitive to the pp2a activator, FTY720

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Introduction: Protein phosphatase 2A (pp2a) is a tumour suppressor phosphatase that is aberrantly expressed and inactivated in a number of malignancies, including breast cancer. FTY720 is a pp2a-activating drug that increases pp2a activity by decreasing the levels of pp2a negative regulators. In this study, we evaluated the sensitivity of a number of breast cancer cell-lines when exposed to different concentrations of FTY720.

Methods: Twelve different human breast cancer cell-lines representing the 4 receptor sub-types and a non-neoplastic epithelial breast cell-line were cultured. The different cell-lines were then exposed to incremental doses of FTY720 ranging from 0.05 – 25μM and the %viability, an indicator of the sensitivity to the drug, was determined using MTT assays.

Results: The triple-negative breast cancer (TNBC) sub-types showed the highest sensitivity to FTY720 at low doses, as evidenced by the significant drop in the %viability; the highest sensitivity to FTY720 at the lowest dose (0.05μM) was recorded for BT-20. Conversely, BT-474 (a triple-positive sub-type) and MDA-MB-453 (Human Epidermal

Growth Factor Receptor 2+ sub-type) were sensitive to FTY720 at the highest dose (25μM) while MCF-7 was resistant even at the highest dose. Interestingly, MCF10A (a non-neoplastic breast cell-line) was resistant up to 25μM.

Conclusion: The TNBC sub-type was the only sub-type to show sensitivity to FTY720 at low doses. Since there is no moleculary targeted therapy for the TNBC sub-type, the adminsitration of FTY720 may serve as a potential adjuvant therapeutic agent in the treatment of this sub-type, which is often associated with a poor prognosis.

P4.15
Stability of β-catenin as a potential mechanism of glucocorticoid dependant expansion of human erythroid progenitors

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Introduction: Cooperative signalling between the glucocorticoid nuclear receptor and the cytokine receptors was proven to be central for proper balance between progenitor proliferation and differentiation. The glucocorticoid, Dexamethasone (Dex) has been identified as an essential requirement for the generation of mass cultures of erythroblasts. The production of massive cultures of human red blood cells in vitro would possibly lead to ex vivo transfusions. Although many signalling pathways have been unravelled, transcription regulation induced by glucocorticoids in haematopoietic progenitors is still unclear.

Methods: Human mononuclear cells were isolated using gradient centrifugation and cultured in selective media to expand human erythroid progenitors (HEPs). HEPs were serum deprived followed by stimulation with different combinations of growth factors in the presence or absence of dexamethasone. Microarray data analysis provided by Erasmus Medical Centre, provided a list of potential dexamethasone targets. qPCR was used to measure expression following stimulation experiments. Western blot was used to measure protein expression.

Results: The Dex targets, YWHAH and Zfp36L2 were found to have a synergistic effect upon stimulation by growth factors and Dex. Enhanced expression of β-catenin was observed upon stimulation with erythropoietin and dexamethasone.

Conclusion: The YWHAH, part of the 14-3-3 family are known to shuttle transcription factor complexes. The transcription factor β-catenin was shown to bind to the 14-3-3 proteins resulting in increased stability. The enhanced stability of β-catenin by Dex (due to increased expression of YWHAH), suggests a potential mechanism of cooperation resulting in erythroid progenitor expansion.

Disclosure: Funded by the Malta Government Scholarship Scheme.

P5.01
Intra-pancreatic mucinous neoplasia - trends observed since 2007

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Introduction: The many varieties of cystic pancreatic tumor, and especially intraductal papillary mucinous neoplasia (IPMN), have attracted increased attention recently. Their incidence may be rising, and their histopathological evaluation and classification have become more precise than before. Here we present the results of an audit carried out to establish the incidence and management of IPMN in Malta since January 2007.

Methods: Patient files and imaging through our local PACS system were used to acquire data retrospectively. PubMed was used to generate a literature search using keywords: intra-ductal-pancreatic-mucinous-neoplasia.

Results: There were 57 cases of IPMN since January 2007. 65% were male. 87% were found incidentally on magnetic resonance imaging. Average tumour size was 10-20mm. Unifocal disease occurred in 60% of cases, the rest being multifocal. Side-branch disease ocurred in 83% of cases, main-duct disease in 2%, the rest being mixed-type. The head of the pancreas was most usually affected, in 70% of cases. Just 50% of cases were followed up with repeat scans and 11% were followed up after one year.

Conclusion: IPMN may be increasing in incidence. Guidelines should be adhered to in order to ensure adequate follow up of this disease with malignant potential.

P5.02
Pancreatic surgery: the Mater Dei Hospital experience

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Introduction: We audited all the pancreatic surgery done at Mater Dei Hospital (MDH) from 2008 to 2012. This includes demographics, surgery type, presenting symptoms, co-morbidities, predisposing factors, tumour markers, imaging, histology, morbidity and mortality.

Methods: The list of relevant patients was obtained from operating theatre registers after the required approvals. Other information was obtained from the patients' notes., was coded and analysed using MS Excel.

Results: 58% of the patients were male. 29% had a Whipple's procedure, 13% had a total pancreatectomy and 14% had a distal pancreatectomy. Most patients belonged to the 60-69 year old age group. The commonest presenting symptoms were abdominal pain and obstructive jaundice. 25% of the patients, were diabetic, 24% were smokers and 2% were alcohol abusers. 25% of the patients had a palpable mass and only 51% of them had a raised Ca 19.9. The head was the commonest location for pancreatic lesions. Most patients had their surgery from day 11 to day 15 from presentation. Only one patient needed re-operation for positive surgical margins. 3 patients died in the Intensive Therapy Unit from sepsis. 84% were discharged home and 11% were discharged to a rehabilitation hospital. One year survival was up to 86%.

Conclusion: The number of patients who had pancreatic surgery at MDH increased year after year. This might be due to an increasing incidence or because of increasing incidental findings and improved accessibility to hospital and increased capacity and confidence in performing this major surgery.

P5.03
Management by endoscopic stenting of acute colonic obstruction due to malignant strictures – the local experience

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Introduction: Self-expandable metal stent (SEMS) is being increasingly considered as a bridge to definite surgery or as a minimally invasive palliative procedure, in those patients presenting with malignant obstruction. Clinical success rates varying between 85 and 90 % have been reported. This procedure is gradually gaining ground locally. In this short case series we evaluate the outcomes of the first patients undergoing this procedure under the care of one firm.

Methods: Case series following the outcomes in the first patients undergoing colonic stenting for malignant bowel obstruction. Patients presenting with acute colonic obstruction were assessed by consultant and after initial resuscitation taken to theatre. All patients were consented for surgery in case stenting was unsuccessful. Demographic data, information about co-morbidities and oncological disease, as well as intervention time, length of stay and complications were collected prospectively.

Results: Mean patient age = 77.5 years. Success rate = 83.3%. Mean patient ASA = 3. None of the patients had complications directly related to the procedure. Although means inpatient hospital stay was 6.7 days, all stays longer than 1 day post operatively were due to optimization of pre-existing medical co-morbidities. No patients necessitated blood transfusion. Patients in whom stent placement was successful were all able to open their bowels within 6 hours of the procedure.

Conclusion: The results from this short case series compares well with data available from centres which have been using this option. Colonic stenting using SEMS is a safe and effective option for patients presenting with malignant colonic obstruction.

P5.04
Management of acute upper gastrointestinal bleeding in Mater Dei Hospital - comparing local practices to NICE guidelines

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Introduction: Upper Gastrointestinal Bleeding (UGIB) is a common surgical emergency. In this audit we compared the management of acute, non-variceal UGIB in our institution with NICE guideline CG141: 'Acute Upper Intestinal Bleeding: Management.'

Methods: We looked at patients who underwent emergency oesophagogastroduodenoscopy (OGD) for suspected UGIB, between June 2013 and June 2014. Information was obtained from clinical notes regarding further management, including use of scoring systems, timing to OGD, endoscopic treatment administered and use of proton pump inhibitors (PPIs).

Results: 47 patients were included in this audit. 74.5% were male, 25.5% were female. In none of the cases were the Glasgow-Blatchford or Rockall score documented. 37 (78.7%) cases underwent OGD within 24 hours of surgical contact. 9 cases underwent OGD after 24 hours elapsed. In 1 case timing to endoscopy was not documented. 1 case did not undergo OGD. 30 cases had macroscopic inflammatory changes on endoscopy. 30 cases had ulceration on endoscopy. 2 cases had evidence of malignancy. 4 cases had a normal endoscopy. 12 cases had signs of active bleeding at endoscopy, 8 of which were treated with adrenaline alone. 2 of these required conversion to open surgery. 1 case of active bleeding was treated with thermal ablation. 3 cases did not receive endoscopic treatment. 46 cases were given PPIs.

Conclusion: Validated scoring systems are not used within our practice. 78.7% of patients with suspected UGIB underwent endoscopy within 24 hours of presentation. At the time of the audit adrenaline was still being used as monotherapy in the treatment of active UGIB.

P5.05
Adherence to Mater Dei Hospital antibiotic guidelines (2004) in elective abdominal surgery

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Introduction: Prevention of surgical site infections (SSI) is an essential component of safe surgery. Antibiotic prophylaxis (AP) is a key component of such prevention strategies. However, inappropriate AP risks development of multi-drug resistant bacteria; proper use and targeting of AP is therefore important. We decided to audit the appropriateness of AP in general surgery at Mater Dei Hospital (MDH).

Methods: A stratified random sample of 100 patients undergoing elective general surgical procedures of the abdomen was obtained from general surgical wards and day care unit. Using the current MDH guidelines as a reference, we investigated indication, appropriateness, duration and timing of AP, as well as record keeping and justification of prolonged treatment or dose changes.

Results: Day cases mainly included hernia repairs; 35.4% were fully compliant to guidelines while 41.6% were only partially compliant with respect to type and duration of antibiotics. 23% were non-compliant and given antibiotics unnecessarily. In-patient surgeries included colectomies, gastric and pancreatic surgeries; 81.5% were partially complaint with deviations in type, number and duration. Documentation of timing of both incision and AP administration were virtually absent. Height and weight of patients was only documented in patients who had POAC (pre-operative assessment clinic). Pre-operative creatinine clearance was rarely calculated but creatinine was usually tested post-operatively after administration of gentamicin.

Conclusion: Most surgical firms adhere to guidelines in a partial manner. Documentation of timing of administration needs improvement as does recording of height and weight and creatinine clearance. A significant proportion of patients are given unnecessary antibiotic prophylaxis.

P5.06
Virtual colonoscopy - an abused service?

Ruth Scicluna, Kristian Micallef, Simon Gatt, Jo Etienne Abela

Introduction: To retrospectively assess the indications for virtual colonoscopy and to correlate the findings with the clinical outcome.

Methods: Since the introduction of virtual colonoscopy at the Gozo General Hospital Imaging Unit, 425 patients (159 males, 266 females with an age range of 21-91 years) have benefited from this service. In this retrospective study, the indications for the test were evaluated. Colonic and extra-colonic findings were noted and correlated with patient outcome.

Results: The commonest indications were change in bowel habit (94), anaemia (74) and abdominal pain (60). The service was also used for unsuccessful optical colonoscopy (39) and in 14 cases the patient refused the optical test. Two hundred and twenty five patients had no abnormality detected. The commonest finding was diverticular disease (115). The second commonest was an extra-colonic abnormality (44); of these, 65% were abdominal lesions and the remaining 35% were chest lesions. In 14 patients (3.3%) CT revealed possible colonic neoplastic lesions. Subsequently, 8 of these patients were diagnosed with colon cancer (1.8%), 3 patients were operated for diverticular strictures and 3 had no significant pathology.

Conclusion: Despite the large number of referrals since its inception, the service has yielded 8 cancers only. This suggests that in contrast to optical colonoscopy, virtual colonoscopy is being requested to assess "soft" indications where the index of suspicion for malignant disease may be low. We suggest that a new referral guideline be put in place in order to make better use of this service.

P5.07
Association of 3 severity of illness scoring systems with post-operative destination and 30-day mortality post-emergency laparotomy

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Introduction: Immediate post-operative destination can be at level I and level II (intensive care unit ICU) or level III (ward). For a patient who has undergone surgery, this decision is generally taken by the anaesthetist and surgeon involved in the case. The aim of this study is to determine the association of 3 severity of illness scoring systems (ASA, Apgar and P-POSSUM) with immediate destination and 30-day mortality in patients

who underwent emergency laparotomy to infer the need for level I or II care.

Methods: Consecutive patients above 18 years of age who underwent emergency laparotomy at Mater Dei Hospital Malta, between July 2013 and July 2014 were enrolled. Physiological parameters, operative details and 30-day mortality were noted. Data was analysed using SPSS.

Results: 187 patients were recruited in this study. Using 2-tailed independent t-test, ASA score (p=0.003), Apgar score (p=0.028) and P-POSSUM (p=0.000) were good indicators of patients who required ICU admission. Both P-POSSUM and ASA score were indicative of the 30-day mortality with P-POSSUM offering more sensitivity and specificity on the graph using Receiver Operator Characterisitc (ROC) curves. P-POSSUM value above 16 offered the best specificity (78%) and sensitivity (78.3%) to infer the need for level I or II care.

Conclusion: ASA, Apgar and P-POSSUM are good indicators of post-operative destination. ASA and P-POSSUM are good indicators of 30-day mortality post-emergency laparotomy with P-POSSUM having better specificity and sensitivity.

P5.08
A spectrum of uncommon intra-abdominal cystic disease and its management

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Introduction: Cystic disease of the abdomen and pelvis is diagnosed frequently. We present a case-series of six unusual cystic pathologies encountered over a 12 month period, which show case a spectrum of interesting conditions and discuss their diverse management. Imaging and endoscopic material is striking.

Methods: Three patients presented with multi cystic disease. All had innumerable large volume cysts filling the general peritoneal and pelvic cavities. A 38 year old male with a virgin abdomen was diagnosed with primary peritoneal mesothelioma, a 70 year old female had pseudomyxoma peritonei secondary to a previously excised ovarian mucinous cystadenoma and a 60 year old male developed incurable pseudomyxoma with multiple small and large bowel tumours secondary to a previously excised mucinous adenocarcinoma of the appendix. All three patients required laparotomy, peritoenectomy, various visceral resections and intraperitoneal chemotherapy (HIPEC). Another three patients presented with unilocular cysts. A 50 year old male developed a large 20cm cyst-like lesion occupying the right abdomen, displacing all other viscera and causing hydronephrosis and biliary stasis. Originally suspected to be a hydatid cyst, this lesion was excised in-toto and histology confirmed myxoid liposarcoma. A 38 year old female developed a left sided abdominal mass which was confirmed as an intra splenic hydatid cyst which was treated with splenectomy. A 60 year old male was diagnosed with a 5cm submucosal lesion of the transverse colon which was confirmed as a cystic lymphangioma after extended right hemicolectomy.

Conclusion: This case-series describes unusual but important conditions and their management.

P5.09
Bringing laparoscopy to your own home

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Introduction: The first recorded attempt of looking into the human body using a minimal intervention approach was in the year 1805, first documented by Bozzani of Frankfurt. The technique began with a candle as the main source of light and thereafter radically improved with the development of a high resolution camera defining a major advancement in the laparoscopic era of 1980. Laparoscopic surgery requires training on costly simulators of which the ratio of availability to the number of surgical trainees may be limited thus reducing the time of exposure on these simulators. We designed an inexpensive laparoscopic training device composed of a webcam and LED lights mounted in a specifically designed box which allows medics to practice laparoscopic exercises at their own pace and at their own convenience. With repetition of these exercises, future surgeons will improve their skills and comfortably apply them in the operating theatre of which the outcome is largely dependent on operator technique.

Conclusion: Current surgical practice is continuously changing due to rapid advancements in technology, we need to keep up with these changes and learn new skills quickly but appropriately. Our device is an inexpensive trainer of which anyone may build and use in their own home. The aim of the trainer is not to simulate real life operations in a live individual but to aid the individual to practice motor co-ordination prior to applying them in theatre.

P5.10
Collision carcinoma of the oesophago-gastric junction

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Introduction: A 60 year old male, presented with a 3 months' history of progressive dysphagia. The patient was investigated with a flexible oesophago-gastro-duodenoscopy which identified a 15cms Type 2 Siewert cancer of the oesophago-gastric junction.

Methods: Biopsies from the lesion were in keeping with an invasive adenocarcinoma. Staging CT scan of the neck and trunk confirmed a T3/4 N1 M0 lesion as described at endoscopy. A staging laparoscopy was performed confirming a bulky junctional cancer which was, however, mobile at the hiatus. The peritoneal and liver surfaces were clear and peritoneal cytology was unremarkable. Three-stage McKeown oesophagogastrectomy was performed.

Results: Haematoxylin-eosin stains showed two distinct tumours. The predominant component at histology was a neuroendocrine tumour. The other component consisted of a moderately differentiated tubular adenocarcinoma. Both components infiltrated the full thickness of the wall extending into the surrounding adipose tissue but R0 resection was achieved.

Conclusion: Most collision carcinomas are diagnosed from histological examination of the resected specimen. A preoperative diagnosis would most likely be of benefit for the patient's prognosis since the selection of neo-adjuvant radiotherapy or chemotherapy can be further targeted towards the two types of tumour.

P5.11
The physical and psychological effects of breast reconstruction in breast cancer patients

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Introduction: Breast cancer is a devastating disease afflicting many women. The aim of this retrospective review was to assess the physical and psychological effects of patients who underwent breast reconstruction after breast cancer surgery.

Methods: Clearance from the patients' consultants, data protection and ethics committee was sought and granted. A participation letter was sent to 67 eligible patients who had reconstructive breast surgery between 2009 and 2011. Only forty-two patients (63%) participated, who then attended a

short personal interview during which two questionnaires (SF-36v2 health survey and one on the physical aspects) were filled in.

Results: Patients' mean age was 53.9 years (range 31-75). Reconstructive breast surgery using implant- only was performed in twenty-eight (66.7%) patients. Twenty-three (54.8%) of the forty-two patients had complications, with 1.35 complications/per person affected. Complication rate did not differ significantly amongst the different reconstruction groups (p=0.196). Patients who underwent autologous and oncoplastic reconstructive procedures scored significantly higher satisfaction scores than the prosthesis and prosthesis/autologous group (p=0.01). Whether the reconstruction was immediate or delayed and whether the patients had complications, did not have statistically significant effects on the patients' health domain scores (p=ns). The difference of two proportions between the sample studied and the norm showed that the sample studied had a statistically significant higher depression risk than the norm population (p=0.0154).

Conclusion: Complication rates were comparable amongst the different reconstruction techniques. A higher than normal depression risk was found in the sample studied and therefore improvement of the support services given to patients is recommended.

Disclosure: The licencing and software from the Quality Metric Incorporated was granted for free under the students' scheme.

P5.12
Triple assessment in breast cancer patients

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Introduction: Triple assessment (clinical examination, radiologic imaging and pathology) is the diagnostic tool which is widely used to evaluate patients with suspected breast cancer. The aim of this audit was to assess whether patients diagnosed with breast cancer at Mater Dei Hospital are undergoing the gold-standard triple assessment.

Methods: A total of 708 patients who were discussed at the Breast Multidisciplinary Meeting during the year 2014 were identified from the electronic database. Histology results were reviewed to select the patients with invasive breast carcinoma who underwent surgery with curative intent. Demographic data, radiological and pathology results were accessed using iSoft. Presenting symptoms, type of biopsy and timing of first image and biopsy were recorded. The average time from triple assessment to surgery was calculated.

Results: From 196 incident cases, 96.9% (n=190) were females. Needle core biopsy was carried out in 82.7% of patients (n=162) and fine-needle aspiration (FNA) in 3.06% of patients (n=6). In 85.7% of patients (n=168), triple assessment was fully documented on iSoft. No biopsy/FNA was available on iSoft in 14.3% of patients (n=28). 47.4% of patients (n=93) were first imaged by a mammogram, 23% (n=45) by Ultrasound and 1.5% (n=3) by magnetic resonance imaging (MRI).

Conclusion: This retrospective audit only considered electronically documented imaging and pathologic biopsies. Subsequent audit cycles should consider reviewing patients' medical files and including also the investigations carried out at Lascaris Screening Unit. Having a one-stop clinic would enhance patient-centred care by decreasing delay in diagnosis and alleviating patients' distress.

P5.13
Stone free rates after surgical treatment of renal stone disease in local population

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Introduction: Urolithiasis is a common urological problem, with many stone patients eventually requiring active stone management. Different modalities of stone removal are available locally, offering a comprehensive stone service. Audit of such a stone service performance hinges on stone-free rates (SFR) as the primary outcome measure.

Methods: All adult patients who underwent surgical treatment for urolithiasis by the Urology Department in MDH over a period of 2 years were included in this retrospective audit.

Results: In all, 748 patients underwent 1585 interventions during the study period, including stent insertion, ESWL, PCNL, stent removal, change of stent and ureteroscopy (URS); of these, 1030 procedures were aimed at active stone removal. The efficacy and stone-free rate for the different procedures done are very dependent on stone position and size. In our cohort most stones were located in the renal pelvis (161), upper and lower ureters (123 and 121 respectively) and the lower calyx (112). Most patients had just one calculus (558) but 3 patients had 7 concurrent stones. The average stone size treated by PCNL was 25mm, by ESWL 17mm and URS 15mm.The calculated SFR for the study period were 64.8% for PCNL, 69.6% for ESWL and 55.9% for URS.

Conclusion: Most centres define SFR as leaving stones smaller than 5mm but here we defined our SFR as complete clearance, with no residual calculi on post-operative imaging, so compared to the EAU/AUA nephrolithiasis Guideline Panel 2007 meta-analysis, our SFRs are lower – with an average SFR of 79.6% quoted for ESWL and 86.3% for URS.

P5.14
Solid organ surgical strategy with volume rendering: a nephron-sparing procedure in an atypical horseshoe kidney

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Introduction: Volume-rendered computerised tomography (CT) angiography reconstructs vascular structures within solid organs in three dimensional (3D) space, allowing visualisation essential in cases of uncommon anatomical variants such as horseshoe kidneys. The identification of vascular supply and extent of tumour infiltration must be determined pre-operatively to permit optimum surgical strategy.

Methods: A CT for un-resolving pneumonia revealed an incidental tumour within the left component of an atypical horseshoe kidney. The right renal component was horizontally placed across the aorta and had a completely fused "lower pole". Further CT angiography revealed a renal artery supplying each renal moiety. The dominant left renal artery simultaneously supplied the "lower pole" of the right component. A reconstructed 3D image is presented.

Results: The patient underwent a nephron-sparing procedure using the Habib bipolar resection device with complete excision of the tumour. Preservation of the arterial supply to the "lower pole" resulting in an intact right renal moiety was achieved through planning using volume rendering. Post-operative recovery was uneventful with an estimated glomerular filtration rate (eGFR) consistent with the loss of renal mass and no transfusion requirements. Histology of the resected tumour showed a renal cell carcinoma with clear margins.

Conclusion: The arterial supply of horseshoe kidneys is reviewed and the benefits of enhanced three dimensional reconstructive imaging in the pre-operative planning of complex surgery are highlighted. Without this resource, patients

may have to undergo unnecessarily radical procedures, with associated morbidity - in this instance, unnecessary nephron loss and subsequent renal replacement therapy.

P5.15
Audit of patients with burn injuries presenting to Mater Dei Hospital, Malta

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Introduction: Referrals of burn patients seen at the Plastic Surgery and Burns Unit (PSBU) indicated that patients with burn injuries were being managed differently at a primary care level. The aim of this audit was to analyse the data of burns patients presenting to Mater Dei Hospital (MDH) during 2011, so as to improve the quality of care, and morbidity and mortality of these patients.

Methods: This is a retrospective study with a cohort of 279 patients presenting to Accident and Emergency (A&E) and PSBU. Data was obtained anonymously from tickets of referral and patients' notes and was coded and analysed using MS Excel. Data collected included: demographics, referral source, priority at A&E, type of burn, management, prescription of antibiotics, reason for admission, fluid resuscitation, calculation of percentage area of burns at A&E and at the PSBU, management of wounds, length of stay and patient outcome.

Results: Burns occurred most commonly in males aged 21-30 years, who presented mostly during July and specifically on Mondays. Thermal burns were the most common injuries. Discrepancy in percentage area of burns varied from -2% to +14% from that calculated at the PSBU. Antibiotics were prescribed in 9% of the patients and co-amoxiclav was the most frequently prescribed. Length of stay varied from 1 to 61 days. Only 23 patients required admission.

Conclusion: In view of these results, guidelines will be formulated and distributed to primary care and A&E physicians, so as to improve patient care, encourage accurate documentation and reduce unnecessary referrals. A re-audit will be done.

P5.16
Submandibular duct repositioning: a presentation of local practice

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Introduction: Sialorrhea is common in patients with poor oral and facial muscle control. Involvement of the multidisciplinary team is imperative in such cases, including speech therapists, chest physiotherapists and psychologists. Surgical measures include submandibular duct transposition to the posterolateral aspect of the tongue and sublingual gland excision.

Methods: This retrospective study focuses on the indication, procedure and outcomes of surgery. An analysis of local data was performed and chronological pictures of the procedure were taken.

Results: Since 2003, 9 patients were referred for otolaryngology review in view of chronic drooling, 6 of which underwent surgery. All patients suffered from a chronic neurological condition including Batten's disorder, Cri du Chat syndrome, Rett's Syndrome and Cerebral Palsy. Out of the 6 patients who underwent surgery, 4 were male and 2 female. Ages ranged between 4 and 21 years. All subjects had bilateral submandibular duct transposition with sublingual gland excision. One patient underwent re-exploration 5 years after the initial procedure, whilst another patient underwent repositioning of the duct after having previously undergone injection of Botilinium toxin into the submandibular duct.

Conclusion: Submandibular duct transposition is a good surgical option for patients with chronic sialorrhea with good functional and symptomatic results.

P5.17
Parotid duct ligation – the surgical approach to chronic parotitis

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Introduction: Chronic parotitis is an inflammatory disorder characterised by recurrent episodes of tenderness and swelling of the parotid gland. Initial management is generally conservative and it targets the inflammation and the symptoms. However, in cases of recurrent episodes parotid duct ligation is performed leading to atrophy of the gland parenchyma and causing complete resolution of symptoms.

Methods: In this retrospective study, data from 7 patients who underwent parotid duct ligation since 2009 was analysed. Indications, operative procedure and post-operative outcomes or complications were studied.

Results: 5 males and 2 females have undergone parotid duct ligation since 2009. 6 patients had bilateral parotitis associated with stricture or sialolithiasis of Stenston's duct. One patient suffered from chronic parotitis secondary to Sjogren's syndrome. Both female patients had bilateral duct ligation with 2-4 months between each operation. Two patients required re-exploration of the duct due to recurrence of symptoms. Long term follow up showed satisfactory results for all patients.

Conclusion: Parotid duct ligation is a simple yet effective procedure for the management of patients with recurrent or chronic parotitis with fewer complications and scarring when compared to superficial or total parotidectomy.

P5.18
The use of imaging in the diagnosis and management of rhinosinusitis

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Introduction: The use of imaging in the diagnosis and management of rhinosinusitis is a common practice. An audit regarding the use of imaging in rhinosinusits was published in 2009. The aim of this audit was to investigate whether a decrease in the use of inappropriate imaging occurred in the year 2013 compared to the year 2009, based on standards written in the European Position Paper on Rhinosinusitis (EPOS 2012), together with calculating the cost of these radiological investigations and estimating the amount of radiation patients are being exposed to.

Methods: All plain radiographs and computer tomography (CT) scans of the paranasal sinuses performed at Mater Dei Hospital between January 1st 2010 and May 31st 2014 were requested and analysed to obtain data for various parameters.

Results: A total of 1818 CT scans on the sinuses were taken over the 4 year period. Of these, 787 scans were not included in the study due to them also involving a brain scan which was in turn not related to sinusitis. In a direct comparison between the 2009 audit and the data gathered for the year 2013, it can be concluded that the indications used to order CT scans are still poor.

Conclusion: The use of imaging in diagnosis and management of sinusitis should be based on the EPOS 2012 guidelines. From the data gathered, it is evident that excessive amounts of CT scans are requested, together with hundreds of plain radiographs which do not have a place in the diagnosis or management of sinusitis.

P6.01
Timing and efficacy of orthodontic functional appliance therapy

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Objectives: To determine whether patients are being prescribed functional appliance therapy at right age and time of development

and to determine the efficacy of functional appliance therapy. **Design and setting:** A retrospective clinical audit carried out at Birmingham Dental Hospital, UK. **Gold standard Timing:** 100% of patients optimally treated during or just after the onset of puberty, corresponding with Cervical vertebral maturation staging (CVMS) II and III. **Efficacy:** Functional appliance therapy should reduce the overjet to 3mm or less; buccal segment relationship change of at least half a unit; reduction in angle ANB on cephalogram.

Methods: Consecutive patients, undergoing functional appliance therapy over a 2 years, were identified from the orthodontic laboratory and patient database at the dental hospital. Collection of data included patient demographics, treatment clinical parameters, cephalometric data and vertebral dimensional measurements using Dolphin software.

Results: 68 patient records were analysed. 63% of patients were treated at the ideal pubertal stage according to CVMS. However, the female group was treated later than optimal. Overall, patient compliance was good but 50% of the patients did not achieve ideal overjet reduction due to a higher DNA rate, poor wear and breakages. Efficiency of overjet reduction was greatest during puberty.

Conclusion: Timing of functional appliance therapy was found to be optimal for 63% of patients but over half the females were allocated later for treatment due to late referral. Further education of referring practitioners and assessment of CVMS for patients during treatment planning is recommended to improve the efficiency of functional appliance therapy.

P6.02
Assessment of acid attack on nickel-based and cobalt-based metal alloys used for dental prosthesis

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Introduction: Both nickel-chromium (NiCr) alloys and cobalt-chromium (CoCr) alloys are used as a base material for partial dentures. The purpose of this study was to compare the results of acid attack on these alloys and compare their corrosion resistance.

Methods: Two materials were used, nickel-chromium and cobalt-chromium. Two sets of each alloy were cast, discs- 8mm diameter and 1mm thickness, cylinders- 8mm diameter and 15mm height. Both sets were immersed in three media for one month- de-ionised water, artificial saliva and acidified artificial saliva. The discs were used for X-ray diffraction (XRD), scanning electron microscopy (SEM,) leaching and micro-hardness testing. Potentio-dynamic scans was performed on the cylinders with 0.9% NaCl solution, artificial saliva and acidified artificial saliva.

Results: SEM showed an attack at the dendrite and interdendritic regions of the grain boundaries in both alloys but very minimal in the CoCr when compared to the NiCr when they were immersed in acidified and artificial saliva. No phase changes were observed on XRD analysis. NiCr exhibited a lower microhardness value than CoCr at 180 and 380 HV500 respectively with no change in hardness between the immersion solutions. During potentiodynamic scanning both alloys underwent transpassive dissolutions instead of pitting. A difference was only noted when the alloy was the variable and the medium used was the artificial saliva.

Conclusion: CoCr's corrosion resistance was better than the NiCr's as although no pitting/crevices was observed during potentiodynamic scans, attack on the grain boundaries of NiCr was visible during SEM when the solutions were the acidified and artificial saliva.

P6.03
Patient experience with TAD placement with O-cap: a pilot RCT

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Objective: To determine whether placement of an O-cap reduces discomfort after temporary anchorage device (TAD) placement and to assess the expectations and discomfort experienced by patients after TAD placement.

Design and Setting: A multi-centre, pilot, split mouth RCT. **Materials and Methods:** 30 patients (14 female,16 male;mean age 14y6m) requiring bilateral TAD(3M Unitek) placement for maxillary anchorage reinforcement, completed short answer and 100mm visual analog scales (VAS) questionnaires at different time-points prior to and 6 weeks following TAD placement. One of the TADs on each patient was randomly fitted with an O-cap.

Results: VAS scores were higher in the control side compared to the cap side for all time-points. Wilcoxon signed-rank test showed statistically significant levels at time-points 2(4hour post-placement $p<0.05$), 3(24hour $p<0.05$) and 4 (1 week $p<0.0005$) for cheek discomfort and time-points 4($p<0.05$) and 5 (2 weeks $P<0.05$) for gum discomfort. Mean VAS for cheek discomfort with cap and control scored highest at time-point 2 with 31.18mm (SD ± 22.14) and 45.75mm (SD ± 23.01) respectively. Mean VAS for gum discomfort with cap and control scored highest at time-point 1(1 hour post placement) with 36.71mm (SD ± 26.47) and 48.17mm (SD ± 27.76) respectively. Null hypothesis rejected. 87% reported extractions to be more painful than TAD placement.

Conclusion: TAD experience during the first 6 weeks is deemed more comfortable with placement of O-cap particularly as local anaesthetic starts to wear off.

P6.04
Investigation of the disinfection of acrylic dentures using chemical and ultrasonic methods

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Introduction: This study tests the effect of ultrasound disinfection, compared with the effect of chemical disinfectants. Both *in-vitro* and *in-vivo* studies were carried out.

Methods: For the *in-vitro* study, samples of self-curing acrylic were infected with both *Candida albicans* and *Streptococcus oralis*. The samples were then treated with different disinfection methods, including ultrasound treatment for 15s and 30s, and immersion in chemical disinfectants MD520 and Minuten. Colony forming unit analysis was carried out and remaining bacterial colonies were grown on BHI agar. SEM imaging was also carried out. For the *in-vivo* study, 10 volunteers were given a self-curing acrylic plate to wear for one week, and acrylic samples were then taken from these plates. These samples were treated with either MD520 or ultrasound disinfection for 30s. CFU analysis was carried out.

Results: In the *in-vitro* study, MD520 was the most effective, followed by Minuten and ultrasound treatment for 30 seconds. Ultrasound treatment for 15 seconds seemed to be the least effective. There was no significant difference between the effectiveness of the disinfectants on rough and polished surfaces. From the *in-vivo* study, ultrasound treatment was 99.9% effective, yet immersion in MD520 was 98.6% effective.

Conclusion: Even though all the disinfectants showed a good degree of effectiveness, some microorganism growth was still present after the treatment. MD520 was the most effective

against *Candida* and *S. oralis*, yet some microorganisms from the oral flora still remained after the disinfection. On the other hand, ultrasound treatment was the most effective against *Candida*, *S. oralis* and the oral flora.

P6.05

Polishing of zirconia fixed prosthetic teeth and restorations and its effect on material properties and wear of opposing teeth

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Introduction: Large restorations and also fixed replacement of missing teeth necessitates the use of materials such as zirconia, which help support the occlusion since natural tooth tissue is missing. After placement the restoration may require intra-oral adjustments by grinding and polishing. These adjustments may result in changes in the surface characteristics of the zirconia. The aim of this study was to assess the effect of polishing procedures on surface roughness, topographical and phase changes of zirconia.

Methods: Pre-sintered and pre-cut yttria-stabilized zirconia specimens were divided in four groups (Control, Intensiv, Shofu and 3M) depending on the polishing method used to prepare the specimens. The samples were polished according to the polisher type, while the control was left untreated. The specimens were thermocycled for 3000 cycles with a temperature range of -5°C to 55°C. to simulate oral conditions The surface roughness, elemental and phase changes caused by polishing before and after thermocycling were assessed by profilometric analysis, energy dispersive spectroscopy and X-ray diffraction analysis.

Results:
The polishing procedures increased surface roughness of zirconia, which was reduced by thermocycling for all polishing groups except 3M specimens. Deposition of aluminium when using Shofu abrasives and nickel in Intensiv was demonstrated. Phase changes were observed on the zirconia surface with formation of monoclinic phase in all polishing methods. Specimen aging enhanced the surface phase changes and also induced compressive stresses in zirconia polished with Intensiv.

Conclusion:
Polishing zirconia increased surface roughness, led to surface phase changes and contamination, which affects the long term clinical function of the restoration.

P6.06

Novel *PAX9* mutation in a family with oligodontia

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Introduction: Oligodontia is defined as the developmental absence of more than six permanent teeth, not including third molars. Mutations in Muscle segment homeobox 1 (*MSX1*) and Paired box 9 (*PAX9*) are associated mainly with the absence of premolar and molar teeth respectively. The reported prevalence of oligodontia is 0.08-0.16 %.

Methods: A survey of 1000 Dental Panoramic Tomograms from the archives of the Dental Department, Mater Dei Hospital, Malta revealed a prevalence of oligodontia of 0.8%. Two unrelated nuclear families with oligodontia were tested at a genetic level. Saliva samples were collected and DNA extracted. Primers were designed to span the exons and intron-exon junctions of *MSX1* and *PAX9*. The primers were optimised using gradient PCR, and High Resolution Melting Analysis identified variations for DNA sequencing.

Results: A missense mutation (A40G) in *MSX1* (rs36059701), was found to segregate with the phenotype in both nuclear families. A novel missense mutation in *PAX9* (A99P) was also found in two severely affected members of one family. Both exhibiting typical *PAX9* mutation phenotypes, with the father exhibiting absence of all second molars and a lower right first molar. Interestingly, he also has diminutive, conical, lateral incisors.

Conclusion: The *MSX1* A40G SNP is relatively common with a Minor Allele Frequency (MAF) of 0.20 in European populations, found associated with both Oligodontia and Cleft Palate. The *PAX9* mutation is in the DNA binding domain (homeobox) and is predicted to be pathogenic. It is possible that the *PAX9* and MSX1 mutations act synergistically to produce the oligodontia phenotype.

P6.07

Evaluation of clinical outcomes among hospitalised patients with positive OXA-48 *Enterobacteriaceae* isolates at Mater Dei Hospital, Malta

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Mater Dei Hospital

Introduction: OXA-48 Carbapenamase-producing *Enterobactericeae* have become endemic in the Maltese healthcare setting. Multidrug resistant pattern of the isolates is a challenge for treatment decision of the infected patients The aim of this study was to examine the clinical variables and treatment options of a series of patients with OXA-48 Carbapenemase-producing isolates.

Methods: Following ESCMID and EUCAST guidance, a total of 56 OXA-48 *Enterobactericeae* were isolated repeatedly from a 52 in-patient cohort between November 2011 and April 2013. Data collected included clinical focus of infection, antibiotic use, co-morbidity, CRP, neutrophil count, fever and hypotension. Isolates were deemed clinically important if they were: (1) from a usually sterile site, (2) causing signs of sepsis, (3) required specific treatment for resolution.

Results: Clinically important (infection) were 43.6% of isolates. OXA-48 co ESBL *Enterobacteriaceae* were 85% of total, expressing multidrug resistance with a few therapeutic options for amikacin,tigecycline,colistin and carbapenes. We reported 65% sensitivity to meropenem and 94% to amikacin. Patients had a mean age of 69.8, WHO performance status of 2.65, average length of stay of 29 days. 31% were in Intensive Care. Within the infected group, in-hospital mortality was up to 38%, patients deemed to be colonized had an in hospital mortality of 30%.

Conclusion: Most isolates retained low MIC to carbapenems, sensitivity to amikacin and colistin during the study period but background mortality is high reflecting the level of comorbidity. Inclusion of amikacin and meropenem in empirical treatment for gram negative sepsis could be considered but data from controlled trials is needed.

P6.08

Carbapenem resistant gram negative organisms as emerging pathogens in neutropenic fever

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Introduction: Neutropenic fever and sepsis are considered

to be among the primary causes of morbidity and mortality in patients with haematological malignancy undergoing treatment. Identification of causative organisms and their susceptibility patterns is therefore imperative to provide effective initial antibiotic cover.

Methods: A retrospective review of haematology patients treated for neutropenic fever in Mater Dei Hospital during the period of April 2013 to March 2014 was carried out. Patients aged 18 years or older, with febrile neutropenia secondary to chemotherapy or underlying disease were included. A systematic review of case notes and culture and sensitivity reports was performed.

Results: A total of 112 patients (61 males, 51 females) with 275 episodes of febrile neutropenia were identified. About 47% of patients had positive cultures. In 77% of all culture positive episodes, a Gram negative organism was cultured. The most common Gram negative organisms were *E. coli* (34.2%), Klebsiella spp (24.6%) and *P. aeruginosa* (5.3%). The most common Gram positive organisms were coagulase negative *Staphylococci* (11.8%) and *Enterococci* (7.5%). Approximately 30% of Gram negative organisms were resistant to piperacillin/tazobactam, 20% were resistant to gentamicin and around 10% were resistant to meropenem. Approximately 10% of all Gram negative isolates were carbapenem resistant *Enterobacteriaceae*, all of which were *Klebsiella pneumoniae*. Of these, 92.3% were sensitive to colistin and all were sensitive to tigecycline.

Conclusion: This study shows that in our department, Gram negative organisms remain the commonest pathogens and there is a worrying emergence of multi-drug resistant organisms.

P6.09
Detection of syphilis via molecular techniques

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Introduction: The etiologic agent of syphilis, *Treponema pallidum* causes a multistage disease which is most commonly sexually transmitted. During the last decade, there has been an increase in the reported incidence of syphilis in industrialized countries, emphasizing the need for reliable diagnostics. The reliable and fast diagnosis of syphilis and early treatment could improve public health.

Methods: Several detection methods have been employed to screen for syphilis, including microscopy and serological techniques. However, such methods are often subject to limitations with regards to sensitivity and specificity. For this reason, detection of *T.pallidum* DNA by Polymerase Chain Reaction (PCR) methods have been developed and have proven to be more accurate in detecting syphilis infection.

Results: Within the Molecular Diagnostics laboratory at Mater Dei Hospital, primary syphilis is detected by means of real-time PCR from swab samples. In the last six months, 7 out of 49 swabs tested positive for syphilis. All specimens were also screened for *Herpes simplex* virus types I and II, since both infectious organisms have similar clinical symptoms.

Conclusion: The advantage of real-time PCR is the ability to detect the pathogen directly in a short turnaround time. The detection of *T. pallidum* using PCR is therefore of great potential value for the diagnosis of primary syphilis, especially with the increased frequency of men having sex with men (MSM) and human immunodeficiency virus (HIV)-infected patients, who tend to be more prone to the infection. The accurate diagnosis of syphilis-causing *T.pallidum* is critical for efficient treatment and patient care.

P6.10
The design and optimisation of novel human dihydrofolate reductase inhibitors for the management of proliferative disease

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Introduction: Tetrahydrofolate (THF) mediates DNA and RNA synthesis via the production of purine and thymidylate precursors. During this process THF is reduced to the inactive dihydrofolate (DHF) and recycled back to the active DHF via a redox reaction, catalysed by dihydrofolate reductase (DHFR). DHFR inhibition prevents cellular growth, hence drug design at this locus is considered valuable with DHFR antagonists having clinical relevance in proliferative disease management. This study utilised methotrexate (MTX) as lead molecule in the design and optimisation of novel DHFR antagonists.

Methods: PDB crystallographic deposition 1U72 describing the holo MTX:humanDHFR complex was modelled in Sybyl-X® and affinity of MTX for the cognate receptor measured in X-Score® to establish baseline affinity. Structure activity data and 2D-topology maps generated in Poseview® guided the creation of 7 seeds in which moieties considered non-critical for binding and clinical effect were computationally modified using the GROW module of LigBulider®.

Results: Each of the 7 seeds yielded 200 novel structures which were classified according to pharmacophore structure, physiochemical parameter and binding affinity. This molecular cohort was assessed for Lipinski Rule compliance. This reduced the total number of viable molecules to 200 (n= 90, 19, 5, 3, 27, 8, 40) from seeds 1-7 respectively.

Conclusion: The optimal structures combining affinity and Lipinski Rule compliance from each pharmacophoric group were identified for optimisation and *in vitro* validation on the premise that they hold promise as clinically use anti-proliferative drugs.

P6.11
An evaluation of the prevalence of *Mycobacterium marinum* in aquaria and its impact on man

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Introduction: *Mycobacterium marinum* is a pathogenic organism normally found in aquaria and is the cause of fish tuberculosis. However, it also has the zoonotic potential to affect man. Granulomatous lesions of the hands are the common presenting manifestation and while this infection is generally cutaneous, it can disseminate if not treated. Although publications on this organism exist, studies have not investigated aquarium water as the source of infection. This infection has been observed amongst the Maltese population, resulting in an annual incidence of circa five cases per annum being detected at Mater Dei Hospital.

Methods: Two-hundred and thirty-five (235) specimens of aquarium water were collected to determine the prevalence of *Mycobacterium marinum* in Malta. All of these were treated to concentrate the bacterial load and enhance the possibility of mycobacterial isolates using Petroff's technique, with subsequent subculture onto egg-based inspissated solid media and broth media pre-treated with antibiotics. Growths were identified as positive for mycobacteria by a Ziehl-Neelsen stained smear. Phenotypic and biochemical tests were performed on all samples with a positive mycobacterial culture. Real-time PCR was used to fully identify and, hence, confirm the presence of

Myco. marinum in suggestive aquarium water samples.

Results: An overall prevalence of 1.3% positive cultures for *Mycobacterium marinum* was subsequently found.

Conclusion: Although the prevalence is low, this confirms that the micro-organism is present in Maltese aquaria and corroborates the possibility that contact with contaminated aquarium water may lead to infection in man. Hence, a greater awareness should be established amongst both the aquarist and medical community.

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P6.12

Glycopeptide heteroresistance and the influence of elevated glycopeptide MICs on treatment outcomes in *Staphylococcus aureus* bacteraemia in Malta

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Introduction: Glycopeptide heteroresistance in *Staphylococcus aureus* (hGISA) isolates from systemic infections is associated with glycopeptide therapy failure and poor patient outcomes and is difficult to detect in the clinical bacteriology laboratory using routine antimicrobial susceptibility (AST) methods due to the small number of hetero-resistant sub-populations within a clone (~1 in 106).

Methods: A retrospective cohort study of all *Staphylococcus aureus* isolates from blood stream infections (BSI) between 2009 and 2014 (n=798) were investigated for the incidence of hGISA, using the population analysis profile/area under curve (PAP-AUC) method. The glycopeptide susceptibilities of these isolates were determined, together with other relevant antimicrobial agents. Isolates were also investigated for accessory gene regulator (agr) dysfunction, and 2 screening and 4 confirmatory methods were evaluated for detection of hGISA. A subsequent two-matched case-control study was conducted for patients determined to have hGISA BSI to determine the impact of this type of infection on patient outcomes.

Results: The incidence of hGISA BSI was determined to be 2.68%. Analysis of vancomycin minimum inhibitory concentrations (MIC) showed a significant increase over time, known as 'vancomycin MIC creep'. A significant association was found between hGISA and agr dysfunction. hGISA BSI was significantly associated with osteomyelitis and endocarditis but not with increased risk of mortality.

Conclusion: Low levels of detection with routine AST indicate that *Staphylococcus aureus* isolates from serious infections should be investigated further for the presence of the hGISA phenotype.

P6.13

Induced cytokines / chemokines response patterns to human metapneumovirus in nasal secretions

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Introduction: Severity of illness during respiratory infection is often associated with high levels of cytokines / chemokines produced due to inflammatory responses caused by pathogens.

Methods: In this study cytokines and chemokines associated with acute inflammation were measured in 11 subjects that resulted as human metapneumovirus (hMPV) positive by real time polymerase chain reaction (RT-PCR). An ElisArray wa used to simultaneously detect 12 Toll-Like receptor induced cytokines / chemokines; TNF, IL1b, IL6, IL12, IL17A, IL8, MCP-1, RANTES, IP-10, MIG, TARC, IFNa. Similarities in the clinical presentations of subjects infected with hMPV and other respiratory viruses have been documented and suggest a similar inflammatory response. To determine this cytokines / chemokines levels induced by hMPV were compared with the levels induced by respiratory syncytial virus (RSV), influenza H1N1(H1N1) and parainfluenza virus (PIV).

Results: From the results obtained, levels of inflammatory cytokines/chemokines in hMPV infection were 2 fold lower than those elicited by RSV, H1N1 and PIV. Interestingly enough hMPV did not yield anf TNF, IL1b, MCP-1, IL-12, IL17A, TARC and IFNa. It did induce however the following; IL8, RANTES,MIG, IP-10 and IL6. No association was found to severity of disease or clinical presentation.

Conclusion: All of the induced cytokines / chemokines are important in the stimulation of granulocytes thus attracting white blood cells such as neutrophils and monocytes to the site of infection / inflammation therefore initiating innate immunity through inflammatory reactions.

P6.14

Human Parechovirus: an emerging pathogen of sepsis like illness and meningitis in young children

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Introduction: Human Parechovirus (hPeV) has been recently recognised to cause various illnesses in young children, ranging from mild diarrhoea, to sepsis and menigitis.

Methods: A total of 115 cerebrospinal fluids (CSF) samples submitted for a viral screen over a period of one year (Dec 2013-Dec2014) were tested for herpes simplex type I (HSV I), herpes simplex type II (HSV II), enteroviruses, mumps, varicella zoster virus (VZV) and hPeV. Qualitative testing was performed by using a multiplex real time polymerase chain reaction (RT-PCR) technique.

Results: hPeV RNA was detected in 7(6%) CSF samples of young children aged less than 1 year. Clinical presentations of the hPeV infected children were mild with a final diagnosis of sepsis like illness, but white matter injury in one child was also reported.

Conclusion: Testing for emerging pathogens like hPeV improves the differential diagnosis / etiological identification of sepsis like illness and viral meningitis in young children.

P6.15

A novel method of cooling in an operating theatre environment

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Introduction: An optimized theatre environment, including personal temperature regulation, can help maintain concentration, extend work times and may improve surgical outcomes. The use of a low-cost, low-energy 'bladeless fan' as a cooling device was tested within the operating theatre environment.

Methods: The safety profile of this device within a theatre setting was investigated by testing air quality using 0.5 and 5 µm particle counts as well as airborne bacterial counts on an operating table whilst simulating an operation in a thoracic operation in a busy theatre environment with ten staff present. Particle and bacterial counts were obtained with both an empty and full theatre, with and without the 'bladeless fan'.

Results: The results showed no statistical difference in either particle counts or airborne bacteria with the use of the Dyson Air Multiplier, even with the presence of ten individuals in the operating theatre. Two-way ANOVA testing showed that the staff count in theatre was an almost significant predictor of bacterial counts at P = 0.06 and large particle counts P = 0.09. Clean room conditions of ISO Class 7/8 were maintained throughout.

Conclusion: The 'bladeless fan' is a safe, effective, low-cost and low-energy consumption solution for personnel cooling in a theatre environment that maintains the clean room conditions of the operating theatre.

P6.16
A case for introducing a new old drug on the formulary

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Introduction: Antimicrobial resistance (AMR) has become an increasingly worrying challenge to modern healthcare. This is especially the case in Gram-negative bacteria (GNB), where carbapenem-resistant Enterobacteriacae (CRE) are often practically pan-resistant. Unfortunately, there is a dearth of novel drugs on the horizon . In such circumstances, older antibiotics can offer a viable therapeutic alternative. Fosfomycin, discovered in 1969, is one such formulation. Oral fosfomycin can be used in Urinary Tract Infections (UTI) caused by susceptible multidrug-resistant GNB including extended-spectrum beta-lactamase (ESBL) producers whereas parenteral fosfomycin offers a possible role in treatment of systemic CRE infections.

Methods: Utilising 2014 Microbiology data, using WHONet®, we reviewed all cases of urine GNB cultures resistant to ciprofloxacin and ceftazidime as well as clinical isolates resistant to both meropenem and amikacin.

Results: A total of 446 Enterobacteriaceae urinary isolates from 404 patients were resistant to ciprofloxacin and ceftazidime. In 399 of these episodes (89.5%), the isolate was susceptible to fosfomycin. In addition, 26 Enterobacteriaceae clinical isolates (26 patients) were resistant to carbapenems and amikacin. In 18 of them, parenteral fosfomycin would have been a therapeutic option.

Conclusion: Oral fosfomycin offers a less invasive option for resistant UTI infections, where up till now, in-patient carbapenem treatment has been the only option.. In addition, it would result in savings of more than €200,00 per year. The savings from the introduction of parenteral fosfomycin are less marked (almost €4000) but would avoid use of toxic colistin. This data supports the case for introduction of fosfomycin on the local formulary.

P7.01
Gynaecologic laparoscopic surgery: is it worthwhile?

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Introduction: Minimally invasive surgery is changing the management of many gynaecological disorders. Allowing patients access to such procedures leads to a shorter hospital stay and a better recovery.

Methods: A number of laparoscopic procedures were compared with their non-laparoscopic counterparts. Vaginal hysterectomies were compared with laparoscopic-assisted vaginal hysterectomies, total laparoscopic hysterectomies with total abdominal hysterectomies and laparoscopic Burch colposuspension with Burch colposuspension. Patient's age, length of stay and pre and post-operative haemoglobin and haematocrit were considered. Patients' perspective on their recovery was taken via phone surveys.

Results: Overall, patients who had laparoscopic surgery were younger and had a shorter stay as an inpatient. There was also a difference between the two groups with regards to readmission and complication rates.

Conclusion: As agreed globally, minimal access surgery is a reasonable alternative and should be considered with proper patient selection.

P7.02
Audit of colposcopy practice

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Introduction: 353 colposcopies were carried out at Mater Dei Hospital in 2014. This retrospective audit has analysed 50 consecutive colposcopy cases performed between January and March 2014.

Methods: The reason for referral, the demographics of the population and risk factors were collected. Operator experience, anaesthetic preference, if any ,together with the number and nature of punch biopsies were analysed. The correlation between the index smear, colposcopy findings and histology results was analysed. Use of HPV DNA testing was also collected.

Results: Results highlighted poor documentation. Patient demographics were incomplete in 80% of patients. The colposcopy examination findings were incomplete in 55 % of cases. The development of a colposcopy sheet would aid with standardization of data collection, help in future reaudits and be an indispensible tool for quality assurance. Development of appropriate software should be considered. The discrepancy between cytology and histology should be addressed. In our audit, 42% of referral smear were carried out privately, of which 12 used Liquid Based Cytology. 16 smears were carried out at MDH. 90% of smear reports used either the Bethesda classification or the WHO cytology classification. However, few of the histopathology reports used a conventional classification; a large number were reported as acute or chronic cervicitis. The use of a standardised and internationally recognised classification for histopathology reporting would improve interpretation of results and patient management, and aid in quality assurance of the colposcopy service.

Conclusion: HPV testing is a useful adjunct to colposcopy. 48% of women had HPV testing, of which 50% were positive.

P7.03
Minimal invasive surgery training in hysteroscopic resection

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Introduction: Minimally invasive surgery in the form of hysteroscopic resectoscopic procedures have been increasingly applied at Mater Dei Hospital to treat patients with intrauterine pathology. This mentoring and "hands on" training was initiated for minimal invasive gynaecological procedures in 2012.

Aim: To evaluate the increase in operative hysteroscopy with the use of the monopolar electrosurgical system. The variables analyzed were clinical characteristics, complication rate and number of patients requiring this procedure.

Methods: A total of 47 operative hysteroscopic resections were performed. A monopolar resectoscope 26 Fr was utilized to treat intrauterine pathology employing 1.5% Glycine as a distension media.

Results: The most common procedure was hysteroscopic resection of submucosal fibromas. No complications were registered. There was a steady increase in number of the patients from 2012 to 2014, with the most noticeable progress in the resectoscopic procedures during the last seven months of 2015.

Conclusion: Minimal invasive surgery for intrauterine pathology is increasingly being applied at Mater Dei Hospital thus reducing the need to resort to hysterectomy. It is imperative

that patients are well selected and with increasing application of these procedures, confidence of the operators will also increase.

P7.04
Why introduce cervical cancer screening?

Dorianne Spiteri, Isabelle Ann Saliba, Luke Daniel Saliba

Introduction: Death from cervical cancer in Malta has not decreased appreciably, unlike what has occurred in most developed countries. In compliance with EU recommendations, Malta introduces a national cervical cancer screening program in October 2015. The audits performed highlight the importance of the introduction of cervical cancer screening.

Methods: The target female population was determined by obtaining figures from the Census report on population demographics. The total number of smears performed in the Maltese Islands during 2013 was determined by obtaining information from all cytology laboratories in Malta. The percentage was worked out. The frequency at which patients attended for cervical screening was estimated by taking a sample of patients attending a private clinic.

Results: The percentage of target population attending for cervical screening in 2013 was 23.1%. With regards to the frequency at which patients attend screening, 86.4% of smears were done more frequently than recommended guidelines.

Conclusion: For a screening program to be effective, 70% of its target population must attend within the recommended time frame. This audit shows that the percentage being screened is low. A large proportion of the population are not being screened or screened infrequently, while a small proportion are attending more frequently than necessary. A call and recall system is essential.

P7.05
Laparoscopic ovarian cystectomy

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Introduction: Patients with ovarian cysts who are scheduled for operation, are counselled regarding the different methods of surgical approach for ovarian cystectomy, namely open or laparoscopic. Aim: to identify the success rate of laparoscopic ovarian cystectomy

Methods: Patients who underwent laparoscopic surgery for ovarian cyst/s between January 2014 and July 2015 were included. The conversion rate to laparotomy was assessed.

Results: Between January 2014 and July 2015, forty-one patients underwent laparoscopy for adnexal cysts, age ranged between 16 and 70years. Only three patients (7.3%) needed to proceed to laparotomy following laparoscopy. These included a case of bilateral borderline ovarian cysts in a 26year old, a solid ovarian cyst in a 66year old, for which a total abdominal hysterectomy and bilateral salpingo-oophorectomy was carried out and a peritoneal inclusion cyst. Of the thiry-eight procedures which were successfully carried out laparoscopically (92.6%), thirteen cysts were endometriotic (34%), six were benign teratoma (16%) and five were mucinous cystadenomas (13%). Other histolopathological findings included ovarian fibroma, serous cystadenoma, developmental cyst, paratubal cyst, borderline and haemorrhagic cyst. During laparoscopic ovarian cystectomy, the cyst is removed either via endobag through the laparoscopic incision or via the posterior fornix.

Conclusion: The success rate of laparoscopic ovarian cystectomy is high (92.6%). As compared to laparotomy, laparoscopic cystectomy for non-malignant ovarian cysts is increasingly becoming the preferred method because of its associated quicker recovery time, less need for analgesia and earlier discharge from hospital.

P7.06
An analysis of the patients presenting to the admissions' room in obstetric ward 2 at Mater Dei Hospital

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Introduction: All women who present to the Mater Dei Casualty Department with gynaecological symptoms or problems associated with pregnancy in the first or second trimester are referred to the Admissions' Room located in Obstetric Ward 2. There they are reviewed by one of the gynaecologists/obstetricians on call for the day, who decides on the appropriate course of action.

Methods: This is a retrospective study which analysis the patients attending the Admissions' room during the first 2 weeks of January 2015. The data was collected from the Admissions' book found in Obstetrics Ward 2 where all the patients using the service are logged. The following data was collected: age, locality, time of review, patient category (whether obstetric, puerperal or gynaecological), presenting complaint, whether an ultrasound was done and whether the patient was admitted or not. In the case of obstetric patients, the gestational age was also recorded.

Results: A total of 232 patients were reviewed during these two weeks. This amounted to a total of 307 visits (average of 22 logs per day), as some patients were seen more than once. The majority presented with gynaecological complaints (53.32%). The commonest presenting complaint in both obstetric and gynaecological patients was vaginal bleeding. The majority of patients (54.62%) presented during normal working hours (8am-2pm) and most (83.26%) did not require admission. A total of 70 ultrasounds were ordered.

Conclusion: This study highlights the great number of patients being reviewed by the on-call team and the type of pathologies which they face.

P7.07
Gynaecological issues in adolescent females with special needs in Malta.

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Introduction: Adolescent females with special needs may have difficulty coping with physiological changes in their bodies at the time of puberty. Their parents sometimes struggle to help them cope both with these physiological changes and with any gynaecological problems that arise.

Methods: Parents of adolescent females with special needs were interviewed at schools and special needs clinics regarding gynaecological problems that their children face and their coping skills. They were also asked about the provision of medication to control menstruation as well as on the issue of contraception for their adolescent children.

Results: Of the 85 female adolescents who were interviewed in the presence of their parents, there were 24 with Trisomy 21, 29 with autism and 14 with cerebral palsy, whilst the others had various other diagnoses. Most used oral analgesia for pain control in dysmenorrhoea and also as a means of controlling menorrhagia, but 35% were on the oral contraceptive pill to control the heavy periods. Some were considering hormonal implants, injections and laparoscopic sterilization to control menstrual problems and avoid unwanted pregnancies.

Conclusion: We found it encouraging that parents and their adolescent children with special needs generally coped well with their gynaecological problems. There was good liaison between the parents of the adolescent females with special needs and the gynaecology department through the community paediatric team providing a medical consultancy service at the four resource centres in Malta.

P7.08

Determining the spectrum of gynaecology referrals in Malta's largest long term care facility - St Vincent de Paul Residence (SVPR)

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Introduction: SVPR is Malta's largest long term care facility with 769 females currently residing in the institution at the time. Since 1993, a visiting consultant gynaecologist has been reviewing any patients referred by the ward-based doctors. Our aim was to study the spectrum of these referrals.

Methods: A retrospective observational study of 51 gynaecology referrals over a 24 month period (2013-2014). Data extracted included age, reason for referral, date of referral, waiting time, investigations done, subsequent management and follow - up.

Results: The incidence of referrals in 2013 and 2014 were 3.5% and 2.96% respectively. 96.08% of the patients were menopausal. Out of 51 referrals, 34% were due to post menopausal bleeding, 9% pelvic organ prolapse, 6% vaginal discharge, 6% atrophic vaginitis, 4% urinary problems, 3% suspected prolapse, 2% menstrual disturbances and 2% other pathologies. Highest amount of referrals were from the 80-90 years age group.

Conclusion: The spectrum of disease in the geriatric community is unique both in incidence and method of presentation. Our local results were also compared with similar internationl studies and an interesting difference in gynaecological referrals was noticed.

P7.09

An audit on inappropriate referrals to gynae outpatient clinics

Helga Consiglio, Carmen Portelli, Sarah Ellul, Igenielumhe Omogbai, Joel Pollacco

Introduction: The Gynaecology outpatient department is a high-turnover department. Consequently, waiting times for new cases are always a challenge. Moreover, the appropriateness of referral is oftentimes questionable.

Methods: This retrospective audit looked at 503 Gynae New Cases over a 3-month period. Data collected included sources of referral, waiting times and if surgery was offered. Most importantly it focused on whether referral was appropriate or not.

Results: 37.7 % were referred by Consultants, 22.4 % by non- Consultant Gynaecologists, 23.4% by GPs. The rest were referred by other doctors. The referral time ranged from 1day to 186 days with a mode of 40 days. 55% were booked for surgery. 18.3% of cases were inappropriate referrals and would have been more efficiently dealt with in a Gynae health clinic. These included "Gynae check up", smear, acne, hirsutism with/without Oligomenorrhoea, menopausal symptoms, vulval itching, vaginal infections , contraception, mammography and Bone density. When the colposcopy clinic will be set up, abnormal smears directly to the colposcopy clinic hence reducing a further 8.92%. A total of 26.9% of cases could be seen at the gynae clinic. This would improve quality of care and patient satisfaction rates

Conclusion: The efficiency and smooth running of GOP clinics could be significantly improved by directing referrals to the appropriate channels. Efforts at improving communication between specialities should be implemented and the audit cycle can be completed by a re-audit in 12-18 months time.

P7.10

The handover register in the Department of Obstetrics and Gynaecology

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Introduction: Meticulous handover is a crucial aspect of Patient Safety as it reinforces continuity of care. In April 2015 a handover register was introduced to replace verbal handoff between incoming and outgoing teams on call.

Methods: A total of 475 patients were included in the handover register from the 24 April 2015 till the 23rd August 2015. The variables required included the patients' demographic data, ward placement and caring Consultant. Clinical data involved the diagnosis and the plan of management.

Results: A provisional or a definite diagnosis was noted down in all patient entries (100%) and a plan of management in 23% of cases. Handovers concerning obstetric cases comprised 65.7% of entries while 34.3% were gynaecological related cases. The most common diagnosis in early pregnancy was silent miscarriage (13.4%) while the commonest gynaecological diagnosis was ovarian cyst (15.43%). A minority of entries were noted for most variables: demographic data (26%), ward placement (17%) and caring Consultant (25%).

Conclusion: All cases had a diagnosis written in the handover register. A significant number of entries did not have demographic data, ward placement, caring Consultant and plan of management. A new structured register will shortly be introduced so as to attain completion of case entries in the Handover Register. Besides the clinical value, the Handover Register also assists the administration of the Department in auditing the performance of the emergency services.

P7.11

Comparison of different surgical managements for genuine stress incontinence

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Introduction: Stress incontinence symptoms can severely affect a women's activities of daily living. Behavioural changes as well as pelvic floor exercises are the first line management options. However if these fail, a surgical option may be considered. Aim: to compare the surgical management options for stress incontinence.

Methods: Patients who presented for a surgical intervention for stress incontinence –Burch colposuspension (laparoscopic or open) or a mid-urethral tape procedure between 1st June 2013 and 31st May 2014 were included in the study. The length of stay following the respective surgical intervention as well as the readmission rate were assessed.

Results: Seven patients underwent laparoscopic Burch procedure (age range between 37 to 72years) while nine patients underwent open Burch procedure (age ranged between 40 to 62years). Mid-urethral tape procedures was carried out on twenty patients (age ranged from 37 to 71years). The average length of stay was 2.57days (ranging from 1-3days), 6.22 days (ranging from 4-9days) and 2.95 days (ranging from 1-9days) for laparoscopic Burch colposuspension, open Burch colposuspension and mid-urethral tape procedure respectively. There were no readmissions after laparoscopic Burch colposuspension while there were two readmissions after open Burch colposuspension and two readmissions after mid-urethral tape procedures.

Conclusion: Patients who underwent laparoscopic Burch procedure had the lowest days of hospital stay and thus earlier recovery and return to daily work; as well as requiring no readmissions. If expertise is available, laparoscopic Burch colposuspension appears to be worth considering as the surgical management for stress incontinence.

P7.12

Severe oligospermia: testicular sperm aspiration (TESA) versus fresh sample results during assisted reproduction

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Introduction: Male factor infertility, mainly severe oligospermia, contributes to up to 40% of causes of infertility. Testicular sperm aspiration (TESA) using an open biopsy is one option inorder to retreive sperm for intracytoplasmic sperm injection (ICSI).

Methods: A cohort of male patients were recruited from the Male Urology Infertility Clinic, after being referred together with their female partners from the ART Clinic at Mater Dei Hospital. To date, out of a total of 50 males seen at the clinic, 5 underwent TESA.

Results: To date, there have been 2 successful fertilizations resulting from the use of sperm retrieved from TESA.

Conclusion: TESA is a viable option in cases of severe oligospermia.

P7.13

Premenstrual syndrome prevalence, severity and it's impact on the life style among Libyan females

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Introduction: PMS (premenstrual syndrome) is a condition which manifests with distressing physical, behavioral and psychological symptoms. Symptoms severity of premenstrual syndrome varies widely into: Mild, moderate, and severe premenstrual syndrome. PMS prevalence varies based on criteria used to define illness.

Aim and objectives: To find out; The prevalence of premenstrual symptomes in Libyan females at reproductive age; the common symptoms, severity, and their effects on the life style; how many of patients voluntarily disclose symptoms of PMS to doctors; whether gynaecologists are paying attention about PMS symptoms.

Methods: A total of 504 cases were randomly chosen, then concented, each individual is given a written questionnaire to fill in based on the symptoms they suffered during at least three consecutive cycles. Names are omitted for confidentiality. The data are coded and statistically analyzed using SPSS version 13.0.

Results: The number of participants who complain of one or more symptoms of premenstrual syndrome were 182 (36.1%),and whom without premenstrual symptomes about 322 (63,9%). Mild symptoms: (38.5%) with acne, and (17.6%) for headache. Moderate symptoms: tension (46.2%), and headache (17%). Severe symptoms: (20.9%) with mood instability, and abdominal bloating (10%).

Conclusion: PMS is a major health issue that is largely under-estimated. In agreement with most studies majority of women have mild symptoms. One third have PMS but only a few having PMDD. There is a tendency among doctors to overlook PMS symptoms during history taking but similarly their patients. Patients with PMS may have poor school performance, family disharmony and working difficulties.

Disclosure: Libyan Government

P7.14

Early pregnancy problems at emergency unit

Kimberly Caruana, Janine Mifsud

Introduction: Early pregnancy can be associated with a multitude of problems and early pregnancy complications may be an indication of whether a pregnancy will progress or not. The aim of this study was to assess the different presenting complaints of obstetric patients in early pregnancy and the percentage that required inpatient management.

Methods: This is a retrospective study of obstetric presentations over a 3 month period from January 2013 till April 2013, at Mater Dei Hospital. The data was collected from the record of admission and patients' old notes.

Results: A total of 1169 patients presented to admission room at Obstetric ward, 302 of which were early pregnancy problems. Admission to the ward was required in 53 of the cases giving a percentage admission rate of 17%. Presenting complaints included abdominal pain, vaginal bleeding and lower urinary tract symptoms; vaginal bleeding being the commonest complaint. The age distribution of the obstetric population ranged from 16 to 43 years of age, with the 26-30 years being the modal group.

Conclusion: Early pregnancy complications were frequent. However, the majority of cases did not require admission.

P7.15

Presentation and management of miscarriages

Janine Mifsud, Kimberly Caruana

Introduction: Vaginal bleeding and abdominal pain in early pregnancy are the usual presentations of miscarriage. Different types of miscarriages are described including complete, incomplete, missed and threatened. The aim of this study was to determine how patients with miscarriage presented at admission room, whether surgical or non-surgical management was required and outcome.

Methods: This study included obstetric patients who presented with vaginal bleeding and abdominal pain in early pregnancy and were admitted, over a 3 month period. Patients' old notes were reviewed to determine management and pregnancy outcome.

Results: A total of 53 obstetric patients were included in the study. The mean gestational age at presentation was 6-10 weeks gestation. The types of miscarriages included complete (17.0%), incomplete (41.5%), missed (17.0%) and threatened (24.5% - of which 84.6% were viable and 15.4% non-viable pregnancies). Of those admitted, 46% required surgical and 54% non-surgical management. Average length of stay in hospital did not vary between surgical and non-surgically managed patients.

Conclusion: Incomplete miscarriage was the most commonly found type of miscarriage and in all cases, surgical intervention was needed. Of note is the high percentage viability in threatened miscarriages.

P7.16

Introduction of the 'King's Quality of Life Questionairre' in Maltese clinical practice

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Introduction: Urinary incontinence is still considered quite a 'taboo' amongst the Maltese public and clinicians alike, leading to its underdiagnosis and underreporting. The incidence of this problem amongst Maltese women is unknown. In clinical practice ,the 'King's Quality of Life (QOL) Questionnaire' is used in the outpatients setting, initially to assess the patients' symptoms and the impact these have on their quality of life, and subsequently to assess outcomes after conservative, pharmacological or surgical management.

Methods: The 'Kings QOL Questionnaire' was translated to

Maltese. The Maltese version of the 'Kings QOL Questionnaire' was handed out to twenty Maltese women attending the 'Urodynamics Clinic' at Mater Dei Hospital. The women were also asked to complete a short survey on the Questionnaire itself.

Results: All questionnaires were completed in less than 15 minutes. In the accompanying survey, the patients were asked to assess the ease, or otherwise, in completing the questionnaire, and its usefulness. They found the Questionnaire in Maltese not difficult to comprehend. Overall they rated it as useful and very useful as a tool to be used during their consultation.

Conclusion: The results of this study are encouraging. The Questionnaire is easy to use, easy to understand, and easy to complete in a very short time. It provides invaluable information about the patients' symptoms. Used in conjunction with other tests such as physical examination and Urodynamics, it will aid the clinician in tailoring management. Based on these findings, it is strongly recommended that the 'King's QOL Questionnaire' be introduced in Maltese Clinical Practice.

P7.17
Protocols and patient selection in IVF clinics: Is it ethical to favour guidelines, instead of patient centric care?

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Introduction: The National Institute for Health and Care Excellence in the UK suggests specific criteria for age and Anti-Mullerian Hormorne (AMH) levels for NHS funding. This study analysed whether these parameters were unduly restrictive in influencing patient selection.

Methods: Patient characteristics including assessment of ovarian reserve and follicle progression data were collected for controlled stimulation IVF cycles and mild stimulation IVF cycles. Chi-squared test was used to relate pregnancy to treatment strategy and to the NHS cut-off limits: age >40 years and AMH levels <5.4pmol/l. One-way ANOVA was used to compare oocyte count/ progression versus treatment strategy.

Results: Amongst patients undergoing IVF treatment, there was a 31.8% pregnancy rate in >40years versus 38.6% <40years. Similarly, there was a 38.9% pregnancy rate with AMH levels >5.4pmol/l, versus 8.6% chance with AMH <5.4pmol/l. Chi-squared tests showed no statistical significance between pregnancy and age group, p=0.443, and between pregnancy and AMH group, p=0.373. There was a non-statistically significant reduction in pregnancy rates from 37.3% for controlled stimulation to 28.6% for mild stimulation, Chi-squared test p=0.521, even though the mild treatment was statistically inferior in oocyte count/progression as compared with controlled stimulated treatment groups, one-way ANOVA p<0.001.

Conclusion: There was a difference of 6.8% in pregnancy between age groups with a cut-off of 40years, and 10.3% between the AMH groups with a 5.40pmol/l cut-off. This indicates that the NHS limits are restrictive. Mild treatment resulted in an 8.7% reduction in pregnancy, and may be an acceptable option in couples that do not wish to freeze embryos.

P7.18
The appropriateness of pre-operative investigations prior to elective gynaecological surgeries

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Introduction: Pre-operative investigations, namely blood investigations, electrocardiography and chest radiographs, are often performed prior to elective gynaecological procedures. These investigations are aimed at stratifying risk; however, they are often done habitually, rather than as a medical necessity. They do not commonly influence management and may lead to unnecessary follow-up and delay. The financial impact of over-investigating patients also needs to be considered.

Methods: The cohort included adult patients who underwent elective major or minor gynaecological surgeries in the first two weeks of February 2015. This data was extracted using the operation lists of each consultant. Data collected included the patient age, co-morbidities, name and grade of the operation performed and any pre-operative investigations carried out. The appropriateness of these pre-operative investigations was determined using the American Society of Anaesthesiologists (ASA) grade of the patient and the grade of the operation. The standard used was the National Institute of Clinical Excellence (NICE) guideline 3: The use of routine pre-operative tests for elective surgery (issued in June 2003).

Results: In a period of 2 weeks, a total of 399 pre-operative investigations were carried out on 120 patients. Out of these, only 124 tests were actually required; meaning that 69% of all the tests carried in those two weeks were not warranted. A total cost of €4729.10 for non-indicated tests was incurred in this period.

Conclusion: Several studies concluded that there is no evidence supporting routine pre-operative testing. An approach of selective investigations based on risk assessment reduces cost without compromising patient safety or quality of care.

P7.19
Evaluation of FRAX® score use in Maltese osteoporosis management guidelines

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Introduction: Recent years have brought a shift towards evidence-based fracture risk engines. FRAX® is one such diagnostic tool used to evaluate the ten-year probability of osteoporotic fracture risk. This study evaluated the Maltese FRAX® score-based osteoporosis management guidelines and assessed the suitability of using such a risk factor engine-based protocol.

Methods: Data from 702 patients presenting for bone mineral density (BMD) estimation in 2010-2011 were collected. In this period, local guidelines were devised but not yet put into practice so all referred patients underwent BMD estimation using Norland/Hologic densitometers. These patients were below 65 years of age and above the minimum age for FRAX® use: 40 years. Data included Age, Weight, Height, BMI and the presence of any risk factor components of the FRAX® score tool. FRAX® scores (excluding BMD) for each patient were calculated using the online tool www.shef.ac.uk/FRAX. The resulting major osteoporotic fracture risk was compared to age-specific assessment thresholds set by J.A.Kanis *et al.*(2013). Thus the appropriateness of densitometry measurements as dictated by local guidelines was determined.

Results: Local guidelines for managing <65 year olds were found to have a positive predictive value of 11.26% and a negative predictive value of 94.38%. Mean sensitivity across age-groups was of 76.56% (CI:64.3-86.2%) while mean specificity was of 39.21% (CI:35.7-43.41%). Positive likelihood ratio for the protocol was found to be 1.27 meaning 1 in every 8.8 patients that would have been referred for BMD estimation were actually osteoporotic.

Conclusion: FRAX®-guided local guidelines are well suited at excluding non-osteoporotic patients (False omission rate of 5.62%).

P8.01

Audit on the appropriateness of referral to upper gastrointestinal endoscopy at Mater Dei Hospital. Do referrals for endoscopy currently meet guidelines?

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Introduction: Upper gastrointestinal symptoms are remarkably common, non-specific complaints resulting in diagnostic challenges in medical practice. The introduction of upper gastrointestinal endoscopy managed to overcome the diagnostic difficulties present in this field. The aim of the audit was to assess the appropriateness of referrals for oesophago-gastrointestinal endoscopy (OGD) at Mater Dei Hospital according to the British Society Guidelines (BSG) 2002.

Methods: All data sheets of patients, under the care of all gastroenterology firms, who had undergone OGD in the period between 1st June and 31st July 2014 were accessed and reviewed retrospectively after obtaining the necessary approvals. The indications for OGD as proposed by BSG were used as a standard to assess the appropriateness of the indications for the procedure. Data was collected and analysed using Microsoft Excel® 2010.

Results: During the period of study, 282 patients underwent OGD with an age range of 16 to 86 years and a mean age of 56.3 years. The indications of 245 (86.9%) patients were according to the BSG. The most common indication that warranted referral to endoscopy was unexplained and persistent recent onset dyspepsia in patients aged 55 years or older (n=52, 21.2%). Only 37 of the referral cases (13.1%) were not in accordance to the standard guidelines with the commonest inappropriate indication being vomiting (29.7%, n=11).

Conclusion: The increasing number of endoscopies done in the past years may have led to inappropriate referral and overuse of this procedure. However this audit shows that referrals for OGD are in accordance to the current indications stated in BSG.

P8.02

Anaemia investigation in practice: how appropriate are our referrals?

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Introduction: The aim of this audit was to establish the yield rates of positive findings related to anaemia in patients accepted for endoscopic investigation of anaemia.

Methods: A total of 490 patients who underwent endoscopy between 12/4/13 and 13/5/14 were identified retrospectively through the electronic endoscopy database. Haemoglobin (Hb) levels, iron studies (including ferritin and iron saturations) and Hb electrophoresis studies were analysed using iSOFT. The proportion of patients who had low Hb was calculated. The investigations carried out in the anaemic cohort were evaluated and the yield rates for gastroscopy and colonoscopy were determined.

Results: 46.5% of the patients who were accepted for endoscopy (n=228) were being investigated for anaemia. 20.6% of the anaemic cohort (n=47) did not have any iron studies taken. Hb electrophoresis was carried out in 29.8% of patients (n=14) with a low MCV. From 14 patients who had Hb electrophoresis, Beta-thalassaemia trait was ruled out in one patient (7.14%). The yield rates of gastroscopy and colonoscopy were 34.6% and 9.76% respectively.

Conclusion: Results demonstrate the heavy burden of investigating anaemia on secondary care. A significant proportion of patients referred did not have any iron studies carried out. We recommend a referral proforma including the relevant points in the history which should be identified and the entry of MCV, ferritin, iron (Fe) and total iron-binding capacity (TIBC), when available, in order to reduce the number of inappropriate referrals. This would allow better selection of patients for endoscopy to improve the yield rate, which would then be followed by a re-audit.

P8.03

An audit on the appropriateness of referrals for colonoscopy

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Introduction: Colonoscopy is a common investigation used for the clinical evaluation and treatment of lower gastrointestinal tract pathology. The aim of this audit was to assess the appropriateness of referrals for colonoscopy. Colonoscopies performed for appropriate indications, yield more significant findings, and are essential to the rational utilisation of the finite healthcare resources.

Methods: All patients who underwent colonoscopy, within the Gastroenterology Department at Mater Dei Hospital between 1st June 2014 and 31st July 2014, were included in the audit, excluding paediatrics. Data was retrieved retrospectively: colonoscopy datasheets were used, and the reason of referral for colonoscopy was recorded and compared to the guidelines issued by the British Society of Gastroenterology (BSG), to assess the appropriateness of referrals.

Results: A total of 201 patients underwent colonoscopy during this time-frame. 170 patients (84.6%) had colonoscopy for an indication that was considered appropriate, according to the BSG guidelines. On the other hand, 31 patients (15.4%) of the sample population, were inappropriate referrals with no BSG indication for colonoscopy. Surveillance of patients with inflammatory bowel disease constituted the leading indication for colonoscopy (12.4%, n=25).

Conclusion: Whilst the majority of colonoscopies performed were clinically indicated, with reference to the BSG guidelines, results show that further improvement is required to reduce the number of inappropriate referrals for colonoscopies. The implementation process is currently being carried out through the distribution of BSG guidelines, amongst physicians referring patients for colonoscopies. Our plan is to re-audit, aiming for a higher percentage of adherence to the BSG guidelines.

P8.04

The prevalence of *Helicobacter pylori* amongst patients presenting with dyspepsia.

Martina Muscat, Mario Blackman, Pierre Ellul

Introduction: Helicobacter pylori (H.pylori) has been implicated as a cause for dyspepsia. Our aim is to determine its prevalence amongst patients presenting with dyspepsia to the gastroenterology outpatients. Dyspepsia was defined according to the American College of Gastroenterology (ACG) as chronic or recurrent pain or discomfort centred in the upper abdomen.

Methods: This was a prospective study where all patients with symptoms of dyspepsia, without any alarm symptoms, were invited to undergo a H.pylori stool PCR.

Results: 218 patients were recruited. The majority (71.5%) were <55 years of age. The rest (28.5%) were ≥55 years of age. 61.9% of patients were female. Gender proportion was similar in both age groups. 70% of females were <55 years of age and 30% were ≥55 years. 73% of males were <55 years. The rest of the males (27%) were ≥55 years. H.pylori was present in 6.4% of patients. There was no difference in the prevalence of H.pylori in patients who were above or below 55 years. There was no gender difference in the positivity rate (p=0.26).

Conclusion: In our cohort, females exhibited more dyspeptic symptoms than males. No gender or age differences in H.pylori positivity rate was found. According to the ACG guidelines, patients <55 years, with no alarm features, in a society with a prevalence of H.pylori of less than 10%, a proton

pump inhibitor trial should be attempted first rather than a test and treat approach. Only if this fails, should one consider testing and treating for the bacteria, followed if necessary by endoscopy.

P8.05

Anti-endomysial antibody may predict a second endoscopy in coeliac-suspected patients with false negative index duodenal biopsies

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Introduction: A subset of coeliac-suspected patients requires 2 Oesophagogastroduodenoscopies (OGDs) to achieve histological confirmation. Their index OGD would fail to reach diagnosis despite 4 duodenal biopsies suggested by guidelines. We compared this subgroup of patients with other coeliac patients requiring 1 endoscopy and recognize any predictors to identify the former group.

Methods: Coeliac-suspected patients at our department underwent an OGD. Clinical, serological and histological data were retrieved from medical notes. Group 1 comprised patients who achieved diagnosis with 1 OGD. Group 2 required 2 OGDs.

Results: 178 patients underwent an OGD (mean age 47 years; 73.6% females). 12 patients (6.7%) required 2 OGDs. Both groups had the same mean number of duodenal biopsies at their index endoscopy (4.6 *vs* 4.5, *P*=0.76). In Group 2, the number of biopsies was higher at the second endoscopy (6.4 *vs* 4.5, P=0.028). Group 2 showed a negative or lower positivity for anti-EMA (*P*=0.039) and a lower anti-tTG IgA level (*P*=0.06) than Group 1.

Conclusion: Anti-EMA seronegativity or low positivity in coeliac-suspected patients indicates the need for more duodenal biopsies to achieve diagnosis and avoiding subsequent OGDs. This finding makes anti-EMA testing crucial in coeliac diagnostics.

P8.06

The role of patency capsule prior to small bowel capsule endoscopy

Martina Muscat, Pierre Ellul

Introduction: Capsule retention is one of the complications of Small bowel capsule endoscopy (SBCE). The patency capsule is a useful tool prior to SBCE to help identify those patients with a higher retention risk. The aim was to determine the patency capsule retention rate and the underlying associated pathologies.

Methods: Patients who had a patency capsule (2009-2015) were identified through a database. Their clinical notes were reviewed.

Results: 148 patients, mean age being 37.8 years (8-78 years) (76.5% female) were recruited. 23% of patency capsules were retained. 11.8% of these had a repeat patency capsule which was also retained. The main indication for the patency capsule, in the retained cohort, was inflammatory bowel disease (38.2%). The rest were performed in the investigation of; anaemia (23.5%), familial polyposis (8.8%), abdominal pain (5.9%), coeliac disease,(5.9%) tufting enteropathy (5.9%) and abnormal imaging of the small bowel (5.9%). 58.8% had a retained patency capsule with no evidence of stricturing disease or other abnormality on imaging to suggest retention due to mechanical reasons. Thus, retention may be due to slow intestinal transit times. 41.2% had evidence of stricturing disease, small bowel thickening or masses on imaging.

Conclusion: The patency retention rate is much higher than that described in the literature. Thus, more careful patient selection is suggested. Meanwhile a careful history may identify those patients with a slow transit time. The use of bowel preparation and prokinetics may actually enable the patency to be excreted within 30 hours, thus allowing for small bowel capsule administration.

P8.07

Efficacy of printed material at preoperative colonoscopic workup

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Introduction: Current practice involves voluntarily supplying patients undergoing elective colonoscopies a non-standard printed information sheet, which delineates what the procedure entails and details of the risks, benefits and post-operative care in non-medical terms. This audit aims to assess patient retention of the information supplied and whether supplying a leaflet has had any effect on preparation.

Methods: All patients undergoing a colonoscopy within a 12 week period were recruited. The patients were randomly assigned into two groups. During the pre-operative assessment, patients who were assigned to group-A were supplied with essential preparation details only, whilst those in group-B were supplied with both essential preparation details and the information leaflet.The patients were questioned by blinded medical interviewers on the day of the colonoscopy. This involved a number of questions on the material discussed and this was correlated to observed colon preparation at endoscopy.

Results: There was no significant difference in adherence to bowel preparation or the quality of bowel preparation in groups-A and B. There was statistically significant difference in awareness that one should not drive or operate heavy machinery up to 24hrs post-procedure(p=0), awareness that should be accompanied up to 24 hr post-procedure(p=0.05) and awareness that one should not sign legal documents up to 24hr post-procedure(p=0.03).

Conclusion: In this study, patients that were given the information leaflet were more aware of recovery requirements during the 24 hour post-procedure period. Based on these findings a standard information sheet will be given pre-operatively to improve patient education and understanding of their post procedure care.

P8.08

An analysis of the quality of bowel preparation for colonoscopy in a local hospital setting

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Mater Dei Hospital

Introduction: Colonoscopy plays a pivotal role in the investigation and surveillance of several bowel conditions. It has the potential to prevent future colonic malignancies. The effectiveness of colonoscopy depends on the quality of bowel preparation, since it prevents pathological lesions from being missed making interventions easier to carry out by minimizing risk to the patient and preventing the need to repeat the procedure. The aim of this study was to assess the quality of bowel preparation for colonoscopy.

Methods: This was a prospective study where consecutive patients from 2 medical and 2 surgical teams at Mater Dei Hospital (MDH), who underwent colonoscopy between May 2014-August 2014 were recruited. All patients were administered the same bowel preparation. The Boston Bowel preparation Scale was used to assess the adequacy of bowel preparation. A score >5 was considered adequate.

Results: 121 patients (64 males) were recruited. 31.4% of patients had a score of 5 or less and thus were not adequately prepared. The adenoma detection rate was 26.4%. Risk factors

for an inadequate bowel preparation were male gender, age group of 50-69 years and active IBD. Meanwhile patients referred for a change in bowel habits were found to be best prepared (90%).

Conclusion: This analysis provides evidence that MDH patients need better bowel preparation. Recommendations include: reviewing and improving MDH bowel preparation instruction sheets; providing nurse-led telephone support; emphasizing the critical importance of adequate bowel preparation to patients; consider the introduction of a split dosing regimen for laxative use which may yield better bowel preparation.

P8.09

Stricter adherence to surveillance colonoscopy guidelines for colorectal adenomas could result in reduced burden on endoscopy services

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Introduction: International guidelines recommend repeating surveillance colonoscopy in patients with colonic adenomas. We aimed to study local adherence to such guidelines.

Methods: Patients diagnosed with colonic adenomas between March and August 2008 were enrolled. Surveillance colonoscopy following adenoma removal was audited against the British Society of Gastroenterology guidelines: repeat in 5 years or no follow-up in low risk patients, repeat in 3 years in intermediate risk patients and repeat in 1 year in high risk patients.

Results: 165 patients (61.8% males; mean age 62.1) were risk stratified as per guidelines. 95 patients (57.6%) were low risk, 61 (37%) intermediate risk, and 9 (5.4%) high risk. In the low risk group, 43 patients (45%) had surveillance either ≥ 5 years or never and 52 (55%) had a shorter follow up. In the intermediate risk group, 9 (14.8%) patients had surveillance at 3 years, 28 (45.9%) patients before 3 years, 8 (13.1%) patients after 3 years and 16 (26.2%) patients had no follow up colonoscopy. In the high risk group, 5 (55.6%) patients had surveillance at 1 year, 1 (11.1%) patient before 1 year, 2 (22.2%) patients after 1 year and 1 (11.1%) patient had no follow up colonoscopy. 2 patients (1.2%) were diagnosed with interval colon cancer in the same year as the index colonoscopy.

Conclusion: Guideline non-adherence was noted in 65.5%, mainly due to too aggressive surveillance (49.1% early colonoscopies), increasing burden on endoscopy services. Late colonoscopies (6.1%) or no follow up colonoscopies (10.3%) were not the cause for interval cancers.

P8.10

No change in disease pattern for colorectal adenomas in 25 years.

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Introduction: Morphology, anatomic distribution and cancer potential of colorectal adenomas have been described over 25 years ago. We aimed to study whether such disease pattern changed over time.

Methods: Adult patients with adenomatous colonic polyps diagnosed by histology following their index colonoscopy performed between March and August 2008 were studied. Patient demographics and polyp characteristics were obtained from medical notes.

Results: 175 patients (107 males, 61.1%; mean age 62, range 25-87), having a total of 259 adenomatous polyps, were enrolled. 70.3% of patients had 1 polyp (range 1-7). The mean polyp size was 11mm (range 1-75mm; 30.5% polyps <5mm, 34.5% polyps 5-10mm, 35% polyps >10mm). The majority of adenomatous polyps were tubular adenoma (66%), harboured low grade dysplasia (87%), were located in the sigmoid (26%) and were removed piecemeal (64%). 2% harboured malignancy within the polyp (80% Haggitt 0). The larger the polyp size, the higher the association with malignancy risk (p=0.004) and of being removed piecemeal (p<0.001), but no association noted with adenoma type (p=0.174), grade (p=0.063) or polyp location (p=0.814). In contrast, polyp location was associated with adenoma type (p<0.0001; tubulovillous or villous adenoma in rectum, tubular adenoma in sigmoid, sessile serrated adenoma in hepatic flexure) and grade (p=0.005; high grade dysplasia in recto-sigmoid). Interval colon cancer was noted in 1.2% of cases.

Conclusion: Current disease pattern of colorectal adenomas is very comparable to that of 25 years ago. This may indicate that environmental factors responsible for this disease have not changed.

P8.11

Faecal calprotectin levels may distinguish inflammatory bowel disease from other inflammatory conditions of the gut

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Introduction: Faecal calprotectin (FC) is an effective tool that may differentiate inflammatory from functional bowel conditions. FC is not specific to inflammatory bowel disease (IBD) and is frequently elevated in other bowel pathologies.

Methods: The positive predictive value for gastrointestinal pathologies with positive FC levels (>50mg/L) was analysed. Patients with a positive FC level who underwent a colonoscopy between January 2013 and July 2014 were included. The endoscopy and histology reports were analysed to identify the utility of FC levels in distinguishing different bowel disorders.

Results: 413 patients (158 children (<16 years); 255 adults (>16 years); mean age 29.7 years) with positive FC levels were included. In 52.3% of cases, no histologic or endoscopic evidence of inflammation was identified. FC was falsely elevated more frequently among paediatric patients (62.6% children; 46.6% adults; p: 0.0002). 31.7% of patients, with positive FC and positive endoscopic/histological findings, were diagnosed with IBD. 68.3% were diagnosed with: eosinophilic enteropathy, infections, focal active colitis, adenomatous polyps, allergic enteritis, coeliac disease, chronic appendicitis, adenocarcinoma, diverticulosis, ischaemic colitis and lymphocytic colitis. The mean FC level in patients with Crohn's disease was 741, ulcerative colitis 769, indeterminate IBD 188, focal active colitis 314, eosinophilic enteropathy 321, coeliac disease 117 and no histological evidence of inflammation 237.

Conclusion: IBD patients have higher FC levels than patients with other inflammatory bowel conditions. More than half of individuals with high FC levels did not have inflammation at endoscopy, however patients with underlying IBD tend to have significantly higher FC levels than individuals with false positive FC.

P8.12

Elevated calprotectin levels are an indication for colonoscopy

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Introduction: Calprotectin is a major protein found in inflammatory cells, and is elevated in stools when there is intestinal inflammation. However this is not specific to any particular bowel condition; though it may aid in the diagnosis of inflammatory bowel disease (IBD). A positive faecal calprotectin (FC) is an indication for a colonoscopy. Our aim was to determine the predictive value of a raised FC for pathology.

Methods: All FC requests from January 2013 to August 2014 were obtained. The clinical case notes of the patients with an elevated FC were analysed.

Results: 863 requests for faecal calprotectin were requested with 413 positive results in 356 patients. 228

patients (64.0%) were colonoscoped, with 50.4% being females. Their mean age was 35 years and the mean FC level was 547mg/L (range 0-50mg/L). 32% had a normal endoscopy and histology. IBD was diagnosed in 100 patients (43.9%) – 57 patients had Crohn's disease, 36 patients had ulcerative colitis and 7 patients had indeterminate colitis. Other diagnoses included colonic polyps (5.27 %), adenocarcinomas (0.44%), infectious colitis (6.58%), coeliac disease (2.63%), ischaemic colitis (0.44%), gastric pathology (0.88%) and eosinophilic gastroenteropathies (7.89%). There were 128 patients whose FC, requested by non-gastroenterologists, was elevated and did not have a colonoscopy. Thus, potentially 80 patients may have undiagnosed gastrointestinal pathology.

Conclusion: The presence of pathology in 68% of patients with an elevated faecal calprotectin makes colonoscopy mandatory in patients with an elevated FC. However, performing this test when indicated can decrease the burden on endoscopy units.

P8.13
Haematological and Inflammatory Markers for non-invasive diagnosis of Crohn's colitis

Stephanie Galea, Neville Azzopardi, Pierre Ellul, Gabriella Balzan

Introduction: Recent evidence has shown that Red Cell Distribution Width (RDW) is associated with active Crohn's disease (CD). The usefulness of a risk score was analysed based on RDW, platelet count, ESR and CRP in assessing disease activity in CD.

Methods: Serum CRP, ESR, platelet count and RDW in CD patients were assessed on the day of colonoscopy and compared with CD activity. 308 endoscopic procedures on 161 CD patients were performed over a 48 month period. Disease activity was determined according to endoscopic and histologic findings. A risk score for disease activity was created by attributing one point to each elevated marker.

Results: Confirmation of disease activity was present in 191 colonoscopies (62%). All serum biomarkers were elevated in patients with active CD (independent samples t test p <0.005) when compared with patients with quiescent disease. RDW, platelet counts, ESR and CRP had low sensitivities (43%, 21%, 68% and 44%) and specificities (73%, 93%, 40% and 64%) in detecting disease activity. The scores for histologically active disease were; 90% of patients scored 4 (n=10), 89% scored 3 (n=37), 66.6% scored 2 (n=72), 53% scored 1 (n=91) and 54 % of patients scored 0. There was a statistically significant difference (p<0.0001) between the mean risk score in quiescent disease (mean 0.9145, n=117) and the mean risk score in active disease (mean 1.461, n=191).

Conclusion: RDW as a single biomarker has a low sensitivity, however, the presence of three or more elevated biomarkers should raise the suspicion of ongoing inflammation.

P8.14
Vitamin D deficiency in inflammatory bowel disease; is malabsorption to blame?

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Introduction: Vitamin D insufficiency is common in inflammatory bowel disease (IBD). This used to be attributed to factors such as anorexia and malabsorption, however more recent studies show that Vitamin D has an important role in numerous immune regulatory pathways, particularly in the innate immune system.

Methods: We recruited 63 patients known to suffer from Ulcerative Colitis (UC). Unlike Crohn's disease, UC is not typically associated with malabsorption. All patients recruited were of Maltese descent and had been living in Malta for at least one year thus eliminating bias from geographical and genetic variations in Vitamin D levels. 60 gender and age matched healthy volunteers were selected and had their serum Vitamin D levels checked.

Results: Average age was 46.3 years and average age at diagnosis was 38.1 years. Vitamin D levels were significantly lower in the UC group (mean 24.95ng/mL) compared to the controls (mean 37.29ng/mL) (p=approximately 0). Vitamin D levels were not found to be associated with neither age nor gender. 68.3% of patients had no or minimal symptoms (Montreal 0 or 1) with only 20% and 11.7% being respectively classified as Montreal 2 and 3. Disease activity was also found not to be statistically associated to Vitamin D levels.

Conclusion: IBD might be associated with Vitamin D deficiency for reasons other than malabsorption and disease activity. Indeed, the idea that IBD leads to Vitamin D deficiency needs to be questioned, as it might be that in a proportion of patients it is abnormalities in Vitamin D metabolism that predispose towards IBD.

P8.15
Complications related to the late diagnosis of coeliac disease

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Introduction: Coeliac disease (CD) can lead to complications including adenocarcinoma of the small bowel (SB), lymphomas and refractory coeliac disease (RCD). Their incidence is higher in patients with CD who have a prolonged exposure to gluten. We present four cases of complicated CD.

Conclusion: This highlights the importance of an early diagnosis of CD in patients with non-specific gastrointestinal symptoms, the need for long term follow-up and the role of thorough investigations when patients are still symptomatic post-CD diagnosis despite a GFD.

P8.16
Capsule endoscopies at a regional, general hospital

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Introduction: Capsule endoscopy (CE) is a good modality to visualise the small bowel (SB). The aim was to assess indications and yield of CEs at Mater Dei Hospital.

Methods: Patients who had CE were identified. The p score for SB lesions was used to determine the bleeding potential for any pathology.

Results: 80 patients (40 males; mean age 59 years) were recruited. 16.25% had a normal SB. 36 patients (45%) had p2 lesions+/-p1+/-p0. 20 patients (25%) had p1 lesions+/-p0. 11 patients (13.75%) had p0 lesions. P2 lesions included ulcerations (15), angioectasias (19). Blood was detected on 10 instances. 1 patient had a tumour. 1 patient who had SB findings on imaging (5) had a p2 lesion (20%). 2 patients who presented with abdominal pain (7) had p2 lesions (28.6%). 22 patients (57.9%) with IDA (38) had p2 lesions. 1 patient (33.3%) with OGB (3) had p2 lesions. 6 patients (42.86%) with a suspicion of SB Crohn's disease (total 14) had p2 lesions. 3 patients (50%) with suspected complicated coeliac disease (total 6) had p2 lesions. The caecum was not reached in 23%. The average SB transit time was 3:55:40 hours. The only premenopausal female with IDA wasn't referred to a gynaecologist before CE. Only 10.5% of IDA patients were seen by a haematologist, 50% had a coeliac screen and 55.3% had a urinalysis before CE.

Conclusion: Less than half of the patients had p2 lesions. A significant number of patients with IDA had SB findings. Patients were not properly investigated for IDA before CE.

P8.17

Fertility and pregnancy related misconceptions in female patients with inflammatory bowel disease

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Introduction: Reproductive issues in patients with inflammatory bowel disease (IBD) have been shown to be inadequately addressed by clinicians. Patients opt for voluntary childlessness due to misconceptions about fertility and pregnancy.

Methods: Female IBD patients were prospectively recruited from 5 different European centres. They were interviewed through the use of a questionnaire.

Results: 233 patients were recruited (mean age 40; SD±11.9). 85.5% patients with ulcerative colitis (UC) had a Montreal classification of E2 or E3. Crohn's disease (CD) patients predominantly (64.7%) had a non-stricturing and non-penetrating phenotype. Only 57.9% of patients were counseled on IBD and fertility. 27.5% admitted to considering voluntary childlessness. This correlated with lack of counseling delivered by health care professionals (coefficient 1.147; $p<0.003$). 19.7% expressed fear of infertility following the diagnosis of IBD. 8.2% were aware that the mode of delivery could be influenced by IBD. 15.5% and 36.5% knew that surgery could influence fertility and mode of delivery respectively. 15.0% thought that all medications should be stopped during pregnancy. 12.0% believed that some medications should be stopped. 63.1% were unsure about what to do with medications. 1.7% of patients stopped medications without consultation with clinical teams. 26.6% of patients were uncertain if patients with IBD could breast feed. 37.0% said that they could not. 15.9% were counseled to undergo regular pap smears. 61.8% received information about the HPV vaccine.

Conclusion: This study highlights the need to improve care for this cohort of patients and eliminate their misconceptions through the development of a multidisciplinary team management.

P8.18

Cervical cancer screening and prevention among females with inflammatory bowel disease

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Introduction: Patients with inflammatory bowel disease (IBD) on immunomodulators have a higher incidence of abnormal Pap smears. The aim of this study was to assess patients' knowledge, rate of cervical smear testing and uptake of HPV vaccine.

Methods: Female patients with IBD were recruited from 6 southern European centres. Patients were interviewed through a specifically designed questionnaire.

Results: 348 female patients (mean age 37.4 years SD±2.1) were recruited. Most patients (88.5%) claimed that females with IBD should undergo regular cervical smears. Only 17% were counseled by health care professionals to undergo regular smears. This was only done in 35.6% of cases by gastroenterologists, 62.7% by gynaecologists and 1.7% of patients by their general practioner. 64.36% of patients were undergoing regular screening. 98.2% of patients had a normal smear test. 45.4% of patients received information about the HPV vaccine. Most information was given by gastroenterologists (57.6%) and gynaecologists (427.2%). Both gastroenterologist and gynaecologist delivered information in 4 patients (2.53%). GP gave information to 14.0% of patients. Only 4.9% of patients had received the vaccine.

Conclusion: This study demonstrates that although patients have an adequate knowledge about cervical Pap smears and HPV vaccines, their uptake was low. There should be specifically designed clinics to help increase the prevention of such a preventable pathology.

P8.19

Co-morbidities in patients hospitalized for *Campylobacter* infection.

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Introduction: Immunocompromised patients and those with multiple underlying co-morbidities are more prone to being infected with common pathogens. Our aim was to determine if patients with co-morbidities are more likely to be admitted to hospital.

Methods: Patients diagnosed with Campylobacter infection needing admission to Mater Dei Hospital (2008-2013) were identified through the Microbiology database. Clinical case notes were reviewed.

Results: 421 patients were recruited (51% males). 52% of patients with culture positive results had underlying co-morbidities.13% of patients had documented ischaemic heart disease. 5.46% had AF. 6.89% had neurological disorders. 1.27% had renal diseases. 2.37% were immunologically compromised.13.1% had malignancies. 7.13% had chronic respiratory disorders. 71.3% were admitted with symptoms of gastroenteritis. The rest were admitted for other reasons. 43 patients (10.2%) suffered from gastrointestinal pathologies. 21 had liver disorders. Other gastrointestinal disorders included coeliac disease (3 patients), pancreatic insufficiency (1 patient), diverticular disease (7 patients), Hirschprung's disease (1 patient), bowel atresia (1 patient). 9 patients suffered from inflammatory bowel disease. 5 patients (56%) were on immunosuppressants. 1 patient was on 3 immunosuppressants. 1 patient was on 2 immunosuppressants and another patient was on another immunosuppressant. 4 of these patients had other underlying co-morbidities.

Conclusion: Almost half of the hospitalized patients had no underlying co-morbidities. Only a small percentage of patients with gastrointestinal co-morbidities suffered from Campylobacter infection. Thus, Campylobacter might affect healthy individuals with a need for hospital admission.

P8.20

Campylobacter infection at Mater Dei Hospital

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Introduction: Campylobacter is the bacterium most commonly responsible for causing gastroenteritis worldwide. Our aim was to determine the local incidence rate and antibiotic sensitivity.

Methods: Patients with Campylobacter positive (2008-2013) results were identified through the pathology department. Demographic and clinical data were analysed.

Results: 421 patients were admitted to hospital (51% males). Patients admitted with gastroenteritis had a mean shorter hospital stay (5.95 days) than those admitted for other reasons (10.2 days) ($p<0.007$). The most common subspecies was Campylobacter jejuni (67.7%). In 1.9% of cases, Campylobacter was present in blood cultures. Patients with positive blood cultures had a longer hospital duration (25 days) and were older than those with positive stool cultures (6.6 days) ($p<0.0001$; $p<0.007$). 19.5% of patients were hospitalized and 3.8% reported a history of travel abroad in the preceding 3 months. 2.1% died during the hospital stay. 59.4% were sensitive to erythromycin. 27.8% were sensitive to both erythromycin and ciprofloxacin. 54.9% and 0.2% were resistant to ciprofloxacin and erythromcyin respectively. 3.3% were resistant to both antibiotics. Highest resistance was that of Campylobacter jejuni to Ciprofloxacin ($p<0.0001$). The estimated incidence of Campylobacteriosis in Malta is 54.2 new cases per 100,000 per year with 16.7 new cases per 100,000 per year needing hospital admission.

Conclusion: Campylobacter gastroenteritis does not usually result in a long hospital stay and is associated with a low inpatient mortality. The incidence of Campylobacter infection in this study is higher than that reported in the literature. However, fluoroquinolone resistance is less common.

P8.21

High body mass indexes preserve bone mineral densities in patients with non-alcoholic fatty liver disease

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Introduction: The effect of non-alcoholic fatty liver disease (NAFLD) on bone mineral density (BMD) is poorly understood. NAFLD is more prevalent with higher body mass indexes (BMI). We aimed to evaluate the effect of different BMI classes on NAFLD patients' BMD.

Methods: NAFLD adults diagnosed on liver imaging in 2013 were enrolled, excluding patients with concomitant liver pathologies. Demographics were obtained from medical notes. BMI was calculated and classified using WHO classification. Femur and lumbar spine BMD were measured by dual energy X-ray absorptiometry. Age and gender-matched Z and T-scores were analysed against different BMI classes using ANOVA model.

Results: 197 NAFLD patients were enrolled (178 females, 90.3%; mean age:63.5, range:35-82; mean BMI:32.8, range:22-48.6). Obese patients had higher BMD T-scores (-0.38±1.12) of whole femur than overweight patients (-0.82±1.074) and normal BMI patients (-1.53±0.89) ($p=0.001$). This also applied for femoral neck (-0.97±1.14, -1.41±1.00, -1.77±0.95respectively, $p=0.007$) and lumbar spine (-0.71±1.38, -1.06±1.16, -1.80±1.62respectively, $p=0.017$). Likewise, obese patients had higher BMD Z-scores of whole femur (0.71±1.09, $p=0.002$), femoral neck (0.59±1.1, $p=0.005$) and lumbar spine (0.46±1.36, $p=0.008$) compared to overweight (0.26±1.15, 0.16±1.03, 0.04±1.15respectively) and normal BMI patients (-0.25±0.79, -0.25±0.84, -0.65±1.31respectively). Subgroup analysis showed obese class 3 patients had higher BMD T-scores of whole femur ($p=0.002$) and lumbar spine ($p=0.003$) but not of femoral neck ($p=0.321$) when compared to obese class-2 and class-1.

Conclusion: A linear relationship was found in NAFLD patients, between increasing BMI and stronger bone mineralisation. NAFLD patients with normal BMI should be screened for osteopenia. Weight loss in NAFLD obese patients might impair bone health.

P8.22

Bowel preparation for colonoscopy: a randomised controlled trial comparing two polyethylene glycol based laxatives

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Introduction: Colonoscopy is the gold standard investigation for the large bowel. To be able and give the highest possible yield, a good bowel preparation is essential. A wide variety of laxatives exist. This single blinded randomised controlled study aims to valuate whether there is any advantage in using a traditional Polyethylene Glycol (PEG) + Electrolytes laxatives as compared to the newer PEG + Ascorbic acid preparations. Particularly this study looks at adequacy of bowel preparation at colonoscopy and any electrolyte disturbances consequent to laxative use.

Methods: Patients where randomly assigned to PEG + Electrolytes group or PEG + Ascorbic acid groups. Blood electrolytes and haematocritc were taken prior to the intervention. Careful explanation on diet restrictions on the eve of intervention and laxative regime was performed. During the intervention level of colonic cleansing was scored using the Boston Bowel Preparation score and the serum investigations were repeated.

Results: 117 patients were successfully enrolled. 53 of which took PEG+ Ascorbic acid and 64 of the patients took PEG + Electrolytes. There were no significant differences in the level of bowel preparation between the two formulations. However PEG + Ascorbic acid dehydrated the patients significantly less than PEG + Electrolytes preparations.

Conclusion: Both PEG based preparations are effective laxatives for bowel preparation prior to colonoscopy. Since PEG + Ascorbic acid dehydrated significantly less patients it might have a more selected use in the elderly or patients with multiple co-morbidities.

Disclosure: Moviprep was provided by Beta Pharma Ltd

P9.01

Medicinal plants research in Malta: studies carried out at the Pharmacy Department and at the Argotti gardens

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Introduction: Since centuries, people from different countries used natural plants and products as herbal medicines. The role of Argotti Gardens is to maintain indigenous and exotic collections of plants which have adapted themselves to the Mediterrean climate. The Gardens attract a number of students each academic year, in order to conduct research projects.

Methods: The aim of the dissertation is to research on studies about herbal products carried out by pharmacy students. These are compared to the related scientific studies conducted by biology students. The differences and similarities in these research projects and their outcomes are analysed. A data base search was conducted at the Pharmacy Department of the University of Malta and Argotti Gardens in order to identify

undergraduate pharmacy research projects concerning plants and natural products. A step – by - step content analysis was conducted for each research project chosen.

Results: Essential oil extraction, analysis and identification were common to all seventeen projects. Twelve students conducted antimicrobial tests on the essential oils. Two experiments carried out by the biology students only were Germination Inhibition tests and the bioactivity of the essential oils on cancer cell lines. One pharmacy student formulated a cream with local thyme fragrance.

Conclusion: The dissertation offers an opportunity to explore connections between a sample of pharmacy-oriented and biology-oriented studies on medicinal plants. The study promotes and increases awareness about the studies carried out by students at the University of Malta related to medicinal plants including some combined with those at Argotti Gardens

P9.02

Design of novel anti-prostate cancer drugs which modulate the CYP17A1 receptor using abiraterone as lead molecule

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Introduction: Having a very similar structure to the endogenous male androgens, abiraterone is a drug that competitively inhibits the CYP17A1 enzyme to which the androgens bind. It consequently decreases testosterone biosynthesis which in turn mitigates prostate cancer progression. Abiraterone was selected as lead molecule for the design of novel anti-prostate cancer drugs owing to the fact that it may be administered orally and exhibits low toxicity.

Methods: Protein Data Bank (PDB) crystallographic deposition 3RUK describing the *holo-* abiraterone:CYP17A1 complex was used as a template. Abiraterone was extracted from its cognate Ligand Binding Pocket (LBP) and used to generate 3-Dimensional (3D) maps of the CYP17A1_LBP. *in silico* binding energy (kcal mol-1) and binding affinity (p*K*d) were calculated for abiraterone, the latter result being used as baseline when calculating the p*K*d of the newly generated structures. A total of three seed structures were generated- with the steroidal nucleus and the pyridyl moieties being removed in seeds 1 & 2 respectively, and a growing site being introduced on carbons 11 and 12 for seed 3. Each seed was used as a scaffold in the generation of pharmacophorically diverse novel structures using the GROW algorithm of LigBuilderv1.2.

Results: 727 novel structures were generated, 465 of which were Lipinski rule compliant. All three seeds generated Lipinski Rule compliant structures whose p*K*d exceeded the baseline value of 7.04 calculated for abiraterone.

Conclusion: This study is valuable in the identification of high affinity CYP17A1 modulators with predicted oral bioavailabilty. Optimisation and *in vitro*validation could yield clinically useful abiraterone alternatives.

P9.03

Medicine reconciliation: a review of a pharmacist-led exercise in a Cardiac Medical Ward

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Introduction: Routine Medication reconciliation is not performed during admission, hospitalization and discharge. The impact of this process was measured at discharge.

Methods: A cross-sectional study with intervention was conducted over 16 weeks at the cardiac medical ward. A non-resident clinical pharmacist performed medication reconciliation for cardiac patients prior to discharge. This involved a comprehensive medication review from admission to discharge. Treatment interventions were confirmed with the discharging physician.

Results: The study had a capture rate of 45% of discharged patients with 180 patients reviewed for treatment reconciliation at discharge. Out of this group, 77% required an intervention. Further classification of the intervention group revealed that 40% of patients required correction of accompanying documentation whereas 60% of patients required correction of treatment prior to discharge. This included deletion of wrong or unnecessary treatment, correction of wrong or inappropriate dose, change in drug selection, addition of omitted treatment, and change in route of administration.

Conclusion: Medication reconciliation avoids medication error associated harm and improves treatment accuracy. It is a critical safety goal that should be done at all transitions of care for all hospital patients. Efforts must be directed to expand this clinical pharmacy service to all care areas.

P9.04

Inaccuracies in drug history taking: an audit in acute medical patients in 2012

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Introduction: Errors in drug history taking can lead to serious prescription errors and patient adverse events. This audit aimed at assessing the accuracy in drug history taking in acute medical patients.

Methods: All patients admitted under a single Consultant Physician between April and September 2012 were included. Data collected included age, gender, nationality, time of admission and history. The drug history was rechecked by the admitting firm on the first post-admission review and discrepancies were noted and evaluated.

Results: There were 215 patients with a mean age of 66 years. Drug history was written in full by the admitting doctor in 68.3% (n=147). In 19%, (n=47), it was not documented or noted "as per chart" or "as per casualty sheet". Doubts regarding accuracy were highlighted in 8.8% (n=19). A discrepancy in the drug history was found in 91 patients (42.3%), of which 73.6% were deemed to be serious errors. The mean number of errors per patient was 2 (range 1-10). Errors included omission of medication/s, (63.7%, n=58), inclusion of erroneous medications (18.7%, n=17) and incorrect dose (37.3%, n=34).

Conclusion: There is significant room for improvement in drug history taking. Doctors need to verify each medication and dosage with the patient / relatives and avoid copying old treatment cards and discharge letters. When necessary, relatives should be asked to bring in the patient's medications. A hospital campaign reminding patients to bring an updated list of their medications to all hospital visits would also help decrease the error rate.

P9.05

Prescribing antibiotics to children with upper respiratory tract infections

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Introduction: Children suffer 3 to 8 episodes of upper respiratory tract infections (URTI) per year, the majority of which are self limiting and do not necessitate antibiotic treatment. We aimed to investigate the use of antibiotics in children with URTI presenting to the paediatric accident and emergency department at Mater Dei Hospital.

Methods: All children aged 0-<16 years presenting consecutively with a diagnosis of an URTI (laryngotracheitis, otitis media, pharyngitis, tonsillitis, and sinusitis) were enrolled. If prescribed, the appropriateness of the antibiotic prescription was assessed according to the NICE guidelines for antibiotic prescribing in respiratory tract infections and the Infectious Disease Society Guidelines of America for the treatment of pharyngitis. A sample size of 320 children was needed to attain a study power of 90%.

Results: A total of 326 children (mean age 3.4 years) were enrolled from January-February 2015. Out of the whole population, 30% (98/326) were prescribed an antibiotic of which 70% (69/98) were inappropriate. Children presented most frequently with pharyngitis (68%; 221/326) of whom 22% (49/221) were prescribed an antibiotic. An analysis of the antibiotics prescribed for pharyngitis revealed that the antibiotic choice was inappropriate in 69% (34/49) and the antibiotics prescribed in all 49 children were not according to recommendations.

Conclusion: Prescription of antibiotics from hospital should be rationalised and in accordance to set standards. A change in practice is urgently required to ensure that children with URTIs are prescribed an antibiotic only if indicated and, if prescribed, the antibiotic choice should be appropriate.

P9.06
Paediatric off-label and unlicensed prescribing in primary care in Malta

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Introduction: Reviews of paediatric prescriptions in the community setting have quantified off-label (OL) use to reach 51.7% and unlicensed (UL) use to reach 17%. The aim of the study was to investigate the incidence of paediatric OL and UL prescribing in primary care in Malta.

Methods: A prospective pharmaco-epidemiological review of 1507 medicines recommended to 924 children by 7 paediatricians and 24 family doctors was carried out with a validated data collection sheet which was constructed de-novo. OL medicines were defined as medicines that were not prescribed in accordance with their summary of product characteristics (SmPC) with respect to age, dose and indication as well as frequency, duration and route of administration. UL medicines were defined as medicines that either did not have a marketing authorisation or medicines whose formulation was modified.

Results: 721 from 1507 medicines (47.8%) were prescribed in an OL/UL manner, the highest incidence in the 1 month - 2 years age range (210 from 345 medicines; 60.9%). More paediatricians rather than family doctors prescribed in an UL (11.6% *vs* 3.6%, $p<0.001$) and OL manner for age (25.7% *vs* 19.6%, $p<0.001$). Conversely, more family doctors rather than paediatricians prescribed in an OL manner for dose (33.5% *vs* 21.4%, $p<0.001$).

Conclusion: Similar to other studies, the two main contributing factors for the high rates of OL/UL prescribing were lack of licensed paediatric medicines and failure by prescribers to follow recommendations detailed in the SmPC, principally caused by lack of harmonisation between SmPCs and published literature.

P9.07
Prescribed drug omissions in hospitalised patients

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Introduction: In-patient prescribing errors are common. Drug doses may be omitted or delayed for various reasons. In most cases, this does not cause patient harm, however certain critical omissions may result in detrimental outcomes. This audit aims to determine the omission frequency of a prescribed drug, the reason for omission, drug classes omitted and to identify critical drug omissions.

Methods: In-patient treatment charts in the departments of medicine, surgery and orthopaedics were analysed retrospectively over a 24-hour period. The total number of drugs prescribed, frequency dosage regimen and the number of doses omitted were recorded. The omitted drugs were classified as critical or non-critical. The reason for omission was recorded using a reference coding system.

Results: A total of 468 treatment charts with 5751 prescribed doses were analysed. The omission frequency was 8.1% (n=466) over the 24-hour study period. The most common reasons were unavailable medication on the ward (10.5%; n=49) and "nil by mouth" (10.5%; n=49). In 6.44% (n=30) omission was due to full treatment charts. In 49.8% (n=232), the reason for omission was unknown. Critical drug omission occurred in 19% (n=88), out of which 61% (n=54) were antibiotics.

Conclusion: This audit demonstrated reasonable compliance levels, with areas for improvement. Critical drug omission is frequently avoidable. Appropriate action in the form of incident reporting can help reduce this, thus improving patient care and outcomes. Moreover, this audit demonstrates the need for a proper coding system for prescribed drug omissions. This will highlight deficiencies and will ensure appropriate action.

P9.08
Professional development of pharmacists

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Introduction: Professional Development is a concept which has evolved from Continuing Education. Continuing Professional Development is the process by which professionals increase their level of competence, and improve and maintain their excellence in practice.

Methods: CPD trends in pharmacy in different countries around the world were determined. Updates on breast cancer and mood disorders were compiled according to an already established template from earlier work in this field of research by Spiteri (2013). An expert panel was selected for the validation of the updates which was carried out by means of a questionnaire based on a likert scale.

Results: 38 countries out of the 47 studied have a mandatory CPD system in place, while 9 do not. CPD activities included lectures, conferences, mentoring, publishing journals or books and computer programs. The updates developed within this study were prepared and presented in the form of a powerpoint presentation. Each update consisted of a general overview of the condition with special focus being made on the management of each condition and the pharmacotherapeutic agents used. Validation of the updates revealed that the updates consisted of clear, concise, comprehensible and reliable scientific information.

Conclusion:
The pharmacotherapeutic updates are compiled with the aim to serve as a CPD activity for pharmacists practicing in Malta.

P9.09
Medication compliance in paediatric and elderly patients

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Introduction: The study aimed at assessing patient compliance in elderly and paediatric patients and identifying major factors that impact on patient adherence to treatment.

Methods: A recruitment of 200 participants was undertaken, 100 elderly patients and 100 paediatric patients. The main focus was on individuals suffering from chronic conditions. Data collection was done by means of a questionnaire. The elderly patients were recruited randomly from community pharmacies and parents of paediatric patients attending the outpatients department at Mater Dei Hospital were invited randomly to participate.

Results: From the elderly population, 80% forget to take their medication, 47% have difficulty in swallowing the medication and 57% complained that they have too many

medications to administer. Forty elderly patients claimed to be non-compliant to the prescribed medication. Statistical methods run for this population have shown that age, patient-pharmacist relationship, living alone and the number of drugs administrated per day all affect compliance negatively. In the paediatric population 95 parents, complained about the taste of most medications, mainly of antibacterial suspensions. Ninety-three parents also reported the children had trouble swallowing the medication particularly when dealing with relatively large tablets or capsules. Twenty-one parents reported that their child was non-compliant mostly due to the lack of paediatric formulation, intolerable tastes and palatability. Statistical methods run for this population, have revealed how duration of treatment and number of drugs administered affect compliance.

Conclusion: The quality of therapy outcomes rely on patient compliance, patient communication, patient knowledge as well as the way the medication is made available to the patient.

P9.10
The pharmacy of your choice scheme

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Introduction: The pharmacy of your choice (POYC) Scheme was launched in 2007 to improve the delivery of free medication to patients. It involved moving medication dispending into private pharmacies to increase accessibility to pharmacists and decrease associated errors. This study aims to assess patient and pharmacist perspectives of the Scheme and their opinions on potential future plans.

Methods: The first phase involved organising and conducting a focus group as a pilot study followed by an improved second focus group consisting of 4 POYC patients and 5 community pharmacists selected from the 5 statistical districts in Malta. Questions on various aspects of the scheme were discussed, voice recorded and transcribed.

Results: All pharmacists felt that the Out Of Stock situation had improved greatly whilst the patients had never been affected to comment. All 9 participants were in favour of warning and alert systems being implemented into the I.T. system to detect interactions and duplicate therapies. They also wished to see E-prescriptions replacing paper prescriptions and for myHealth to be coordinated with the Scheme. When asked whether a bar coding system would be helpful, 2 pharmacists agreed whilst 3 felt it would be more time consuming.

Conclusion: The main conclusion drawn was that all participants felt that the relationship between patients and pharmacists has improved and that pharmacists are helping more in the detection and prevention of medication errors. The second phase will consist of visiting a sample of 12 pharmacies, one from each electoral district in Malta and disseminating questionnaires to patients and pharmacists.

P9.11
Use of spironolactone for acne in female patients among dermatologists in the United Kingdom

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Introduction: Spironolactone can be a useful alternative treatment for acne in female patients, either as monotherapy or as an adjunct. However, it is probably underused and some clinicians may not offer it to patients at all. We investigated its use by UK dermatologists.

Methods: An electronic survey asking about use of spironolactone in female acne patients was circulated to members of the British Association of Dermatologists (n=768) in January 2014.

Results: 81 dermatologists replied; in the preceding year 45/81(56%) had prescribed spironolactone; 5/81(6%) had prescribed it more than 10 times; 7/81(9%) had used it 6-10 times; 33/81(41%) had prescribed it 1-5 times. Thirty four percent had sometimes prescribed it as a combination treatment (with tetracyclines or anti-androgens). Of the 48 dermatologists who had ever prescribed spironolactone, 36 cited the main reason for selecting it was failure/unsuitability of other systemic treatments; 27: concomitant polycystic ovary syndrome; 25: hirsutism; 24: distribution of acne along the jaw and lower face; 22: recurrent acne post-isotretinoin.The most frequent blood monitoring regimen was every 2-4 months (n=18). Treatment duration was typically 6-24 months (n=42) with great variability in time to improvement (mode=4-8 weeks). Thirty-nine (81%) users found spironolactone generally useful, or believed it should be used more often; 9/48(19%) reported poor results.

Conclusion: Spironolactone is currently prescribed by a minority of UK dermatologists, however since most experienced prescribers find it useful, it could be more frequently considered, especially where other treatments have failed or are contraindicated. A randomised controlled trial is required if its use is to be evidence-based.

P9.12
Warfarin use and its interactions. Who is aware?

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Introduction: Warfarin is a Vitamin K antagonist, and is widely used for its anti-coagulant effect and the prevention of thrombosis. Its titrated dose requires the monitoring of a patient's INR (International Normalized Ratio) and frequent visits to the Anti-Coagulation Clinic (ACC).

Methods: With the utilisation of feedback from various healthcare professionals, 15 questions were targeted at revealing whether patients attending this clinic were familiar with the information that was given to them by their caring physicians. Questionnaires were administered verbally to 50 patients attending the clinic on 7th August 2015.

Results: The sample had an equal male to female distribution, most of which were over 75 years. Atrial fibrillation was the most common indication for use. The majority were on warfarin for less than a year and frequented the ACC on a weekly basis. 95% of this cohort knew the purpose for use, with a small majority aware of its complications. Awareness about warfarin interactions varied with alcohol (48%), antibiotics (56%), cranberry juice (38%) and green vegetables (64%) - which contrasts with published results outlining smaller minorities. From a cohort of 50, 10 patients encountered problems with use, reporting persistent epistaxis.

Conclusion: The results show that there is a lack of information about warfarin use. This highlighted the need for the introduction of a formal session targeted at educating patients about warfarin. An informative leaflet will be formulated after discussion with healthcare professionals and attendees working at the ACC, with the aim of re-auditing.

P9.13
Partial manufacturing within the pharmacy of your choice scheme

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Introduction: The POYC Unit carries out partial manufacturing of medicinal products so to prepare smaller quantities from bulk packages. This process follows GMP to ensure quality and safety of the products.

Methods: The structured interview was selected for data collection and a series of questions were formulated accordingly. Five medical professionals and four lay persons, who use the POYC scheme, validated the questions. Two pharmacies, having adopted this scheme were selected randomly in each of the 13 electoral districts. A brief fieldwork session was carried out at each pharmacy. This provided a scenario where 20 patients

who collect drugs via the POYC scheme, could be recruited for completion of the brief interview. The second aspect of this project involves analysis of the partial manufacturing process within the POYC area using a pre- designed template.

Results: Current results are from 5 of the 13 electoral districts. Hence data has been collected from a total of 10 pharmacies. From the 10 pharmacists interviewed, 9 believe that an improved labelling system is crucial so to reduce dispensing errors and also improve patient acceptability. Results show that 86% (n= 172) of the patients interviewed feel that an improved labelling system is required for the drugs collected through the POYC Scheme. The concept of having a sticker bearing an identical template surfaced in 91% of the interviews. The template found on the sticker will include pharmacological class, active product ingredient as well as other important information.

Conclusion: Improvements are being suggested, these will be compiled in an official document.

P9.14
Pharmacist manpower

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Introduction: Pharmacy is an active and an increasingly diverse profession which opens career opportunities in different areas. This study aims to retrieve information on the supply and demand of pharmacists within the pharmacy scenario. The pharmacists' current areas of practice are examined to give an identification of job preference and job satisfaction.

Methods: A pilot study was carried out based on a compiled questionnaire which was disseminated to a panel of 10 pharmacists practising indifferent areas of the profession. The panel reviewed the questionnaire for face and content validity. Feedback obtained from the pilot study was evaluated and the necessary amendments were made. The validated questionnaire was circulated via email to all registered pharmacists within the Pharmacy Council.

Results: One hundred and seventy out of 935 registered pharmacists completed the questionnaire to date. Sixty respondents work within a community setting followed by 30 who work in hospital and 20 in wholesale and distribution sector. Only 3 respondents were found to be working in academia. Twenty nine percent of the respondents defined their career choice as very satisfactory while 62% stated that they are satisfied with their job. Nine percent were not satisfied with their job and these were mainly community pharmacists (n=5).

Conclusion: The community pharmacists who were not satisfied stated that they have been working for 11 to 30 years with minimal increments in their yearly salary. They have also stated that they are underpaid for the advice and service which they offer.

P9.15
Management in chemotherapy admixtures

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Introduction: Oncology hubs worldwide have raised concern on the significant portions of viable chemotherapy residues that are being discarded from partially-used vials and their corresponding costs. This study seeks to quantitatively log cytotoxic waste in local settings and perform cost analysis on the captured data.

Methods: Fieldwork was conducted in a cross-sectional study at Mater Dei Hospital (MDH) and Sir Paul Boffa Hospital (SPBH) cytotoxic units throughout August and September 2014 respectively. Data was recorded by means of a validated data collection sheet and volumetric values were translated to costs based on drug unit prices for October 2014, obtained from the Government Central Procurement and Supplies Unit. Cost-cutting strategies were described following a comprehensive literature search and consultation with quality assurance pharmacists.

Results: For MDH, a sample of 320 chemotherapy doses ensures a maximum margin of error of 3.52% assuming a 95% confidence level. At SPBH, 743 doses were collected ensuring a margin of error of 2.51% at the same confidence level. Combined wastage for both institutions totalled at €10,380, with an annual extrapolated waste cost, computed using the actual number of preparations, of €239,000 estimated for 2014. Bortezomib was shown to predominantly account for 42% of the wastage sum at MDH whilst 28% of drug losses at SPBH are attributed to trastuzumab.

Conclusion: Despite present efforts to mitigate cytotoxic waste, substantial unusable amounts are still being generated in the settings studied. Potential measures must regard economic considerations in light of factors such as time implications, personnel duties, quality risks and patient satisfaction.

P9.16
Drug design at the oestrogen receptor

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Introduction: Breast cancer is defined as the uncontrolled growth of neoplastic cells in breast tissue, which can be environmentally and or hormonally induced. This project uses GW 5638, a selective oestrogen receptor modulator with clinical potential in the management of tamoxifen-resistant breast cancer as lead molecule in the *in silico de novo* drug design of novel antagonists. This molecule is particularly interesting due to its ability to induce a hitherto undocumented conformational change in receptor structure, delineating a new ligand binding domain (LBD) conformation in which helix 12 occupies a distinct spatial orientation.

Methods: Protein data bank crystallographic deposition 1R5K describing the *holo* GW 5638:oestrogen receptor complex was identified and mutual affinity calculated in X-SCORE ® V1.3 for baseline affinity establishment. GW 5638 was edited computationally and five seed structures were generated. Each seed sustained molecular growth using the GROW module of LigBuilder ® V1.2 at pre-selected *loci* considered as non-critical to binding and clinical efficacy on the basis of SAR studies.

Results: The 1000 molecule cohort initially generated (n=200 for each seed 1 to 5 respectively) was segregated according to molecular weight similarity, physiochemical structure and Ligand Binding Affinity. This was reduced to 482 molecules (n=168, 144, 109, 57 and 4 for seed 1 to 5 respectively) post Lipinski Rule compliance assessment.

Conclusion: The major study outcome was the identification of a number of novel, high affinity structures with superior predicted bioavailability, which were considered as suitable for further optimisation, synthesis and *in vitro* validation.

P9.17
Drug design at the HIV reverse transcriptase enzyme

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Introduction: Reverse Transcriptase (RT) is a key enzyme which drives Human Immunodeficiency Virus (HIV) replication. This was used in this study as a target for the design of novel Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs) which bind at an alternative locus to the catalytic site of RT causing a conformational change that inhibits the conversion of

viral RNA to DNA, a process vital to its viability.

Methods: Six protein crystallographic depositions each describing the NNRTIs, Nevirapine (3HVT), Efavirenz (1FK9), Rilpivirine (2ZD1), Doravirine (4NCG), MK-4965 (3DRP) and GW695634 (3DOL), bound to RT were selected as templates for this study. Structure Activity Relationship (SAR) data, guided the creation of a seed structure for each lead NNRTI. The seeds were planted into the RT ligand binding pocket and novel molecular growth sustained at non-critical binding sites in each case. The Ligand Binding Affinity (pKd) of the generated molecular cohort was compared to that of the lead molecules, and categorised for each lead according to pharmacophoric similarity, physicochemical parameters and ligand binding affinity. The generated molecular cohort was assessed for Lipinski rule compliance.

Results: A total of 1266 novel structures were generated from 7 seed structures. Lipinski rules compliance reduced this cohort to 824 molecules. The optimal structures derived from each pharmacophoric family were proposed for optimisation, synthesis and *in vitro* validation.

Conclusion: This study proposed novel structures of *in silico* demonstrable high affinity for RT and predicted oral availability.

P9.18
Medication administration systems at Mount Carmel Hospital

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Introduction: Medication administration is the act of giving medication, requiring insight into the route of entry of medication, dosage intervals, regimen, potential toxicity, and proper storage, handling and disposal practices. Administration errors contribute to more errors than prescribing, dispensing and transcribing errors combined. Psychiatric settings, such as Mount Carmel Hospital (MCH), present added obstacles to smooth medication administration. The aims of this project are to propose improvements to increase efficiency and quality assurance levels of medication administration systems at MCH.

Methods: Three wards were selected for the direct observational study and the necessary approval was granted. A baseline of preparation and administration processes were formulated into data collection sheets. 385 preparations and 350 administrations were observed. A previously published questionnaire was adapted and disseminated to nurses on the three wards to establish the effect of being observed and their opinions regarding medication administration.

Results: The One-Way ANOVA Test compared the mean observed actions between the 44 statements on the checklist and it was accepted that the variation was significant as the p-value obtained was less than the 0.05 criterion. The results of the questionnaires, N=42, with a 47.6%response rate, n=20, indicated that the main hindrances to the process are interruptions, n=20, understaffing, n=19, and stress, n=18.

Conclusion: Nurses rely on identification of patients based on familiarity rather than the proposed minimum of two patient identifiers such as photo identification and wrist-bands. Nurses tend to deviate from the Guidelines mainly due to understaffing, with a possible way of decreasing the burden being task delegation.

P9.19
Veterinary medicine: a guidebook for pharmacists and pet owners

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Introduction: A study to analyse the daily transactions of prescription and Over-The-Counter (OTC) medicines dispensed from veterinary pharmacies was conducted. A booklet on common animal diseases for pets was compiled.

Methods: The method consisted of the taking of a random stratified sample (n=264, 100%) from veterinary pharmacies (n=6) over a week (6 days). It comprised primarily the identification of the general classes of medicines most commonly used by veterinary practitioners and apothecaries for the most common ailments attributed to pets.

Results: The sample collected was found to comprise the following: anthelmintics (6.8%), insecticides (9.1%), antibiotics (33%), antifungals (1.1%), antiprotozoals (9.1%), topical agents (15.1%), minerals and vitamins (11.4%) and others (13.6%). For each class which were mostly used, minerals and vitamins (74%) use was predominantly in avians, followed by insecticides (69%) and other medicinal classes (63%) in canines. Topical agents (52%) and anthelmintics (53%) use in canines was almost equal. The use of antifungals (40%) was the same for both canines and felines. Antiprotozoals (100%) were solely used for avians.

Conclusion: The booklet on common animal diseases is available online on the Department of Pharmacy University website. The data presented with regards to medicine use in pets doesn't include medicines acquired from community pharmacies and is restricted to data obtained from veterinary pharmacies.

P9.20
Over-use of carbapenem antibiotics at Mater Dei Hospital: are we killing the goose that lays the golden egg?

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Introduction: Carbapenems are invaluable last resort antibiotics in sepsis due to their spectrum of activity and safety profile. However overuse and abuse risks the development of Carbapenem Resistant Enterobacteriacae (CRE), which can cause practically untreatable infections. After a significant reduction in 2011, carbapenem consumption in Mater Dei Hospital (MDH) has more than doubled between 2012 and 2014.

Methods: We prospectively reviewed 2122 requests for meropenem or imipenem between August 2011 and December 2014. In each case, patient notes were reviewed for documentation of sepsis (the primary indication for carbapenems), including episodes of pyrexia. Laboratory data was examined to see if blood cultures were taken and if the white blood cell count (WCC) was outside normal limits.

Results: Annual requests increased from 295 in 2012 to 652 in 2014; primarily from medical (47%) and surgical (36%) firms. In more than 70% of prescriptions in 2014, no documentation validating carbapenem use was found in the notes. 56% of surgical and 45% of medical patients did not even have a pyrexial episode; 55% did not have an abnormal WCC whereas blood cultures were not taken in 34% of cases, despite "sepsis" being the justification for empiric requests. Antibiotic Team input was only sought in 25% of prescriptions.

Conclusion: The results suggest that a significant proportion of carbapenem prescriptions at MDH are unjustified and this crucial class of antibiotics is being overused, if not abused. It is also likely that the hyper-endemicity of CRE at MDH is being driven by these unsustainable antibiotic practices, which require urgent rectification.

P9.21

Analysis of the use of gentamicin in a teaching general hospital

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Introduction: Gentamicin, an aminoglycoside antibiotic used in prophylaxis and treatment of gram negative infections, is potentially ototoxic and nephrotoxic, hence the importance of weighing the risks and benefits before use and identifying inappropriate prescription and monitoring. The aim of this study is to analyse the use of gentamicin at a teaching general hospital and determine whether guidelines are being followed.

Methods: Data were collected on the indications, use, documentation and monitoring of gentamicin prescription in 13 medical and 4 surgical wards over an eleven day period. The results were compared with national NHS guidelines.

Results: Out of a total of 812 patients, 74.8% were medical (MP) and 25.2% surgical patients (SP). 19% of SP were prescribed gentamicin compared to 8% of MP. The main indications for gentamicin use in MP (93.3%) was the treatment of sepsis, mainly urosepsis and cellulitis. In contrast, 60.5% of SP had gentamicin to treat intra-abdominal sepsis, whilst in 39.5% of SP gentamicin was used as prophylaxis prior to gastrointestinal surgery. Creatinine level, prescription and administration record were documented appropriately in 89% of the patients as per protocol. However, the monitoring record was only correct in 63%.

Conclusion: Whereas the use of gentamicin as a therapeutic and prophylactic antibiotic is appropriate, there are deficiencies in prescription, administration and monitoring documentation. Given the narrow therapeutic index of gentamicin, accurate adherence to the guidelines is vital. Education of doctors on these guidelines and possible changing of the hospital systems regarding prescribing and monitoring may be required.

P10.01

Outcomes of surgically treated non-functioning pituitary adenomas

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Introduction: The sequelae of surgically treated non-functioning pituitary adenomas (NFPA) is an important area of study to help plan management. The aim was to study all Maltese patients who had a surgically treated NFPA and analyse the results of surgery, risk factors for tumour recurrence/regrowth and the role of postoperative radiotherapy.

Methods: 175 patients were identified as having a NFPA of whom 77 had underwent pituitary surgery. Detailed analysis of these patients was done including their demographic details, surgical details, post-surgical management, regrowth and recurrence patterns.

Results: 63.6% of patients presented with visual field defects, 40.3% had headaches at presentation and 87.0% had chiasmal compression by their NFPA. Residual tumour postoperatively was evident in 67.5% of patients while 29.9% of patients had immediate postoperative radiotherapy. Recurrence /regrowth was documented in 18.2% of patients within a median time of 3.2 (IQR: 1.6-5.6) years. Factors that were found to be statistically significantly associated with a higher rate of regrowth were the presence of residual tumour (p=0.036), presence of cavernous sinus invasion (p=0.034) and the lack of postoperative radiotherapy (p=0.004).

Conclusion: By studying this cohort of patients we were able to characterise better the outcomes of NFPA management and outline risk factors which can effect prognosis.

P10.02

Thyroid disease in Malta - observations from a local thyroid clinic

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Introduction: Patients suffering from thyroid dysfunction were reported to make up 30-40% of patients seen in endocrine clinics. We sought to (i) investigate the relative proportions of thyroid disease presenting at an endocrine clinic at Mater Dei Hospital, Malta; (ii) characterise patients belonging to each thyroid disease category.

Methods: 269 patients suffering from thyroid disease were reviewed between May 2014 and May 2015. An initial retrospective analysis of case notes and investigations pertaining to 54 such patients was carried out. Further data analysis is ongoing.

Results: Data was accrued from 39 females (mean [SD] age = 47.4 [15.0] years) and 15 males (mean [SD] age = 54.5 [21.0] years). The most common pathologies diagnosed were Graves' disease (35%), primary hypothyroidism (26%; autoimmune hypothyroidism comprised 15% of all patients) and amiodarone induced thyroid dysfunction (6%). 24% of patients were pregnant at presentation. Dysthyroid eye disease was present in 42% of patients suffering from Graves' disease, and occurred exclusively among female patients. 19% were overtly hypothyroid while 30% were overtly hyperthyroid at presentation. 6% had evidence of subclinical hypothyroidism and an equal proportion exhibited subclinical hyperthyroidism. 74% of patients underwent an ultrasound of the neck; 19% requiring further invasive testing via fine-needle aspiration biopsy. 4% of patients were referred for thyroid surgery and an additional 4% proceeded to radioactive iodine therapy. Further data analysis is ongoing.

Conclusion: Preliminary data suggests that thyroid disease is common in the Maltese population. Larger scale observational studies are warranted in this field.

P10.03

Presentation, management and follow-up of patients with Graves' disease

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Introduction: Aim of this study was to analyse the management of patients presenting with Graves' disease identifying challenges and complications.

Methods: Case notes of patients who had a positive TSH receptor antibody result between 2010 and 2012 were reviewed. Data collected included presenting symptoms, reason for modality of treatment chosen, side effects, time to euthyroidism, duration of treatment and frequency of medical follow-up. Findings were compared to the American Thyroid Association/ American Association of Clinical Endocrinologists Hyperthyroidism Management Guidelines.

Results: 172 patients were identified and their case notes analysed, 82 of whom had all the requested data available and were thus chosen for further analysis. The most common symptoms reported were weight loss (62%), palpitations (61%), tremor (54%), anxiety (49%) and increased stool frequency (43%). 12 patients were documented to have Graves' Ophthalmopathy. Mean age at presentation was 44.3±15.0 years. The median time from initiation of treatment to resolution of hyperthyroidism was found to be 4 months (IQR 3-7). 94% of patients who were prescribed anti-thyroid drugs were started on Carbimazole, with 15% having documented side-effects to the drug. The mean duration of treatment was 18.6 ± 7.9 months. 5% of patients were referred for radioiodine while 11% of patients were referred for surgery. The median number of follow-up visits per year was

4. 11% of patients were documented to have had relapses of Graves' disease. Treatment of Graves' disease was complicated by hypothyroidism most commonly at 6 months (34%).

Conclusion: Our findings emphasize the need for close follow up of these patients.

P10.04
Audit on the management of hyperthyroidism

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Introduction: The aim of the study was to compare the management of patients with hyperthyroidism attending the Diabetes and Endocrine Centre at Mater Dei Hospital with the following guidelines: 'Hyperthyroidism and other causes of thyrotoxicosis: management guidelines of the American thyroid association and American association of clinical endocrinologists', published in 2011.

Methods: Patients who had a TSH receptor antibody requested between February 2010 and October 2011 were recruited. The management of these patients was analysed.

Results: 66 patients had a TSH receptor antibody requested. Only 21 patients had biochemical hyperthyroidism: 8 had positive TSH receptor antibody (Graves' disease) and 13 had negative TSH receptor antibody. Hyperthyroid antibody positive patients were all started on Carbimazole. Duration of treatment ranged from 6 to 29 months. 1 patient relapsed and was referred for surgery. Of the hyperthyroid TSH receptor negative patients, 2 patients had ultrasound findings suggestive of thyroiditis and required no treatment. 6 patients had normal thyroid on ultrasound. All the latter patients were started on Carbimazole. None relapsed till end of audit (March 2013). 4 patients had multinodular goitre on ultrasound and these were also started on Carbminazole.

Conclusion: 90% of patients in this audit were started on Carbimazole as the first-line treatment, irrespective of TSH-receptor antibody result or ultrasonographic findings. Recent guidelines suggest that for Graves' disease all three modalities of treatment, namely radioactive iodine, anti-thyroid drugs and surgery, can be considered as first-line treatment options. Patients with toxic multinodular goitre should be referred for radioactive iodine or surgery in the first instance.

P10.05
Isolated hypogonadotropic hypogonadism – a review in a Maltese cohort

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Introduction: Isolated hypogonadotropic hypogonadism (IHH) is a rare genetic disorder of isolated GnRH deficiency, characterised by varying degrees of disruption in sexual maturation. When associated with anosmia, it is termed Kallmann's Syndrome. The purpose of this study was to evaluate clinical data in a cohort of IHH patients.

Methods: Medical records of 18 IHH patients, attending a specialised endocrine clinic at Mater Dei Hospital were assessed retrospectively. Data collected included: clinical phenotype, congenital anomalies, co-morbid conditions, bone density status, family phenotype, treatment options, treatment response and long-term outcomes of sexual function.

Results: Of 18 IHH patients included in this study (13 males, 5 females), 5 patients had Kallmann's Syndrome. 7 patients exhibited spontaneous complete puberty, 4 patients gave a history of partial pubertal progression, whilst 7 patients did not exhibit spontaneous pubertal maturation. Of the total cohort, 2 patients were recorded to have cleft lip/palate, 1 bifid uvula, 1 tooth agenesis, 1 mental retardation, 1 heart defect, 1 renal agenesis, 3 growth retardation and 1 syndactyly. Of 11 patients who underwent dexa scanning, 6 were noted to be osteoporotic, 2 osteopenic and 2 had a normal bone mineral density. Of 13 males, 12/13 were treated with androgen replacement therapy. 5/5 of females were treated with oestrogen replacement therapy. 4/13 males required gonadotropin combination therapy.

Conclusion: This study helped us better characterise our local IHH patients. Over all, there was great variability of recorded events in patients' notes. This data will help us in streamlining management and follow up of these patients.

P10.06
Hypercalcaemia audit

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Introduction: Hypercalcaemia is an acute medical emergency which requires prompt diagnosis and management. The aim of this audit was to assess the acute management of patients admitted to Mater Dei Hospital (MDH) with hypercalcaemia and compare this with standard management of acute hypercalcaemia.

Methods: All patients admitted under medical firms to MDH with hypercalcaemia (corrected calcium >2.65mmol/l) during a three-month period (January to March 2013) were recruited. The acute management was compared to guidelines issued by the Society for Endocrinology in 2013. Exclusion criteria included patients with chronic kidney disease and patients who were hypocalcaemic on calcium supplements.

Results: 318 patients were identified as having hypercalcaemia during the study period but only 64 patients fulfilled the study criteria. Out of these, 59% were females. 78% were symptomatic and 23% had ongoing or past history of malignancy. Corrected calcium level ranged from 3.05mmol/l to 4.78mmol/l. All patients received normal saline and the average fluid given was between 3 and 4l/day. 53% of patients received pamidronate, 25% received zolendronate and 0.08% received steroid therapy during admission.

Conclusion: Notwithstanding the underlying cause of hypercalcaemia, the clinical features are similar. With corrected serum calcium <3.0mmol/l, significant related symptoms are unlikely. Management of acute hypercalcaemia should focus on replenishing fluid losses, so intravenous fluids constitute the most important initial treatment. All patients with cancer-associated hypercalcaemia should receive treatment with bisphosphonates since the 'first line' therapy with rehydration cannot be continued indefinitely nor is it without risk.

P10.07
Audit on management of hypoglycemia

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Introduction: This audit assesses the presenting symptoms and signs, causes and management of hypoglycemia as well as follow-up and how this fares with our local guideline.

Methods: All patients admitted with a diagnosis of hypoglycemia through casualty were recruited over a 6-month period. Demographic data as well as data pertaining to management, treatment and follow up of hypoglycemia was captured using a predefined proforma after reviewing each patient's case notes.

Results: 92 patients were recruited of whom 52.2% were female. 92.4% (n=85) were diabetic of whom 94.1% (n=80) were type 2 and 5.9% (n=5) were type 1. 7.6% (n=7) were not diabetic. Commonest presenting symptoms were confusion (38%) and drowsiness (39%). Most common cause for hypoglycemia was renal impairment (40%) with OHA/insulin excess and lack of calories a close second and third (31.8 **% and 22.4% respectively). In non-diabetics the commonest cause was renal failure (28.6%). Commonest reason for admission was profound hypoglycemia (42.9%). With**

respect to treatment, of the 58.2% patients who were conscious, 39.6% were given a sugary drink, 35.8% a snack, 9.4% were given glucagon, intravenous dextrose was used in 62.3% of whom 66.67% were given a bolus and 60% were given dextrose infusion. In the unconscious patients 48.7% were given glucagon and 47.2% were given dextrose either as a bolus or infusion. 35% were reviewed by a diabetologist during their admission but only 11% were seen by the specialist nurse.

Conclusion: Doctors need to be made more aware of the hypoglycemia guidelines.

P10.08
Audit on the management of diabetic ketoacidosis (DKA) in adults

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Introduction: DKA is a complex disordered metabolic state characterised by hyperglycaemia, acidosis and ketonaemia that requires emergency treatment with insulin and intravenous fluids. It is associated with increased morbidity and mortality.

Methods: All patients admitted to Mater Dei Hospital (MDH) between March 2013 and December 2013, fulfilling the biochemical triad of DKA: 1) blood glucose > 11.0mmol/L or known to have diabetes mellitus, 2) metabolic acidosis with bicarbonate < 15.0mmol/L and/or venous pH < 7.3 and 3) significant ketonuria > 2+ on standard urine sticks, were included in the study. 49 patients were identified and their in-hospital management of DKA was analysed in detail. Management was compared to the current DKA guidelines available at MDH and to recently published UK guidelines.

Conclusion: Resolution of DKA in a shorter period of time has been associated with less morbidity and mortality. Therefore the results of this audit might point towards the need to modify our current local guidelines. One area could be the introduction of blood ketone meters, which offer a more efficient way to measure ketones, thus aiding in shortening the time patients spend in DKA.

P10.09
Assessing diabetes knowledge among the Maltese diabetic population

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Introduction: Diabetes mellitus is a worldwide growing epidemic with its prevalence and associated comorbidities increasing every year. Educational interventions are therefore crucial to ensure good management. A local study in 2007 found that diabetic patients in Malta lacked proper knowledge about their condition. The aim of this study is to asses whether there has been improvement in patient education since 2007.

Methods: A validated questionnaire was distributed to 130 patients visiting Mater Dei Outpatient Diabetic Clinic. Volunteers were given the option to fill the questionnaire by themselves or with the aid of a member of the study group.

Results: 40.6% of respondents were unsure what type of diabetes they had, though most knew about the effects of drug therapy, glucose in urine and stress. Furthermore, most patients recognized the risk of common comorbidities. 18% failed to answer correctly questions about symptoms of hypoglycaemia. 97.7% knew the importance of sugary drinks to treat acute symptoms of hypoglycaemia but 83% also considered chocolate a good alternative. 97% of respondents knew about the importance of exercise and its effect on blood glucose, although most did not know how much daily exercise was required.

Conclusion: Most volunteers knew about diabetes, its effect on other comorbidities and how to control it via medications and exercise. They were also quite knowledgeable on symptoms and treatment of hypoglycemia. Nonetheless, most patients lacked knowledge on the health value of food and the effect of alcohol, the effects of alcohol consumption and the optimal glucose levels.

P10.10
SMS prompting to exercise in type 1 diabetics

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Introduction: Telecommunication technology has a fundamental role in modern medicine. Malta has a high prevalence of type 1 diabetes. Exercise has been proven to improve glycaemic control. The aim of this study was to assess the impact of motivational SMSs on exercise amongst diabetics.

Methods: A randomised controlled trial was conducted. Eligibility criteria included type 1 diabetes, owning a smartphone, no regular exercise and age between 20 and 40 years. All participants were asked to walk for an hour or jog for 30 minutes 3 times a week. Exercise compliance was monitored with a smart phone application that recorded distance, time and calories burnt per session. Online tutorials and a help line were provided. The study group received weekly motivational SMSs for 2 months while the control group did not.

Results: 60 patients were recruited from a registry of type 1 diabetics from the diabetic clinic at Mater Dei Hospital and randomly assigned to the study or control group. Only 4 of 30 in the study group returned data and followed the exercise regime. No data was received from the participants in the control group. 25% of the study population was contacted at random to assess the poor response rate. Common reasons included lack of time to exercise and a busy schedule.

Conclusion: Motivational SMS prompting did not result in significantly increased exercise compliance levels in type 1 diabetics. The very poor compliance with the exercise regimen amongst young diabetics requires further study.

P10.11
Outcomes of lower limb open surgical revascularisation for critical ischaemia

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Introduction: Critical ischaemia of the lower limbs is the commonest cause of major lower limb amputation and is associated with low survival rates. The risk of limb loss amongst diabetics is 17 times higher than in non-diabetics. The high prevalence of diabetes mellitus in the Maltese population is the main cause for the very high major amputation rates recorded in Malta. A vascular surgery service was introduced in late 2007. The aim of this study was to determine the outcomes of patients presenting with critical ischaemia undergoing open surgical revascularisation at Mater Dei Hospital.

Methods: All patients presenting with critical ischaemia (rest pain, tissue loss and/or gangrene) to one vascular surgeon over a 7-year period (1/1/2008-31/12/2014) and undergoing open surgical revascularisation were included in the study. Data prospectively recorded in a vascular database including the presentation and indication for intervention, the type of procedures performed and the date of intervention was analysed.

Results: 437 open revascularisation procedures were performed during the study period including 363 infrainguinal bypass, 41 common femoral endarterectomy, 15 aortobifemoral bypass, 9 femorofemoral bypass, 4 axillofemoral bypass and 5 other procedures. 65 (14.9%) of these patients presented with rest pain, 182 (41.6%) with ulceration and 190 (43.5%) with gangrene. Over a mean follow-up period of 40 months, 14 patients required major amputation (3.2%), of which 9 were transtibial and 5 transfemoral.

Conclusion: The limb salvage rates recorded (96.8% at 40 months) compare very favourably with the published literature.

P10.12

Assessment of glycaemic control in diabetic patients undergoing percutaneous coronary intervention

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Introduction: In diabetic patients, hyperglycaemia triggers an inflammatory response involved in the process of atherosclerosis and platelet hyperactivity may lead to increased platelet aggregation and vascular occlusion. The aim was to assess glycaemic control in patients with type 2 diabetes mellitus (DM) who were undergoing percutaneous coronary intervention (PCI).

Methods: After obtaining written informed consent, 23 diabetic patients undergoing PCI were consecutively recruited. Patients were interviewed using a validated data collection form. Glycaemic profile, including glycated haemoglobin (HbA1c) and estimated average glucose (eAG) levels, was assessed considering values up to 12 months prior to PCI.

Results: Of the 23 patients, 17 were male, mean age was 66 years and mean duration of DM diagnosis was 12 years. Out of the 22 patients who had at least one HbA1c level recorded, the level was above the reference range (RR) in 19 patients (mean=8.2%). For the 17 patients who had an eAG level recorded, 11 had a level above the RR (mean=10.2mmol/L). Metformin (MET) was the most commonly prescribed oral hypoglycaemic drug in 19 patients. Most patients (11) were on dual therapy with MET and a sulphonylurea (SU), 10 were on monotherapy with MET or a SU and 2 were prescribed insulin.

Conclusion: Most diabetic patients undergoing PCI had poor glycaemic control. Pharmacist intervention in diabetic patients should focus on ensuring regular blood glucose monitoring, patient follow-up, and driving updates in the hospital formulary to include new anti-diabetic drugs as pharmacotherapeutic options.

P10.13

An audit on lipid management in type 2 diabetes

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Introduction: Lipid lowering agents improve cardiovascular morbidity and mortality. The aim of this audit was to determine whether type 2 diabetic patients suffering from dyslipidaemia at Mater Dei Hospital are managed in concordance with current protocol and the 2014 NICE guideline.

Methods: 50 consecutive type 2 diabetic patients attending follow-up visits were assessed over a 1 month period in 2014.

Results: 29 males and 21 females were analyzed. The mean duration of diabetes was 13.89 +/-10 years. All patients assessed were advised about lifestyle changes. According to NICE guidelines, 46 patients would benefit from statin therapy but 44 patients were given such treatment. 18 patients were started on the correct intensity statin as per NICE recommendation. 16 patients treated with statin achieved target cholesterol reduction of more than 40%. 20 patients did not achieve this target and in 8 patients data was missing. 6 patients achieved target LDL levels of less than 2mmol/l. LDL level pre-treatment was 4 (SD+/- 1.2) mmol/l which decreased to 2.9 (SD+/- 1) mmol/l 1year after statin use. 82% of patients who were prescribed a statin had alanine transaminase (ALT) taken pre-treatment. 70% and 68% of the patients on statins had repeat ALT at 3 and 12 months, respectively.

Conclusion: This audit identifies the need to prescribe the correct intensity statin. Monitoring cholesterol levels is important so as to upgrade statin to a higher intensity if targets are not achieved. ALT levels should be taken in all patients pre-treatment and at 3 and 12 months after starting statins.

P10.14

Assessment of diabetes mellitus in elderly patients

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Introduction: Type 2 diabetes mellitus (T2DM) affects about 23% of adults aged 60 and over. The aim of this audit was to determine the compliance of screening for T2DM complications in elderly patients.

Methods: 94 diabetic patients from 11 wards in Saint Vincent de Paule Residence (SVPR) were identified. iSOFT Clinical Manager was used to establish whether the following investigations were taken in the past year: HbA1c, eGFR, lipid profile and Albumin/Creatinine Ratio (ACR). Retinopathy and foot screening were evaluated from patients' medical notes. The results obtained were compared to the American Diabetes Association/ American Geriatrics Society (ADA/AGS) recommendations.

Results: From a total of 94 patients, 39.3% (n=37) had their HbA1c last taken in 2014. 26.6% of patients (n=25) did not have any HbA1c monitoring since 2008. In 30.9% (n=29), the most recent lipid profile was taken in the past year while in 17% of patients (n=17), there were no lipid profiles taken since 2008. 14 .9% of patients (n=14) had their ACR monitored in the past year whilst in 60.6% of patients (n=57), ACR was not taken since 2008. 16% of patients (n=15) were screened for retinopathy and 71.3% of patients (n=67) were seen by a podiatrist in the past year. 65.9% (n=62) and 26.5% of patients (n=25) did not have any retinopathy and podiatry assessment respectively.

Conclusion: The data demonstrates that optimisation of screening for diabetic complications is necessary. Following this audit, a proforma was developed with checklists on reminders to screen and recommendations for frequency of screening.

P10.15

Adherence to treatment in elderly women with type 2 diabetes mellitus: a prospective study

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Introduction: Literature indicates that only few studies adequately quantify adherence to diabetes medication, including oral hypoglycaemic agents (OHAs), despite the established importance of patient self-management and medication adherence to positive outcomes. This study aimed to develop and pilot an investigative tool to identify adherent non-responders to OHAs from a cohort of Type 2 diabetes mellitus (T2DM) patients registered in the Pharmacy of Your Choice (POYC) scheme in Malta.

Methods: 60 T2DM patients were recruited prospectively by convenience sampling when they visited their pharmacy to refill their prescriptions post positive validation of the tool among 10 patients. Informed consent was obtained, and the tool, in questionnaire format consisting of 9 domains, administered. The domains assessed demography, treating health care professionals, medical history, lifestyle, prescribed pharmacological and non-pharmacological regimens, physical activity, self-management and self-monitoring, adherence and non-adherence to pharmacologic treatment, medication profile and clinical assessment.

Results: 33.33% of patients reported self-monitoring and dietary adherence and 16.67% claimed vigorous exercise three times weekly. This was in contrast to 100% adherence to prescribed OHAs, even though patients were not necessarily aware of what medication they were taking.

Conclusion: This study was valuable in the development of a validated tool that distinguished between patients who adhered to their OHAs and lifestyle recommendations and their counterparts who did not. It showed adherence to be multi-factorial, and that limiting adherence exclusively to pharmacotherapy is not robust if the aim is to evaluate OHA efficacy. Rather, non-pharmacologic adherence must be exhaustively evaluated if adherent non-responders are to be identified and further studied.

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P10.16
Audit on the management of inpatient hyperglycaemia requiring intravenous insulin infusion

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Introduction: Hyperglycaemia is a frequently encountered complication, both at the Accident and Emergency Department and on the wards. This audit was carried out to assess whether inpatients with uncontrolled blood glucose who are prescribed an intravenous insulin infusion manage to achieve adequate control of their blood glucose.

Methods: Data was collected between September 2013 and February 2014. In-patients who were admitted with hyperglycaemia or developed hyperglycaemia during admission and were prescribed an intravenous insulin infusion were included in the audit. Patients prescribed intravenous insulin infusion for diabetic ketoacidosis or pre-operatively were excluded.

Results: 104 patients were included in the audit, with a mean age of 60 years. 53.8% were male, while 78.8% were previously diagnosed with diabetes, with type 2 diabetes predominating, being present in 67.3% of patients. 15 different insulin regimens were identified and 21.7% of patients had their insulin infusion regimen altered in view of persistently elevated blood glucose. The amount of time spent on an insulin infusion ranged from 1.5 to 158 hours. 67.3% of patients were reviewed by a diabetologist during the admission, while 55.8% were given diabetes clinic follow-up. Data on the number of hours in range, above and below the normal range of blood glucose while on the intravenous act-rapid infusion will also be presented.

Conclusion: Guidelines are needed which can aid doctors with intravenous insulin infusion prescription to achieve earlier and better control of blood glucose and thus earlier patient discharge.

P10.17
Follow-up of newly diagnosed diabetic admissions

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Introduction: Malta has the second highest percentage of diabetes mellitus (DM) in the Mediterranean and a significant number of patients remain undiagnosed leading to long term complications. The aim of this audit was to assess the management of patients without previously diagnosed diabetes who are admitted with a random plasma glucose (RPG) of ≥7.8mmol/L.

Methods: This is a retrospective analysis of patients admitted for medical care in 2014. Data was obtained from clinical patient administration system, iSOFT and Electronic Case Summaries. Exclusion criteria include a RPG <7.8mmol/L, history of diabetes, patients already on treatment for diabetes or who are being followed up at diabetes clinic.

Results: A pilot audit of 269 patients was carried out and based on this analysis 6.3% of patients satisfied the inclusion criteria (RPG of ≥7.8mmol/L and not previously known to be diabetic). 17% of patients did not have a RPG taken and were not previously known to be diabetic. Based on the results of this pilot analysis, we will be screening a larger cohort of around 3500 patients. The results of patients fulfilling the inclusion criteria within this larger cohort will be presented.

Conclusion: Studies have shown that early glycaemic control will reduce long-term complication rates. This audit aims to instil more awareness on the importance of early diagnosis and follow-up of DM thus avoiding unforeseeable complications which may occur if the condition is diagnosed at a later stage.

P10.18
Assessing diabetes knowledge amongst a 'high risk' Maltese cohort

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Introduction: Type-2 diabetes mellitus (T2DM) is a global epidemic. The onset of T2DM in high-risk cases may be prevented by increasing the level of education and awareness.

Methods: A 'high-risk' population was selected from an on-going, national, cross-sectional study. This complies with the ADA criteria for identifying impaired fasting glucose (IFG) and implies the requirement for an oral glucose tolerance test (OGTT). The tool of measure used was a validated questionnaire. 54 participants (30 males, 24 females) requiring an OGTT were asked questions about their knowledge of risk factors, complications and management of diabetes. Participants' responses were compared to the correct answers.

Results: The participants were inhabitants from the central region of Malta and were between the ages of 27 and 70 years old. The majority knew all the symptoms and most of the complications of diabetes (78.4% and 64.1% respectively). The participants were mostly unaware of the association of arthritis and birth control pills with T2DM (48.1% and 72.1% accordingly). Additionally, they had the misconception that it is recommended for diabetic women to become pregnant (46.3%). Friends or relatives and the media were the prevailing source of knowledge concerning diabetes (70.4% and 68.5% subsequently).

Conclusion: The media should be utilized as the preeminent portal to further the public's education. The majority of the participants' responses concerning the risk factors and the definition of diabetes were correct. However, some participants' knowledge regarding complications and management was inadequate. Additional studies are needed to further analyse the knowledge amongst the high risk population.

P10.19
Quantifying the level of GRP78 lysine methylation in diabetic patient sera

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Introduction: The biochemical mechanisms involved in Type 2 diabetes mellitus (T2DM) are still poorly understood, and very little is known about the role played by protein methylation in signalling insulin-resistance induced stress. The aim of this study was to investigate if there is any relationship between T2DM progression and the methylation status of the stress protein 78-kDa glucose-regulated protein (GRP78) in serum.

Methods: Blood samples were obtained from 50 consenting male diabetics and 50 non-diabetic male controls. Following albumin depletion, the general methylation profile of diabetic *vs* non-diabetic sera was performed by Western blotting. A custom designed sandwich enzyme-linked immunosorbent assay

(ELISA) was constructed for the quantification of GRP78 lysine methylation. In this set-up the anti-GRP78 antibody was used as bait and the sandwich antibody was against pan methyl-lysine. The colorimetric assay was quantified using a Mithras LB940 microplate reader.

Results: The methylation profile of diabetic sera was indistinguishable from healthy controls using currently available commercial pan-methylation antibodies. The ELISA allowed for the successful quantification of GRP78 but generating a standardised baseline for normalisation and segregation of the sera just by GRP78 methylation status was not possible, mainly due to a number of confounding effects.

Conclusion: While the ELISA design was a success, the statistical power is still low. A stress protein that changes relatively linearly with age (e.g. HSP60) is needed to facilitate normalisation together with the inclusion of an unrelated methylated chaperone (e.g. HSP90) to improve the robustness of signal-to-noise ratio analysis.

P11.01
Is chronic pain associated with worse outcomes after cardiac surgery?

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Introduction: Acute Pain is a significant concern after cardiac surgery, with increased morbidity being associated with poor control. Pre-existing chronic pain (CP) is associated with more challenging post-operative pain control and development of further chronic pain conditions. We sought to assess the impact of integrating specialist pain team input throughout the perioperative period in general cardiac surgical patients.

Methods: Patients with known CP issues undergoing cardiac surgery at a single UK institution, between January and December 2014, were identified. All patients were assessed by the chronic pain team and a plan for postoperative pain management made. Prospectively collected preoperative characteristics, early postoperative outcomes, and survival data were reviewed. Propensity score matching was used to account for differences between the two groups. Student t- test and Pearson's Chi-squared test were used for statistical analyses.

Results: 2073 patients underwent cardiac surgery in the period considered. 72 (3.47%) were being treated for other-cause CP, preoperatively. Propensity-matched pairs were derived for all 72 patients. There were no differences in age (non-CP *vs* CP, 69.4±10.7 *vs* 69.0±9.3years, p=0.83) or logistic euro SCORE (6.55±6.11 *vs* 7.18±7.73 p = 0.59) between matched groups. There was no difference in duration of intubation (17.5±40.9 *vs* 12.6±24.2hrs, p=0.38), blood loss at 12 hours postoperatively (466±543 *vs* 428±408mL, p=0.633), critical care (2.1±3.6 *vs* 1.5±1.5days, p=0.19) or hospital lengths of stay (8.8±4.8 *vs* 8.2±3.5days, p=0.438), hospital and 90-day mortality (3 *vs* 0 deaths, p=0.08).

Conclusion: Patients suffering preoperatively from chronic pain can achieve similar recovery and survival, when managed preoperatively by a dedicated specialist pain team.

P11.02
A study to investigate the effects of radiofrequency to genicular nerves in patients with severe osteoarthritis

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Introduction: Chronic osteoarthrosis of the knees is often not effectively managed with the current pharmacological and non-pharmacological methods. A therapeutic alternative that is carried out in the pain clinic, is radiofrequency to the genicular nerves. We investigated whether this procedure is effective in our local population.

Methods: The study involved 18 patients with severe knee osteoarthritis. Prior to the procedure, the pain score and Oxford knee score were measured for each patient. The procedure was carried out under fluoroscopic guidance. The pain scores, Oxford knee scores and global perceived effect were measured after 6 weeks.

Results: The pain scores showed that 16% of patients had a reduction in pain. The Oxford knee scores showed similar findings pre- and post-procedure. The global perceived effect showed that 66.7% of patients felt the same and 22.2% of patients improved. No patients reported post-procedural adverse events during the follow-up period.

Conclusion: Radiofrequency to the genicular nerves can offer significant pain reduction if the appropriate patients are selected.

P11.03
An audit of mode of anaesthesia preferences in patients undergoing major orthopaedic surgery at Mater Dei Hospital comparing with UK data

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Introduction: Spinal anaesthesia in major orthopaedic surgery is steadily increasing in the U.K. The local rate of spinal anaesthesia in major orthopaedic procedures is not known. This audit aims to determine the frequency of spinal anaesthesia locally and compare with U.K data.

Methods: Data was collected for analysis, from theatre registers and admission records of 273 consecutive patients that underwent Dynamic Hip Screw (DHS) (n=103), Total Hip Replacement (THR) (n=21) and Total Knee Replacement (TKR) (n=149) in 2015.

Results: The mean ages of patients undergoing DHS, THR and TKR were 81.8 years, 67 and 69.1 years with female to male ratios of 1.4, 1.6 and 2.2 respectively. Spinal anaesthesia was used in 32/103 (31.1%), 8/21 (38.1%) and 60/149 (40.3%) of patients undergoing DHS, THR and TKR respectively. There was wide variation in the choice of anaesthesia between anaesthetists with no correlation with age or gender.

Conclusion: The rate of spinal anaesthesia for DHS at MDH (31.1%) is less than that of the national UK average (44%) but is similar to that of the Royal Free Hospital (28%). Spinal anaesthesia is used less frequently for joint replacement surgery at MDH (40.0%) compared to the UK (67%).

P11.04
An audit comparing outcomes of spinal and general anaesthesia for major joint surgery at Mater Dei Hospital

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Introduction: Studies comparing outcomes of spinal and general anaesthesia in major orthopaedic surgery show borderline or no difference in outcomes. The aim of the audit was to compare outcomes for spinal and general anaesthesia for major orthopaedic surgery at MDH.

Methods: Data were collected from orthopaedic theatre registers and admission records on 273 consecutive patients who had total knee replacement (TKR), total hip replacement (THR) and dynamic hip screw (DHS). Outcomes included postoperative length of stay (excluding inpatient rehabilitation) and mortality at 1 month.

Results: The median length of stay for DHS, THR and TKR was 6.5, 3.5 and 3.0 days and 8.0, 4.0 and 3.0 days for spinal and general anaesthesia respectively. There was no significant correlation between anaesthesia type and length of stay in DHS (p=0.059), THR (p=0.176) and TKR (p=0.106). None of the

patients undergoing THR or TKR died at 1 month. Mortality at 1 month for DHS was 4/32 (12.5%) and 7/71 (9.9%) for spinal and general anaesthesia, respectively, whilst no correlation was found between anaesthetic technique and mortality (p=0.463).

Conclusion: No significant difference was observed between spinal and general anaesthesia in length of stay and mortality at 1 month among patients undergoing major orthopaedic surgery. This correlates with international published data.

P11.05
Adherence to the new PONV and pain management guidelines 2014

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Introduction: In 2014 new guidelines were implemented for Post Operative Nausea and Vomiting (PONV) and Pain management at Mater Dei Hospital. These guidelines identify patients at risk for PONV in adults and include the recommended approaches for reducing baseline risks for PONV. The APFEL score performed preoperatively is used to determine the prophylactic measures outlined by the guideline. A pain score (0-10) is used for guiding pain management.

Methods: A list of all the day-care surgeries was obtained everyday from Section C Day Care Unit. The data for pre-operation prophylaxis, peri-operation, Stage 1 and take home medications was obtained from the anaesthetic and prescription sheets. The information for the APFEL Score and Stage 2 recovery PONV and pain were obtained through questioning each patient in Stage 2 recovery.

Results: A very low proportion of patients had correct PONV prophylaxis (32%) which resulted in a few patients developing PONV in both stages (10% and 7%). In Stage 1 a high proportion of patients had their moderate pain treated (91%) but few had it according to guidelines (43%). Only 54% of all patients were prescribed correct take home medication.

Conclusion: This audit showed poor APFEL score taking which reflects incorrect PONV prophylaxis. As a result patients are at a risk of unnecessary discomfort which could be avoided. There is poor assessment of the severity of the operation as well as a lack of consideration of the patients' medical history with regards to the determining the correct type of take home medication. A need to improve score taking is greatly recommended.

P11.06
Acute kidney injury in patients with fracture of the proximal femoral metaphysis at Mater Dei Hospital: a retrospective study

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Introduction: There are several postulated possible causes for an increased risk of acute kidney injury (AKI) in patients with fracture of the proximal femoral metaphysis. This study aims to analyse the incidence of AKI in patients admitted with these types of fractures.

Methods: Patients admitted between January and March 2015 with a fracture of the proximal femoral metaphysis were reviewed retrospectively. Diaphyseal fractures managed with an intramedullary device were excluded. Demographic data, delay to surgery, pre and post-operative creatinine values and 30 day mortality were collected. Patients found to satisfy criteria for AKI according to KDIGO guidelines were noted.

Results: A total of 125 patients were included in the study having a mean age of 80, of which 66.40% were females. A total of 17 patients (13.60%) were found to have sustained AKI. The mean waiting time for operation amongst all patients was of 48 hours however the average duration until operation in patients who suffered an AKI was 60 hours. A 30 day mortality of 24 % was noted in patients sustaining an AKI in contrast to an overall 30 day mortality of 19.20%.

Conclusion: Despite the fact that the incidence of AKI was found to be similar to that found in previous studies further work needs to be done to ensure that all patients undergo operative intervention within the 48 hour time period suggested by current NICE guidelines. Early identification is key especially since renal dysfunction has been linked with an increased likelihood of death and post-operative complications.

P11.07
Post-operative pain relief management audit in in-patients at the main operating theatres at Mater Dei Hospital

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Introduction: Patients undergoing surgery at the main operating theatre (MOT) at Mater Dei Hospital (MDH) are routinely prescribed post-operative pain relief. The aim of this intra-departmental audit was to analyse post-operative pain relief management, including anti-emetic drugs, prescribed by anaesthetists.

Methods: A prospective study involving a random sample of patients undergoing surgery at the MOT at MDH, between the 14th of April and 16th of May 2014 was done. Permission for the study was obtained from the chairman of anaesthesia. The data collected included patient's demographics, regional anaesthesia used, analgesics and anti-emetics prescribed. Data was obtained anonymously from patients' notes in the immediate post-operative period in the recovery area at MOT. Patient below 18 years-of-age and day surgery cases were excluded.

Results: 130 patients were included, 52 females and 78 males, with a mean age of 52.2 years. The age range was 18 to 90 years of age. Regional analgesia was used in 23 patients (17.7%). This included nerve blocks (n=14) and neuraxial blockade (n=9). The commonest analgesic prescribed was intravenous or oral paracetamol 1g 6 hourly (n=103). The main analgesic regimen combination prescribed was intravenous or oral paracetamol 1g 6 hourly and intramuscular pethidine 50-75mg 8 hourly or as required (n=18). Two patients had no pain relief prescribed. The main antiemetic prescribed was intramuscular prochlorperazine 12.5mg 8 hourly or as required (n=63). A total of 50 different analgesic regimen combinations were prescribed.

Conclusion: This study highlights that as yet there is no standardised protocol for prescribing post-operative pain relief medication.

P11.08
Sedation by non-anaesthetists - is safety being compromised?

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Introduction: Sedation is a fundamental aspect of gastrointestinal endoscopy and is associated with high patient satisfaction and procedural quality. Sedation of endoscopic procedures within the gastroenterology department is administered by non-anaesthetic doctors.

Methods: A questionnaire was distributed to gastroenterologists to ascertain their clinical practice, knowledge, and training regarding sedation. The questionnaire was modified from that developed by Fanning. The standard used was the European Curriculum for Sedation Training in Gastrointestinal Endoscopy.

Results: Response rate was 81.8% (n=9), consisting of 5 higher specialist trainees, 2 specialists and 2 consultants. Procedures performed were oesophagogastroduodenoscopy and colonoscopy. The regular sedatives were midazolam and pethidine. Only 66.7% of endoscopists used risk assessment scores to select patients prior to sedation. 88.9% and 100.0% respectively completed a monitoring data form during and after the procedure. An assistant was always present, oxygen was always administered, and resuscitation equipment was always available. 88.8% doctors were competent in basic life support, and 66.6%

in advanced life support. Only 22.2% received formal teaching prior to using sedation; 33.3% were formally examined in its use. Mean score in the pharmacology section testing knowledge of metabolic pathways, duration of action and side effects was 66.3%. All doctors experienced at least one complication, the commonest being hypotension (80%). 33.3% respondents had at some stage contacted the anaesthetic department for assistance.

Conclusion: There is potential for significant morbidity and mortality when administering sedation. Guidelines need to be drawn and adequate training incorporated into postgraduate training programmes to ensure safe sedation practices.

P11.09

Emergency clinic in Raigmore Hospital, Inverness Scotland - can it apply to Mater Dei Hospital?

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Introduction: The Emergency Clinic (EC) is a new service started Oct 2014 in the surgical department in Raigmore Hospital. GPs referring patients for admission are safely deferred to the next morning to be assessed and triaged by the on-call consultant. The helps minimise inpatient stay safely and maximise the use of resources.

Methods: This audit was done in 3 cycles over 8 months. The first cycle was a retrospective study over a 6-month period where-by all patients attending the EC (22 patients) were identified and a new set of admission criteria were devised. The second cycle involved testing the safety of the new criteria over a 2-week period applied to all admitted surgical patients referred by their GPs (61 patients). The third cycle focused on abdominal pain patients (32 patients) who were seen in the 2nd cycle.

Results: Of the patients referred by GPs, a small category presenting with abdominal pain and all systemically stable pilonidal sinus may be referred to the EC. Although the period of study was short, the new criteria set up after the first cycle were found to be safe.

Conclusion: The criteria for referral to the EC require a longer period of study. They can be similarly tested in the emergency department in Mater Dei Hospital for surgical patients referred by their GP to help defer unnecessary overnight admissions.

P11.10

The management of primary spontaneous pneumothorax at Mater Dei Hospital

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Introduction: Spontaneous pneumothorax is a common presenting condition to emergency departments and its management may vary. Guidelines for its management are issued regularly by national and international respiratory and/or emergency medicine bodies.

Methods: All patients admitted with spontaneous pneumothorax to Mater Dei Hospital (MDH) from January 2010 to December 2014 were included in the study. This data was supplied by the hospital Medical Records Department. The relevant data was collected from the patients' case notes. The 2010 British Thoracic Society (BTS) guidelines were used as a reference guideline to obtain criteria for their suggested management.

Results: 112 patients with a mean age of 22 years were admitted with spontaneous pneumothorax. 91 (81.25%) and 21 (9.5%) patients were diagnosed with the first and same side second episode pneumothorax respectively, within the 5 year period of the study. First episode pneumothorax was treated by chest drainage in 60.7% of patients and needle aspiration in 16.9%. Conservative treatment without intervention was the management of choice in 21.4%. Of the patients treated by aspiration, 10.5% required subsequent tube drainage. Following the first pneumothorax episode 44.4% had video assisted thoracoscopic surgery (VATS) bullectomy and pleurectomy. This went up to 55.5% after the 2nd episode. Two (1.8%) patients had recurrence after VATS. The management for pneumothorax at MDH did not follow the 2010 BTS guidelines.

Conclusion: The management of pneumothorax in MDH did not follow the BTS guidelines. Nevertheless the treatment followed is effective and with minimal recurrence rates.

P11.11

Design and manufacture of the Ribridge artificial rib

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Introduction: Rib replacement may be required during chest wall reconstruction performed after chest wall resection for malignancy. Present repair techniques can be prevent movement and affect ventilation. The aim was to design a novel and alternative chest wall reconstruction technique with an artificial rib.

Methods: An artificial rib was designed using three dimensional (3D) modelling with computer-aided design (CAD) and prototyped using computer aided manufacturing (CAM) techniques at the University of Malta. Rapid prototyping machines were used to produce ABS and titanium prototypes. A later prototype was manufactured from titanium using water jet technology. These prototypes were assessed for fit and ease of placement on a plastic human skeleton. A survey of cardiothoracic surgeons at Mater Dei Hospital was performed to measure satisfaction by surgeons using the device.

Results: Tensile testing of the titanium prototype showed that it could withstand over twice the maximum tensile strength that it would be exposed to in the body without any material deformation. Evaluation of user friendliness was accomplished with the use of a questionnaire. The artificial rib was rated as good (4/5) for surface finish and surgical satisfaction and excellent (5/5) for ease of use, fixation properties, flexibility and biomechanical fit.

Conclusion: The design and manufacturing of an artificial rib that mimics normal rib shape and contour should be a significant improvement in patient comfort over the methylmetacralyte sandwich prosthesis currently used in chest wall reconstruction. A United States patent has been applied for the Rib Bridge in March 2015.

P11.12

A preliminary investigation into the use of thermography during cardiac surgery

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Introduction: Thermography is an imaging technique that relies on the use of an infrared camera to measure surface temperatures, allowing variations in temperature to be easily distinguished. This preliminary investigation explored the use of thermography in open-heart surgery, where the heart, and sometimes the brain, are cooled to 4°C.

Methods: A high-resolution infrared camera was used to image cardiac surgical procedures in real-time to assess the use of thermography in this setting. This was combined with normal photography for comparison. Imaging was further processed using software to improve definition of the contrast-range and colouration.

Results: Thermography was useful to assess the location of cardiac vessels and the temperature change upon cardioplegia, delivery - assessing adequacy of delivery and the onset of rewarming of the heart; as an assessment of blood flow in the grafts as warm blood is delivered down grafts; and to assess the adequacy of brain cooling upon deep hypothermic circulatory arrest.

Conclusion: Cardiac thermography is a useful tool for the surgeon during cardiac surgical procedures but is limited in visualising only the anterior aspect of the heart and by the quick equilibration of temperatures within the heart. Thermography adds a further non-invasive method of 'safety-net' monitoring during cardiac surgical procedures.

P11.13
Weekend operating is not associated with adverse outcomes in cardiac surgery

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Introduction: There is on-going concern that procedures performed at weekends are associated with worse outcomes than those undertaken on weekdays. We sought to evaluate the impact of weekend operating at a UK-based specialist cardiac surgical centre, on length of stay of stay and mortality.

Methods: Prospectively-collected data was obtained for all patients who underwent cardiac surgery at our institution between January and December 2013. Student t-test and Pearson's Chi-squared test were used for statistical analyses.

Results: A total of 139 of 1,941 (7.16%) procedures were performed at the weekend. The weekend case mix was similar to that of weekdays in terms of clinical urgency (weekday vs weekend, 71.2 vs 71.9% elective cases, p=0.852). There was no difference in logistic EuroSCORE (9.65±12.07 *vs* 10.79±15.56, p=0.297) between cases undertaken on weekdays and weekends respectively. Length of hospital stay (10.5±7.9 *vs* 9.6±7.3 days, p=0.203), hospital (2.4 *vs* 0.7%, p=0.203), 90-day (4.4 *vs* 2.2%, p=0.200) and one-year (6.9 *vs* 4.3%, p=0.244) mortality was similar in both groups.

Conclusion: This study demonstrates that in our centre, weekend surgical outcomes are equivalent to those of operations performed during the working week.

P11.14
Infected foot ulcers: are local antibiotic guidelines followed?

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Introduction: Infected foot ulcers are the commonest cause for admission to hospital in diabetics. Appropriate treatment is important in reducing morbidity and mortality. The aim of this study was to determine compliance with local antibiotic guidelines in patients admitted with infected foot ulcers to Mater Dei Hospital, Malta.

Methods: All patients admitted with lower limb ulcers over a period in July 2015 were included. Patient demographics, comorbidities, description and severity of infection, and risk status were recorded. The initial antimicrobial regimen on admission as well as any modifications made later were noted. This was compared with local antibiotic guidelines.

Results: 30 patients (19 males (63.3%)) with a mean age of 70.1 years were included. Of these, 9 (39.1%) were on insulin and 14 (60.9%) on oral hypoglycaemics. Wound swabs for culture and sensitivity were taken in 17 patients (56.7%) at admission. Severity of infection was not documented in the case history in any patient. 43.3% (n=13) had non-severe, 53.3% (n=16) severe and 1 patient a life-threatening infection. 90% (n=27) were started on antibiotics but only 7 (23.3%) in accordance with guidelines. Of the 11 patients with severe infection not following guidelines, 5 (45.5%) had their treatment modified later to guidelines.

Conclusion: Compliance with local antibiotic guidelines in patients presenting with infected foot ulcers is poor. Efforts to improve compliance should be implemented in an attempt to reduce morbidity and mortality in this group of patients.

P11.15
Leg wound infection after coronary artery bypass grafting surgery: a prospective study

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Introduction: Leg wound infection is an important cause of morbidity after saphenous vein harvesting for coronary artery bypass grafting (CABG).

Aim: Evaluate and assess the risk factors that may be associated with an increased risk of leg wound infections after CABG.

Methods: A case controlled prospective study was designed and ethical approval granted. All the patients undergoing CABG surgery from October 2014 till May 2015 were studied. The data was gathered from patients and their medical case notes. The parameters studied included age, sex, diabetes, hypertension, BMI, smoking, peripheral vascular disease (PVD), length of stay in hospital and the method of leg closure used. Such patients were seen immediately post-operatively and after 2 weeks. The wound was assessed for signs of infection.

Results: Fifty-three patients with a mean age of 64.6 years were studied. 35% of the females and 12.8% of the males had leg wound infection. The rate of infected wounds in diabetics and non-diabetics was 24.39% and 16% respectively. 24.39% of hypertensives developed infection. The BMI and the presence of PVD was not associated with leg wound infection. Ten patients (18.9%) had leg wound infection. There was an increase of 1.84 days in hospital stay in patients with infection. Skin suture closure had an 8.33% infection rate while clip closure had 27.58%. Above knee and below knee incisions had a leg infection rate of 4.87% and 16.32% respectively.

Conclusion: Females, hypertensives, clip usage and below knee incisions are more likely to get leg wound infection.

P11.16
Varicose vein surgery and hospital stay at Mater Dei Hospital, Malta – an overview

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Introduction: NICE guidelines published in 2013 recommend endothermal or laser venous ablation as first line treatment for patients with superficial venous incompetence. Foam sclerotherapy is second line treatment and open surgery third line. Endothermal ablation was introduced in Malta in February 2015. Prior to that, patients unsuitable for foam sclerotherapy were offered open surgery. The aim of this study was to determine the duration of hospital stay after open venous surgery in patients under care of the vascular surgery firm in Malta.

Methods: All patients undergoing open varicose vein surgery between 2012 and 2013 were analysed. Data collected including date of admission, time of surgery, length of hospital stay, age and medical history and reason for delayed discharge where applicable.

Results: 182 patients were analysed. 51% of patients required overnight stay while 46% were discharged on the same day. No difference was noted between age group, end time of surgery and length of stay. Only one patient aged 50-60 and one aged between 61-70 remained overnight for medical reasons while 5 patients stayed for 2 days for medical reasons.

Conclusion: 93 bed days over a period of 24 months were occupied by patients undergoing venous surgery for no medical reason. Adopting the NICE guidelines and introduction of endothermal venous ablation should lead to a significant reduction in hospital bed use in relation to treatment of venous disease.

P11.17

Pleural pressure theory revisited: hypothesis for capillary equilibrium

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Introduction: Theories elucidating pleural pressures should explain all observations including the equal and opposite recoil of the chest wall and lungs, why the hydrostatic gradient in the pleural space is less than expected and varies at lobar margins, why pleural pressures are negative and how pleural circulation functions.

Methods: Based on Archimedes' paradox, the lung can be considered to be floating within the chest cavity, with the buoyancy force exerted by the lung displacing pleural fluid downwards and sideways, balanced by capillary forces. A hypothesis proposing a passive equilibrium between buoyancy hydrostatic pressure, and capillary pressure is described. Mathematical modelling of capillary surface interaction aimed at calculating pleural pressure was performed, using angle of contact and surface tension values determined by a literature search.

Results: Capillarity explains the equal attraction between the lung and chest wall, their recoil when capillary attraction is disturbed, and the negative value for pleural pressure. Based on a surface tension of 18 dynes/cm and contact angle of 38°, pleural capillary fluid thickness and pleural pressures were determined, and a pleural fluid gradient of 0.89 gram/centimeter^3 was calculated for confluent pleura. In the thick lobar margin, there is normal hydrostatic pressure, with active cardiac pumping.

Conclusion: The hypothesis of elasto-capillary equilibrium satisfies all salient requirements for a model describing pleural pressure. The equilibrium between capillarity and buoyancy hydrostatic pressure depends on control of pleural fluid protein content and a low pleural fluid volume, powered by an active pleural pump limiting pleural volume.

P11.18

The demographics of cancellations in orthopaedic trauma

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Introduction: Theatre cancellations are a frequent cause of much distress to patients. We sought to delineate a population of patients planned for emergent orthopaedic surgery who were more likely to suffer cancellation.

Methods: Data for all patients in a busy trauma and orthopaedic emergency service in Scotland over an eight week period between November 2013 and January 2014 were collected and analysed prospectively. Student t-test and Pearson Chi squared test were used for statistical analyses.

Results: 50 of 247 (20.2%) consecutive patients had their procedure cancelled on at least one occasion. Those whose surgery was cancelled were more likely to be older (69.9±20.2 *vs* 62.9±22.1 years, p=0.043), and have a higher ASA score (p=0.010). Diabetic status (p=0.409), site of injury (p=0.939) and nature of pathology (p=0.303) had no impact. Most cases were cancelled for logistical reasons (n=16; 32%) or medical comorbidity requiring optimisation (n=14, 28%). Patients whose procedure was cancelled had been fasted for 11.4±4.7 hours in anticipation of the procedure.

Conclusion: Same-day cancellation is an ongoing challenge in orthopaedic trauma surgery. Older patients with more significant comorbidities are more likely to be effected. Prediction of patients likely to experience cancellation may allow limitation of unnecessary peri-procedural starvation.

P11.19

An evaluation of the variability and standard error of measurement of the measured gait kinematics when using 3D motion analysis equipment for use in clinical gait analysis

Mark Farrugia

Introduction: While most 3D motion analysis systems can very accurately determine marker position in a properly set up and calibrated space, the actual reliability of the measurements taken depends largely on the accuracy, as well as the consistency of the precise placement of those markers.

Methods: 3D kinematic gait data from five healthy subjects was acquired on two separate occasions using a clinical wand-based anthropometric model marker set by the same clinician. Marker trajectories were acquired while subjects were asked to walk at a self-selected speed in a straight line. Two sources of variability were measured.

1. The inter-trial variability arising from a subject's natural differences in walking between 6 trials per session (with the same markers) from two sessions per subject.
2. The inter-session variability where the largest potential source of errors in clinical gait analysis can arise from marker placement differences.

Results: The inter-trial differences were below 2% except for knee flexion and left foot progression and represent the natural variability of walking in the subjects. The inter-session differences displayed increases with the highest total variability in the transverse (rotational) plane kinematics.

Conclusion: The results illustrate acceptable standard error of measurement (SEM) values that were similar to and sometimes lower than those reported in the literature. It is recommended that the accuracy of gait measurement is known when interpreting patient data, and calculation of the SEM (the minimum clinically meaningful difference) minimises the possibility of inferences that could otherwise be attributed to poor marker placement techniques.

P11.20

An audit on cliff diving injuries and their management since 2010

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Introduction: Cliff diving has become a popular sport amongst young revellers visiting the Maltese Islands during the summer months. In this report we outline the incidence and nature of spinal injuries resulting from this practice in a series of twenty cases since May 2010.

Methods: Hospital records, medical imaging through a local PACS system and admission clerking were used for data collection. A questionnaire used to interview cliff divers on site and fieldwork was carried out to assess Comino's topography and bathymetry in relation to the most popular cliff diving spots.

Results: There were twenty cases of spinal injury resulting from diving off Gozo and Comino's cliffs between May 2010 and August 2014. The age range was 13 to 34 years. The cliff heights ranged from 10 to 28 metres, with Cominotto's East-facing cliff being the most popular site. 25% of admissions were intoxicated with alcohol. Half of all cases required helicopter rescue and mean time to hospital was 41 minutes. Vertebral compression fractures comprised 80% of all spinal injuries. Mean hospital stay was 5 days and rehabilitation period was 40 days. Residual pain was present after one year in 40%.

Conclusion: A lack of awareness amongst throngs of young cliff divers has led to a high incidence of vertebral injuries over the summer months. We the authors wish to raise aware-

ness of this problem and ensure that coastal management policies are set up.

P12.01

Aetiology and investigations of patients undergoing endoscopic retrograde cholangiopancreatography

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Introduction: The aim of this study was to assess the characteristics of those patients who required an Endoscopic Retrograde Cholangiopancreatography (ERCP).

Methods: All ERCPs carried out at Mater Dei Hospital, between 2009 and 2012 were included in this study. Demographic data, laboratory investigations, imaging results and ERCP findings were recorded.

Results: 420 patients underwent a total of 552 ERCPs (average age: 69 SD ±14.79) (216; 51.4% females). The commonest indications for ERCPs were choledocholithiasis (42.4%) and pancreatic cancer (20%). 30.73% were diagnosed with a malignant stricture. Males more commonly underwent an ERCP between 50 and 69 and females between 70 and 89 years. 26.0% patients who presented with painless jaundice had an underlying malignancy. 44.0% of patients who had a benign stricture or choledocholithiasis presented with painful jaundice ($p<0.001$). The sensitivity in detecting CBD obstruction by US, CT, MRCP and ERCP was 77.1%, 84.6%, 73.6% and 91.1% respectively. MRCP was the most sensitive imaging modality in determining the level of obstruction (96.9%). Sensitivity in determining the final diagnosis was as follows: 48.8%, 68.5%, 75.9% and 85.6% for US, CT, MRCP and ERCP respectively. Alkaline phosphatase ($p<0.001$), alanine amino transferase ($p<0.014$) and bilirubin ($p<0.001$) were highest in patients with underlying malignancies. Patients with choledocholithiasis had the highest CRP values recorded ($p<0.021$).

Conclusion: MRCP is more sensitive than CT in determining the underlying cause of obstructive jaundice before ERCP. High alkaline phosphatase, alanine amino transferase and bilirubin indicate a higher likelihood of an underlying malignant stricture. A high CRP suggests underlying choledocholithiasis.

P12.02

Complications arising after endoscopic retrograde cholangiopancreatograpy plastic stent insertion

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Introduction: Biliary stenting is performed to relieve biliary obstruction. Patients with cholelithiasis and benign strictures usually undergo elective stent change at 3-4 months. Patients stented for malignancy undergo re-stenting after onset of complications. Biliary sepsis was defined as: fever, right upper quadrant pain and jaundice requiring intravenous antibiotics and hospitalization. Stent failure was defined as recurrent obstructive jaundice with biliary hypertension confirmed on CT scan or MRCP but without signs of sepsis.

Methods: All patients who underwent an ERCP between 2009 and 2012 at Mater Dei Hospital were included in this study. Patients were then followed up until 2013 to determine complication rates.

Results: 552 ERCPs were carried out in 420 patients. 22.9% underwent an ERCP more than once. Of these 41.4% had a stent inserted, and another 11.4% underwent a change of stent. 50.7% underwent stent insertion due to a malignant stricture. 24 of these patients underwent a change of stent. Stents were inserted in 12.0% with underlying benign strictures. 37.3% had a stent inserted due to incomplete CBD stone clearance. On follow-up 21.2% required hospitalization after stent insertion due to biliary sepsis or stent failure. The average time span till re-admission was 232 days. Complications were most common beyond 6 months and similar in all 3 groups.

Conclusion: Leaving a plastic stent for 6 months appears to be safe and does not seem to result in a disproportionate increase in the rate of biliary sepsis or stent failure.

P12.03

Endoscopic retrograde cholangiopancreatography-related complications: an observational study

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Introduction: This is a retrospective, observational study that characterizes a series of Endoscopic Retrograde Cholangiopancreatographies (ERCPs) and outlines the incidence and predictors of complications.

Methods: All patients who underwent an ERCP between 2009 and 2012 at Mater Dei Hospital were included. Demographic data, underlying causes, details of ERCP procedures and complications were recorded.

Results: 552 ERCPs were carried out with 33 complications (5.98%), none of which were fatal. The most common cause was post-ERCP pancreatitis (PPP) (3.99%). Other complications included hepatic abscess (0.362%), cardiopulmonary complications (0.543%), bleeding from sphincterotomy (0.543%), a stone crusher being stuck in the common bile duct (CBD) and perforation of the small bowel each occurring in 1 patient (0.181%). There were more complications in patients 70 years or older (7.84%), in females (6.92%) and in those with underlying choledocholithiasis (8.50%). Complication rate was 3.60%, 5.70% and 5.60% ($p<0.374$) in those with malignant strictures, benign strictures and those with a dilated CBD without any cause at ERCP respectively. 46.6% had a transient amylase rise. This was significant in only 8.56% who developed PPP. All were managed conservatively. The average length of hospital stay in PPP was 7 days. PPP was more likely if there was pancreatic duct cannulation and a precut or a sphincterotomy was performed. Rate of PPP was much lower if patients underwent both precut and sphincterotomy (1.9%; $p<0.182$). None of the patients who underwent balloon dilatation due to an underlying stricture suffered from PPP ($p<0.0001$).

Conclusion: Pancreatic duct cannulation, a precut or sphincterotomy predispose to PPP.

P12.04

Palindromic rheumatoid arthritis: could it be Whipple's disease?

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Introduction: Whipple's disease is a rare infection of the gastrointestinal tract caused by the actinomycete *Tropheryma whipplei*. It most commonly presents with arthralgia, abdominal pain, diarrhoea and weight loss. Invasion of the bacterium through the gastrointestinal mucosa leads to small intestinal villus blunting and malabsorption. Diagnosis is made by histological examination of small bowel biopsies. We report the case of a 78 year-old gentleman with a 2-year history of flitting joint pains and multiple hospital admissions for varying symptoms. He was treated with antibiotics for a chest infection with improvement only to present again after 1 year with anorexia, fatigue, blackish loose stools and epigastric pain. Microscopic examination of duodenal biopsies showed a stunted villous architecture and expansion of the lamina propria by foamy macrophages. These expressed CD68 and cytoplasmic contents were strongly PAS positive, consistent with a diagnosis of Whipple's disease. He

was started on intravenous ceftriaxone and a prolonged course of oral co-trimoxazole (at least 1 year) with marked clinical improvement.

Conclusion: The previous year's admissions might have also been due to Whipple's disease but since the patient did not have the full course of the appropriate treatment he relapsed. Whipple's disease is a difficult diagnosis to make because of the variety of clinical symptoms and the long time span between the initial unspecific symptoms (the prodromal stage) and the full-blown clinical picture of the illness (the steady-state stage). It may be misdiagnosed with a non-infectious rheumatic illness and is fatal if untreated.

P12.05
Stroke discharge planning and documentation: quality improvement project and two-cycle audit

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Introduction: Discharge letters on the Electronic Case Summary (ECS) system have become invaluable tools both for community follow-up, as well as for physicians at casualty. Incompleteness of such documents greatly impacts on the safe management of patients and a great example of this is in cases of stroke. Latest NICE guidelines (CG162, 2013) highlight the importance of a comprehensive, multidisciplinary team (MDT) approach, good discharge planning and documentation.

Methods: An audit was conducted on a sample of discharge letters (2013-2014) with diagnosis of Stroke (ICD I61-I64) looking at a checklist of information recommended to be documented as per NICE CG162. Subsequently, the Quality Improvement Project was launched to facilitate and standardize the documentation of relevant, NICE- recommended information within discharge letters of patients post-stroke. A one-click template function was integrated into the ECS and subsequently, a second cycle audit (2014-2015) was conducted to identify any change in practice. Circulars were sent every 3 months to remind users of this update.

Results: From the first to the second audit, better documentation was identified in key fields including examination on admission (5% rise), advise given (10% rise) and the functional and medical status on discharge (19% and 5% rise respectively). Documentation on MDT management improved, although there was a reduction in the overall mention of MDT reviews.

Conclusion: More awareness and training is needed for more comprehensive documentation within discharge letters to ensure safe and efficient inter-speciality handover and transfer of care. In-built templates like the one implemented should also be reproduced for other diseases.

P12.06
Outcomes of a community NeuroRehabilitation Unit - a four year review

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Introduction: Outcome analysis of rehabilitation units together with resource assessment indicate possible changes in management and care to provide improved services and subsequently aiming for augmented outcomes. The aim of this review was to conduct a retrospective review of clinical activity within our 14-bed neurorehabilitation unit and to quantify the improvement noted during in-patient rehabilitation of our service-users.

Methods: Retrospective review of outcomes of in-patient rehabilitation of 362 patients who used our services over 48 months (April 2007 to March 2011). The patients were divided into six sub-groups based on diagnosis; Brain Injury & Trauma, Multiple Sclerosis, Neuropathies, Spinal Cord Compression, Stroke, and "Other" diagnoses.

Results: The measures reviewed included; diagnosis type, age (mean: 56 years), length of stay (mean: 41 days), level of disability as assessed through the Barthel Index, and complexity of management as measured through the Rehabilitation Complexity Score. Significant improvement in disability was demonstrated in all groups ($p<0.05$). Improvement in the complexity of management needs was seen to be significant in four of the six sub-groups ($p<0.05$).

Conclusion: The multidisciplinary in-patient rehabilitation provided at our department leads to functional improvement in the majority of our patients with overall improvement in complexity of rehabilitation needs. Despite the limitations of our retrospective data collection, adequate data was obtained to confirm the positive influence our department imparts on our service users. There is a need for a more robust and detailed data collection system. Education and training (for patients, staff and junior doctors), specifically tailored and individualized rehabilitation programs, continued multi-professional collaboration, and community follow-up post-discharge can significantly improve patient outcomes in a broad spectrum of patients undergoing rehabilitation.

P12.07
Safer methotrexate therapy: the importance of a pre-treatment chest X-ray

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Introduction: Methotrexate is one of the most frequently used disease-modifying anti-rheumatic drugs (DMARDs). Despite the established safety profile of low dose weekly methotrexate, patients are still at risk of adverse events including life-threatening pulmonary complications, the commonest being methotrexate-induced pneumonitis. In order to help clinicians detect this pneumonitis as early as possible, the Searles and McKendry diagnostic criteria can be utilized in conjunction with the advice given in the 2008 British Society of Rheumatology guidelines for DMARD therapy. This audit was carried out to assess if patients had a pre-treatment chest X-ray (CXR) within six months prior to starting methotrexate therapy, as mentioned in the above guidelines.

Methods: A retrospective review of sixty consecutive patients who were prescribed methotrexate for rheumatological conditions was done. These patients were started on methotrexate from May 2012 to June 2015 by a consultant rheumatologist at Mater Dei Hospital. Data collected consisted of the date of methotrexate initiation, the condition for which it was prescribed, and whether a CXR was performed within six months prior to starting methotrexate.

Results: Only 40% of patients had a CXR within six months prior to initiating methotrexate therapy.

Conclusion: The risk of methotrexate-induced pneumonitis, although uncommon, should not be overlooked and physicians should adhere to guidelines. Despite exposing the patient to a dose of radiation, the benefits of a pre-treatment CXR outweigh the risks when considering the fatal potential of unrecognized methotrexate-induced pneumonitis.

P12.08
Colonoscopy screening in moderate risk family groups

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Introduction: Colorectal cancer (CRC) is one of the commonest forms of cancer in Malta. The aim of the study is to evaluate the colonoscopy screening patterns for individuals at moderate risk of developing CRC and then compare this pattern to the NICE guidelines for colorectal screening and surveillance.

Methods: Data was collected retrospectively from April-June 2015 using the endoscopy database of a surgical firm. 90 patients screened by colonoscopy due to a family history of CRC in one or more first degree relatives (moderate risk cat-

egory), were sub-categorized into high and low moderate risk categories by means of a telephone interview. Each category was benchmarked to the NICE guidelines using specific parameters including age of colonoscopy, number of first degree relatives and their age of diagnosis, and number of colonoscopies within a 5-year interval.

Results: Full compliance was not observed in any of the risk subcategories. The highest average percentage compliance (75%) was found in the low-moderate risk category. Full compliance was observed in both categories when it came to the screening of patients that had first degree relatives with a history of CRC. Lowest compliance was observed when it came to the number of colonoscopies performed over a 5-year period for both low moderate (33%) and the high moderate risk(20%) groups, with most patients having more colonoscopies than recommended by guidelines.

Conclusion: Colonoscopy screening is more aggressive than recommended due to inaccurate history taking and categorization of patients, unawareness of guidelines, practice of defensive medicine and pressure on clinicians by patients/relatives.

P12.09
Video-EEG long-term monitoring as a new service at Mater Dei Hospital

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Introduction: Video-EEG long-term monitoring (LTM) was introduced into Mater Dei Hospital (MDH) in May 2012. The audit aims to evaluate LTM in terms of diagnostic outcomes and impact on patient management.

Methods: A descriptive analysis was carried out after retrospective review of 30 in-patients who underwent LTM at MDH between May 2012 and May 2014. 31 LTM sessions were performed. Referrals were made by 3 consultant neurologists. LTM and medical records were compared to evaluate whether LTM determined a change in diagnosis and how this affected management outcomes.

Results: Patient ages ranged from 3 months to 73 years (35.5% paediatric cases) (16 male: 15 female studies). The most common indication was for uncontrolled seizures (54.8%), followed by suspected non-epileptic seizures (NES) (29%). The average hospital stay was 2 days for paediatric patients and 5 for adult cases. Major monitoring interruptions were recorded in 5 paediatric and 1 adult case. Comparing pre- with post-LTM diagnosis shows that the investigation changed or identified a new diagnosis in 38.7%, confirmed the diagnosis in 29%, and was inconclusive in 32.3% (inconclusive in 45.5% of paediatric cohort and 25% of adult cohort). LTM led to medication optimization in 38.7% and neuropsychiatry referrals in 22.6%. The remaining were unchanged, not followed up or referred for other tests. None were referred for surgery.

Conclusion: LTM is an important tool which influenced patient management through changes in medication or referrals in 73.3% of cases. Continuous evaluation of the techniques used and resources available is recommended to increase the yield of conclusive LTM studies.

P12.10
Endoscopic ultrasound findings of the extra-hepatic biliary tree in patients with chronic opioid usage

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Introduction: Opioid analgesics may cause sphincter of Oddi spasm, causing upstream biliary dilatation. Anecdotal results suggested that some patients receiving opioids had dilated common bile duct (CBD) on cross-sectional imaging. The aim was to study, using endoscopic ultrasound (EUS), the extra-hepatic biliary tree of patients receiving opioid medications.

Methods: Patients receiving opioids and undergoing EUS for investigation of a dilated extra-hepatic biliary tree seen on cross-sectional imaging (CT or MRI) were prospectively enrolled. Demographic, radiological and endoscopic sonographical data were collected for the period October 2012 and October 2013.

Results: 8 patients (4 males, mean age 55, range 45-75) receiving opioids, namely morphine or methadone, underwent an EUS after cross-sectional imaging, showed a dilated CBD. EUS confirmed CBD dilatation in all patients (mean size 12mm (range 9mm - 22mm)). No obstructing lesions were noted on EUS. The mean CBD diameter on EUS in patients receiving morphine was higher than those receiving methadone (p=0.654). Using equi-analgesic opioid doses for both patient groups, no correlation was noted between CBD size on EUS and opioid daily dose (p=0.684), and CBD size and length of opioid usage (p=0.661).

Conclusion: Albeit a small study, patients with chronic opioid usage had concomitant extra-hepatic biliary dilatation in the absence of an obstructing lesion, which was attributed solely to the effect of opium. Such patients, if found to have normal liver function tests, would not require further investigations. This study failed to show correlation between CBD diameter and the type, dose and duration of opioid usage.

P12.11
Chronic kidney disease referral practices amongst non-nephrology specialists at Mater Dei Hospital

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Introduction: Early referral of chronic kidney disease (CKD) patients to a Nephrology Team (NT) is essential in order to identify those patients most likely to progress and provide them with planned renal replacement therapy.

Methods: We retrospectively investigated referral practices and frequency of performing urine investigations in CKD patients at MDH.

Results: Out of 482 patients recruited; 4.9%, 11.2%, and 15.5% in CKD3A, 3B and 4+5 respectively were referred to a NT upon discharge (CKD3A *vs* CKD4+5, p=0.004). Patients were more likely to be referred if they were younger (OR: 1.04, CI: 1.01 to 1.07, p=0.009), males (OR: 2.10, CI: 1.05 to 4.22, p=0.036), in CKD3B (OR: 2.64, CI: 1.21 to 5.75, p=0.014) and CKD4+5 (OR: 4.35, CI: 1.81 to 10.49, p=0.001) when compared to CKD3A. 27.4% of patients not referred were ≤75 years. Only 25.7%, 42.0% and 47.9% of patients with CKD3A, 3B and 4+5 respectively were followed up with urine investigations after discharge (CKD3A *vs* 3B, p<0.0001). CKD3B (OR: 3.52, CI: 1.39 to 8.90, p=0.008), CKD4+5 (OR: 7.04 CI: 2.12 to 23.42, p=0.001), DM (OR: 4.23, CI: 1.81 to 9.88, p=0.001) and having been referred to a NT (OR: 12.40, CI: 2.92 to 52.66, p=0.001) were independent predictors for patients to have urine investigations.

Conclusion: The highest rate of referral was achieved in males, younger age groups and those who have reached CKD3B or worse. Urine tests remain largely underutilized and only a minority (15.5%) of patients with an eGFR <30mL/min/1.73m^2 were referred to a NT.

P12.12
Peritoneal dialysis peritonitis in Malta

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Introduction: Peritonitis is still one of the most serious

complications of peritoneal dialysis (PD), causing significant morbidity and mortality. This study aimed to analyze the peritonitis rates and microbiology in all prevalent patients between 2013-2014. Changes since the introduction of local guidelines in 2012 were assessed.

Methods: A prospective study analyzing episodes of peritonitis in all patients undergoing PD in Malta between 2013-2014. The International Society for Peritoneal Dialysis Guidelines were used to define peritonitis and standardize rates. Microbiological data was analyzed.

Results: The mean number of patients undergoing PD during 2013 and 2014 was 85.80, 85.25 respectively. The median age was 64.8 years and 60.4 years respectively. There was male predominance. Frequency of diabetes was 42%. Automated PD was used in 55% and 43% respectively. During 2013, 41 patients had PD peritonitis, 36 in 2014. Peritonitis rates were 0.57 and 0.54 episodes for 2013, 2014 respectively. Gram-positive organisms predominated, at 0.40 and 0.26 episodes/patient in 2013 and 2014 respectively, mostly Coagulase-negative *Staphylococcus*. The predominant Gram-negative flora for 2014 were *E.coli* and *Klebsiella* at 0.05 episodes/patient/year; *E.coli* and *Pseudomonas* for 2013, and *Pseudomonas* for 2008-2012 at 0.06 episodes/patient/year. There was one episode of MRSA peritonitis (1.8%) each year, but no infection-related deaths in 2013-2014. Between 2008-2012 MRSA peritonitis rates stood at 4.2%, while the infection-related mortality was 4.4%.

Conclusion: There was an improvement in PD peritonitis and infection-related mortality rates, especially after 2012, coinciding with the introduction of local PD peritonitis management guidelines. Change in flora was also noted with decreases in MRSA, pseudomonal peritonitis.

P12.13
Acute kidney injury after transcatheter aortic valve implantation

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Introduction: Transcatheter aortic valve implantation (TAVI) is an alternative procedure for patients with severe aortic valve stenosis who cannot undergo open heart surgery due to unacceptably high estimated risks. We investigated acute kidney injury (AKI) post-TAVI and analyzed any associated risk factors.

Methods: All patients who had a TAVI at MDH between 2010-2014 were retrospectively studied. AKI was defined using the Acute Kidney Injury Network (AKIN) classification.

Results: A total of 58 patients were included. Median age was 75.1±8.6 years and 69% were males. A total of 22 patients suffered AKI (37.9%) with 16 classified as stage-1 AKI (27.6%), 5 (8.6%) Stage-2 AKI and 1 (1.7%) Stage-3 AKI, requiring 3 sessions of HD before recovery. EuroSCORE II (U=214, p=0.005) and pre-procedure creatinine (U=248, p=0.025) were higher in those suffering an AKI. The length of stay was also longer in those with AKI (U=243, p=0.019). Increasing age (OR: 1.13, 95% CI: 1.00 to 1.28, p=0.049), higher EuroSCORE II (OR: 1.70, 95% CI: 1.15 to 2.51, p=0.007), EF <50% (OR: 10.62, 95% CI: 1.18 to 95.58, p=0.035) and male gender (OR: 8.37, 95% CI: 1.18 to 59.12, p=0.033) were independent predictors of AKI. The actuarial patient survival at the end of follow-up period was 87.9%. The 30 day all-cause mortality was 1.72% (1 patient suffered cardiac arrest during procedure). None of the deaths were renal related.

Conclusion: In our centre, 37.9% of patients undergoing the TAVI developed an AKI. Increasing age, higher EuroSCORE II, EF <50% and male gender were the main independent predictors of AKI.

P12.14
Influenza vaccine uptake rates in the kidney transplant population: a single centre experience

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Introduction: International guidelines, recommend the yearly inactivated influenza vaccine for both chronic kidney disease (CKD) patients and those after transplantation. This retrospective analysis was performed to evaluate the uptake rate of the influenza vaccine in kidney transplant recipients (KTRs) and compare it with CKD, peritoneal dialysis (PD) and haemodialysis (HD) population.

Methods: Data was collected by means of a standardised questionnaire delivered via a personal interview and using the hospital electronic database system.

Results: A total of 93 KTRs, 100 CKD, 84 PD and 100 HD patients were interviewed. KTRs (19.4% *vs* 55%, 69%, 59%, p<0.0001) were significantly less likely to receive the influenza vaccine on an annual basis between 2012 and 2014. Nearly half of the patients (53.8%) considered the vaccine as not recommended and 34.4% were concerned of the possible adverse effects. Indeed 9 patients (9.7%) were erroneously informed by their doctor to avoid the influenza vaccine, something which none of the CKD, PD and HD patients experienced. The majority of KTRs who accepted the vaccine (91.3%) did so to protect oneself. 11.1% of the KTRs, 16.4% CKD, 17.2% PD, 25.4% HD patients who received the vaccine on each consecutive year and 6.7%, 18.2%, 0%, 7.7% (p=NS) of those who never took the vaccine respectively, were admitted to hospital at least once over the three-year period attributed to a respiratory condition.

Conclusion: Only a minority of the KTRs receive the influenza vaccine on an annual basis. We plan to improve practice via education and implementation of established international guidelines.

P12.15
Vasculitis and thrombophilia screening in cryptogenic stroke

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Introduction: Although uncommon ischaemic stroke is a major cause for morbidity in the young. Hypercoagulable states contribute for 5-10% of ischaemic strokes in young patients. We aim to determine the proportion of young ischaemic stroke patients screened for thrombophilia and vasculitis. The secondary prevention of stroke as outlined in the local Department of Neuroscience Stroke Management Common Pathway Guideline states that a thrombophilia screen is indicated for patients less than 55 years.

Methods: Following data protection clearance, we conducted a retrospective survey of discharges from Mater Dei Hospital with a primary diagnosis of stroke/ cerebrovascular accident (CVA) between April and August 2014 incorporating ICD-10 diagnoses I60-I64. We analyzed the percentage of patients who underwent vasculitis and thrombophilia screening and whether the correct components of each screen were assayed.

Results: From 220 incident cases, 17 patients were under 55 years of which 12 had an ischaemic CVA. Vasculitis screen was performed in 44.4% of patients while thrombophilia screen in 33.3%. Most components of each screen were booked however tests for protein C and S activity were most likely to be missed. None of the incident cases had repeat protein C and S testing booked as outpatients.

Conclusion: Data were communicated to the neuroscience audit lead. Doctors will aim to ensure that all required tests have been booked at the first outpatient visit. A tentative re-audit is scheduled for May 2015.

P12.16

Adherence to hepatocellular carcinoma surveillance programme in patients with liver cirrhosis

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Introduction: International guidelines recommend that patients with liver cirrhosis, of any cause, undergo six monthly surveillance abdominal ultrasounds to detect early hepatocellular carcinoma (HCC), which would be amenable to curative treatment. The objective of this study was to evaluate if cirrhotic patients were being screened for HCC as per guidelines.

Methods: Patients diagnosed with liver cirrhosis between 2008 - 2013 at Mater Dei Hospital were enrolled. Adherence to HCC surveillance, using abdominal imaging (ultrasound, CT scan or MRI) and alpha-fetoprotein every 6 months (± 2 months), was retrospectively studied from the time of diagnosis of cirrhosis onwards. Patients diagnosed with cirrhosis and HCC concomitantly or patients with HCC but no cirrhosis were excluded.

Results: 156 patients (72.4% males, mean age 57.6, range 12–70) were enrolled. HCC surveillance guidelines using abdominal imaging were adhered to in 37.8% of cases. 62.2% non-adherence rate included patients lost to follow-up (22.4%), patients followed up at primary care level (10.9%) and patients followed up at secondary care level (both GI and non-GI physicians) (28.9%). Using alpha-fetoprotein, HCC surveillance was performed in 27.5% (lost to follow up - 24.4%, primary care level follow-up - 12.2%, secondary care level follow-up - 35.9%).

Conclusion: HCC surveillance in cirrhotic patients was only performed in one third of cases. Stricter adherence is strongly recommended. Ensuring follow up appointments and referring patients from primary to secondary care would aid better access to abdominal imaging. Patients at secondary care level should be managed by gastroenterologists, as other types of screening, like variceal screening, would be required.

P12.17

Osteoporosis in men

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Introduction: Men account for 20% of the osteoporotic population. The Endocrine Society published guidelines in June 2012 to improve the diagnosis, investigation and treatment of osteoporosis in men. The aim of our project was to study the risk factors for osteoporosis in men, and to review whether the bone mineral density (BMD) measurements performed at Mater Dei Hospital were indicated. The project also aimed to evaluate the investigation and management of osteopaenia and osteoporosis in men.

Methods: The study population encompassed all males who had a BMD measurement at Gynaecology Outpatients during the period September to December 2012. The data was collected from medical notes and iSoft Clinical Manager®.

Results: The study included 116 patients, with a mean age of 56 years. 49.1% (n=57) had their bone mineral density result recorded in the medical notes. Of these, 24.6% (n=14) were osteoporotic at the hip, and 14.0% (n=8) at the spine. 59.5% (n=69) had at least one documented risk factor for osteoporosis and therefore an indication for BMD measurement. From the cohort of patients with osteoporosis or osteopaenia, 40.9% (n=18) had testosterone levels taken, 27.3% (n=12) had Vitamin D levels, and none had 24-hour urinary calcium levels. Of all cases where bisphosphonate therapy was indicated, 55.6% (n=15) were receiving bisphosphonates, of which 46.7% (n=7) had a prior dental exam or consultation.

Conclusion: A significant proportion of male BMDs were requested in patients with no risk factors, though this could be partly due to poor documentation. Investigation of men with low BMDs is suboptimal.

P12.18

Management of status epilepticus in an acute general hospital in Malta

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Introduction: Status epilepticus (SE) is defined as an epileptic seizure lasting longer than five minutes, or more than one seizure within a five-minute period without the person returning to full consciousness between them. The aim of this audit was to assess the acute management of such patients in 2014 and compare to the new national guidelines (2015).

Methods: We included all patients with SE in 2014 as identified through admission to the Intensive therapy Unit (ITU) and Accident and Emergency (A&E). We also made use of the hospital Picture Archiving and Communication System (PACS) and Electronic Case Summary (ECS).

Results: The total number of patients who matched the inclusion criteria amounted to 36, 2 of whom had 2 episodes of SE. 26 were male and 10 female with ages ranging from 16 to 78 years. 21 had a previous history of epilepsy. Other variables analyzed were duration and type of epilepsy, treatment and compliance and a history of SE. The aspects of management that were assessed included duration of SE before first treatment given and treatment sequence. 37% of the status epilepticus terminated spontaneously. 34% of treated individuals required ITU admission. Of the 24 patients who were treated for SE, 92% followed the guidelines regarding treatment sequence.

Conclusion: Management does not yet completely conform with current recommendations and there is room for improvement. It is recommended to re-audit after widespread dissemination of guidelines and education.

P13.01

The acute management of asthma in A&E Department - adherence to guidelines

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Introduction: Asthma has a high prevalence in Malta, approximated to be 10% of the population. Guidelines were set up to lead physicians and nurses in the management of acute asthma as first-liners in Emergency Department (ED).

Methods: Quality of care at ED was assessed by conducting a retrospective case study of the patients who were discharged to the community between December 2014 and April 2015. The relevant discharge notes were analysed and data was logged in Microsoft Excel 2010, based on the local clinical practice guideline of Acute Asthma Management.

Results: Fifty-five patients were found eligible to be included in the study, with equal sex distribution and average age of 38.6 years. The majority complained of dyspnoea (65.5%), followed by 27.5% who complained of having an asthma attack. Whilst that 27% were asked about smoking and 14% about nocturnal symptoms, only 5-7% were asked about previous hospitalization or admission to intensive care with acute asthma attack. During examination, documentation was significantly lacking. 45.5% had documented peak expiratory flow rate, 14% of which were specified whether being measured prior or after nebulized treatment. Upon discharge, 29% of the population were given a follow-up appointment.

Conclusion: The study performed highlights the lack of adherence to local guidelines, probably attributed to the under-

recording of clinical information in the medical notes. However, mismanagement at ED may lead to failure in adequate control of the condition with subsequent consequences. Communication between ED and general practitioners or asthma clinic should be improved to ensure patients have remained stable after discharge.

P13.02
Hand hygiene at Mater Dei Hospital - back to square one?

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Introduction: Hands are the main transmission route for micro-organisms in health care setting. Hand hygiene (HH), using soap or alcohol, is one of the most effective interventions in reducing the burden of health care associated infections and the transmission of antimicrobial resistance.

Methods: Using the WHO assessment tool, four trained students overtly measured HH compliance in selected medical and surgical wards at Mater Dei Hospital by observing compliance with the 5 moments of HH and glove use among doctors, nurses, and other health care providers.

Results: The total number of wards observed was 23 while 1,275 opportunities were observed over the 6-week study period in July/August 2015. The overall HH compliance was 36.8% (95% CI: 34.2-39.5). The compliance of doctors, nurses and other health care providers was found to be 32.2%, 44.6% and 34.8% respectively. There was a significant difference in the compliance between nurses and doctors ($p<0.05$). The HH compliance 'before patient' contact was significantly lower than 'after patient contact' ($p<0.05$); with compliance rates of 22.6% and 48.1% respectively.

Conclusion: Despite all the myriad of interventions - which have even been endorsed internationally - and concurrent availability of soap, paper towels and alcohol rub during the audits, HH compliance within MDH continues to be significantly suboptimal. Indeed there has been a major reduction from reported levels from 2013. There is no doubt that health care professionals at MDH are putting their patients at risk of serious HAI; alternative approaches are needed to address this worrisome situation.

P13.03
Long-term efficacy of omalizumab in severe asthma in Malta

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Introduction: Omalizumab is a recombinant monoclonal anti-IgE antibody used in severe IgE-mediated asthma. Few studies include analysis of long-term efficacy beyond 1 year, and most patients require long-term treatment beyond 1 year. Our aim was to analyse the long-term efficacy of omalizumab in severe IgE-mediated asthma in Malta in patients receiving omalizumab for 3 years.

Methods: All adult patients who were started on omalizumab for severe persistent allergic asthma since 2012 were included in this on-going study. Exacerbations and Asthma Control Test (ACT) scores were documented prior to omalizumab treatment, after 1 year and after 3 years of treatment.

Results: A total of 18 patients were included in this study, 66% males, mean age 5.2 (±9.7) years. The mean IgE level was 413.4 (±409) IU/ml. ACT score improved at 1 year ($p<0.001$) and was maintained at 3 years. Exacerbation rate decreased at 1 year ($p=0.05$) and even further at 3 years ($p=0.004$). Healthcare visits decreased at 1 year and at 3 years ($p=0.05$). Number of systemic corticosteroid courses required decreased at 1 year ($p=0.02$) and at 3 years ($p=0.01$). There was no significant improvement in hospitalisation rate and FEV_1.

Conclusion: Omalizumab in patients with severe asthma leads to improved ACT scores, decreased number of exacerbations, and decreased oral corticosteroid courses. These benefits were noted after 1 year of treatment, and maintained 3 years later. Further evaluation of our cohort will assess treatment efficacy in the longer term.

P13.04
Chemical and microbiological pollutants influencing air quality within Maltese schools

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Introduction: The importance of school indoor air quality (SIAQ) has been recognised since children spend most of their time outside home within the school environment. The aim of the study was to identify indoor air pollutants within local schools and the impact they had on the children's health.

Methods: Five primary state schools were selected randomly throughout the Maltese Islands. Indoor air sampling was carried out within three classrooms in each school together with simultaneous outdoor air sampling. Chemical and microbiological pollutants that are known to have an impact on indoor air quality were investigated.

Results: Indoor formaldehyde, carbon monoxide and particulate matter (PM 2.5; PM 10) levels exceeded WHO **thresholds**. Maximum levels of indoor CO_2 (3212 ppm in Fgura school) were well above WHO thresholds and a negative correlation was seen between indoor CO_2 and ventilation rate ($r=-0.76$ $p<0.001$). PM 2.5 in schools 1 (Qormi) and 5 (Fgura) was contaminated with perchlorate with Fgura school having the higher level. PenAsp microorganisms had the highest mean concentration within local schools followed by the Mycobacterial and Streptomyces species. There was a significant negative correlation between PenAsp and Mycobacterium spp levels in all the participating schools ($r=-0.42$; $p=0.03$). High exposure to indoor chemical and microbiological pollutants was associated with both upper and lower airway disease. Atopy was also significantly associated with deranged indoor physical parameters.

Conclusion: Indoor and outdoor pollutants influence air quality in schools. High exposure to specific pollutants has been associated with an increase in atopy.

Disclosure: Study financed as part of the SINPHONIE Project (DG SANCO).

P13.05
The effects of smoking on asthmatic children - how can we study this in indoor air quality

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Introduction: The RESPIRA study involved standard respiratory questionnaires, environmental monitoring of homes and clinical exam of cases and controls aged between 11 and 14 years.

Aims and Objectives: To compare the different effects of smoking in asthmatic children ($n=65$) and controls ($n=59$) in various phases of their life, and to attempt to identify the presence of smoking related elements in particulate matter (PM2.5) sampled in 45 homes.

Methods: Parents were given questionnaires and a subgroup of homes were chosen to have indoor air sampling of PM2.5 and this was analysed for various elements.

Results: Children with asthmatic symptoms had greater exposure to daily smoking ($n=15/65$) than controls ($n=5/59$) ($p=0.0271$) and in the first year of life ($p=0.00596$). There was no statistical significance for smoking during pregnancy ($p=0.961$), exposure to second hand smoke during pregnancy ($p=0.138$) or

breastfeeding. The relationship of cadmium and thallium levels in PM2.5 was compared to symptoms and the smoking habits. There were marginal differences in cadmium and thallium levels between the asthma (mean 0.439 ng/m3) and control (mean 0.268ng/m3) groups (p=0.254). There was no significant difference in cadmium and thallium levels in homes where there was smoking on a daily basis when compared to smoke-free houses (p=0.254).

Conclusion: Children with asthma had a greater exposure to smoking both in their early years of life and presently. There is no correlation between cadmium and thallium levels in PM2.5 and smoking habits, and therefore there must be other sources for these two elements in PM2.5 in this study.

Disclosure: The RESPIRA Project funded through the Italia-Malta 2007-2013 Social Funds.

P13.06

Prevalence of respiratory symptoms with pets in Maltese homes

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Introduction: The RESPIRA study included standardized respiratory questionnaires and clinical exam of children aged 11-14 years.

Aims: To identify associations between prevalence of respiratory symptoms and pet ownership amongst children aged 11-14 years in Malta.

Methods: 862 questionnaires were distributed to parents and analysed comparing prevalence (univariate) and using a binary logistic regression model.

Results: Children with pets had a higher prevalence of lifetime wheeze (n=175/332; p=0.04), and rhinitis past 12 months (n=153/354; p=0.028) when compared to no pet ownership. Wheeze past 12 months (n=73/434; p=0.086), lifetime rhinitis (n=168/339; p=0.069) showed a similar trend, but failed to reach statistical significance. In a binary logistic model cat ownership, after correcting for gender, age, socio-economic status, indoor exposure to smoking, and bronchitis in the first year of life, showed an odds ratio of 1.55(95% CI 1.06-2.28 p=0.025) for wheeze in the last 12 months. Cat ownership was not a predictor for asthma treatment in 12 months, or a diagnosis of rhinitis. Ownership of any pet, dog or bird failed to show any significant odds ratio wheeze in the last 12 months.

Conclusion: Children with pets had a higher prevalence of respiratory symptoms, however in a multivariate model only cat ownership predicted wheeze in the last 12 months, while ownership of any pet, dog and bird ownership was not.

Disclosure: The RESPIRA Project was funded by the Italia-Malta 2007-2013 European Social Fund.

P13.07

RESPIRA PROJECT: Outdoor PM2.5 Chemical composition in 3 areas with Urban/Rural difference in Prevalence of Respiratory diseases

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Introduction: RESPIRA Study showed living in Malta (urban), Gela (industrial) is a risk for respiratory symptoms compared to rural south Sicily.

Aim: To chemically analyze outdoor PM2.5 in these locations.

Methods: Using FAI pumps at 10l/min and Teflon (Whatman) filters for 48 hours, PM2.5 was collected from Malta (n=54), Gela (n=42) and rural areas (n=42), including schools and homes. The ionic component of ICP extraction was measured at CNR Rome. Aeroqual IQM60 measured PM2.5 levels in Malta. PM2.5 in Sicily was calculated from filter weights.

Results: Outdoor PM2.5 Malta (n=53) Mean 41.1 micro g/m^3, Median 29.7, Q1 13.9, Q3 57.7, p<0.001, Gela (n=34) MN 16 micro g/m^3, MD 15.1, Q1 12.1, Q3 19.1 p<0.01 and Rural (n=35) MN 12.36, MD 11.28, Q1 9.4, Q3 14.2. Chemical analysis showed higher metal levels in Malta and Gela compared to rural. (Malta, Gela, rural, mean and (Median) in ng/m^3) of V 4.0(1.76), 2.3(1.50), 0.6(0.27), Ni 2.18(1.37), 0.98(0.82), 0.47(0.64), Cd 0.32(0.07), 0.11(0.072), 0.05(0.027), Pb 1.39(1.01), 0.91(0.81), 0.39(0.29), Fe 45.0(27.76), 3.5(3.05), 3.5(1.03), Cu 3.49(1.22), 1.44(1.07), 1.09(0.56), Sr 1.21(0.14), 0.18(0.075), 0.5(0.078), Ba 1.08(0.52), 0.36(0.25), 0.04(0.06), Sn 0.1(0.059), 0.053(0.032), 0.04(0.0035), Mn 1.01(0.8), 1.37(1.19), 0.66(0.41). Sulphur 460(209), 741(705) 342(202), and Antimony Sb 0.42(0.18), 0.72(0.85) 0.22(0.19) were higher in Gela. No difference noted for As 0.19(0.13), 0.19(0.19), 0.17(0.17), Rb 0.37(0.18), 0.45(0.37), 0.53(0.33).

Conclusion: Malta with risk for asthma symptoms, had higher PM2.5 level and most heavy metals. Gela with risk for rhinoconjuctivitis had higher level of sulphur content.

Disclosure: RESPIRA Project: 85% EU funded "Italia-Malta"

P13.08

RESPIRA Project: Indoor and Outdoor Airborne Black Carbon using portable meter and GPS in Fgura and Cospicua

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Mater Dei Hospital

Introduction: Fgura, a town in Malta has high prevalence of respiratory symptoms and is traversed by heavy traffic, with the adjacent walled city of Cospicua.

Methods: To map airborne Black Carbon (BC) levels along the streets of Fgura Microaeth® AE51 with a pump working at 150ml/min, was carried by a pedestrian along a 6km/45 minute course, along a busy road in Fgura, and less busy road in adjacent walled town Cospicua, between 4.00-6.00p.m. on 14 days in January and February 2015. Indoor measurement in a house in Fgura close to both roads. GPS, BC in micrograms/m^3 **and GPS measurements were taken every 30s.**

Results: All three traffic outdoor areas had higher BC levels than indoor. (p<0.0001). Outdoor levels showed a wide inter quartile range, and high 90th centile. Levels-Mean, Median, IQR, 90th cent. Indoor Fgura 1322, 1246(1024-1449,1996), Outdoor Fgura main roads 6083, 4032(2122-7584, 12831), Outdoor Fgura side roads 8241,3691(1873-8381, 16887), Cospicua side roads 3683, 2307(1409-4475, 7413). No difference was noted in mean and median levels between main roads and side roads in Fgura. (p=0.59). Outdoor BC in Fgura was higher than adjacent Cospicua. (p<0.001). Difference between the highest and lowest days in all three areas. p<0.001

Conclusion: Outdoor BC in a town with heavy traffic were on average 3-4 times higher than indoor, and twice the adjacent town with peak levels reaching 10 or more times the indoor level.

Disclosure: RESPIRA 85% EU funded - Italia-Malta programme.

P13.09

Decreasing prevalence of wheezing and rhinitis but not eczema in 12- to 15- year-old Maltese children over two decades (ISAAC - Malta)

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Introduction: The prevalence of asthma, rhinitis and eczema has been increasing worldwide, as a result of which, these

allergic conditions became some of the most common conditions of childhood. The International Study of Asthma and Allergies in Childhood (ISAAC) was the largest standardised worldwide epidemiological research programme ever undertaken on allergies in children. The aim of our study was to investigate the current prevalence and severity of childhood allergic conditions in Malta, and analyze time trends by comparing the results with data obtained from previous phases of the ISAAC study in 1995 and 2002, in which Malta participated.

Methods: The same validated standardized ISAAC questionnaire and protocol was used.

Results: Data was obtained from 3263 '12- to 15-year-olds' in 16 randomly sampled secondary schools over 2013 and 2014. The cohort consisted of 46.6% boys and 53.4% girls. Our results indicate a significant decrease in both the cumulative and current prevalence for both wheezing and rhinitis with the prevalence of eczema remaining stable over the last two decades in Maltese school children.

Conclusion: The public health conundrum of over-diagnosis of all these three allergic conditions is however of some concern.

P13.10

Gender differences in the prevalence and severity of wheezing, rhinitis and eczema in 5- to 8- year old and 12- to 15- year old Maltese children (ISAAC - Malta)

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Introduction: The International Study of Asthma and Allergies in Childhood (ISAAC) was the largest standardized worldwide epidemiological research programme ever undertaken on allergies in children. The aim of our study was to investigate the current prevalence and severity of childhood allergic conditions in Malta.

Methods: The validated standardized ISAAC questionnaire and protocol was used.

Results: Data was obtained from 3071 '5- to 8-year-olds' in 45 randomly sampled primary state schools over 2013 and 2014 in which 52.4% were boys while 47.6% were girls; and from 3263 '12- to 15-year-olds' in 16 randomly sampled secondary schools over 2013 and 2014 in which 46.6% were boys and 53.4% were girls. Our results indicate that allergic conditions in 5- to 8- years are more prevalent in boys; while in adolescence the pattern changes, being more prevalent in girls. On the other hand, these allergic conditions tend to be more severe in girls in both age groups.

Conclusion: Hormonal differences or gender-specific differences in environmental exposures may be to blame; but more research in this area is needed.

P13.11

Follow-up of positive Legionella urine antigen tests with respiratory culture specimens in Malta – a retrospective audit

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Department of Medicine

Introduction: Positive Legionella urine antigen tests (UAT) should be followed up by respiratory specimens for culture and sensitivities to guide antibiotic treatment and aid outbreak and source investigation. Given that legionellae require a specific culture medium, legionella needs to be specified in the online request whenever respiratory culture specimens are ordered.

Methods: A retrospective analysis of 127 positive legionella UATs taken between 5/3/2008 and 29/1/2015 in Malta was performed. Using iSoft Clinical Manager software it was determined what proportion of these tests were followed up by respiratory culture specimens and whether legionella was mentioned in the request.

Results: Out of 127 positive legionella UATs, 54 (42.5%) were followed up by a respiratory culture specimen. Of these, 49 (90.7%) consisted of sputum samples only. The rest consisted of pleural fluid, broncho-alveolar lavage and endotracheal secretions. Legionella was not mentioned in any request and was never cultured in any of the respiratory specimens (0%). 23 (42.55%) culture results were reported as no pathogens cultivated. 16 (29.6%) culture results were reported as sample unsuitable. In 15 (27.8%) cases other organisms were cultured.

Conclusion: The British Thoracic Society's guidelines with regards the follow-up of positive legionella UATs by respiratory culture specimens are poorly adhered to in Malta. An increase in awareness is needed and can be aided by dissemination of the audit results. It is recommended that whenever a legionella UAT is positive, the clinician responsible is notified along with a recommendation to submit a respiratory specimen for culture with legionella specified in the request.

P13.12

Re-auditing - Are we following guidelines for oxygen prescription, administration and monitoring?

Kyra Bartolo, Justine Camilleri, Nicholas Delicata, Jonathan Gauci, Darlene Muscat, Stephanie Attard, Anthea Brincat, Peter Fsadni,Karen Cassar

Introduction: Oxygen is a widely used drug, which is essential in the management of hypoxaemia.

Methods: Patients admitted to Mater Dei Hospital during unselected acute medical admissions (excluding cardiology, neurology and haematology admissions) between August and November 2013 were included in the audit. The consultant firms participating in the audit were randomly chosen from the medical subspecialties so as to eliminate selection bias as much as possible. A standard proforma containing demographic data and details on the prescription, administration and monitoring of oxygen use was filled in for each patient.

Results: This audit was performed on 655 patients, of whom 15.7% (n=103) were on oxygen. The majority of these patients (93%) had instructions for oxygen administration, however the oxygen had only been prescribed (written in the drug chart) in 38.8% of cases. A target oxygen saturation was written in 41.7%. Despite oxygen saturation charting being requested in 80.6% of patients, actual charting of saturations was done in 81.6% of patients.

Conclusion: Prescription of oxygen in drug charts is still lacking. Hospital drug charts which have oxygen included by default may help in increasing prescription rates. The medical proforma admission sheet seems to have helped increase awareness for the need of oxygen saturation monitoring.

P13.13

Identifying high risk patients for tuberculosis through a clinical prediction score

Eleanor Borg, Mark Brincat, Michael A. Borg

Introduction: WHO has identified tuberculosis (TB) as the second deadliest infection due to a single infectious agent worldwide, only after HIV/AIDS. In Malta, a TB clinical-prediction score has been proposed to flag high-risk patients and isolate them until laboratory results are reported as negative.

Methods: The study retrospectively studied the medical notes of 53 laboratory-confirmed TB positive and 51 TB negative patients, admitted between January 2010 and March 2013 to Mater Dei Hospital. Presence of signs, symptoms and risk factors normally associated with TB were evaluated, including pulmonary infiltrate on radiological assessment, chronic cough, low grade fever, haemoptysis, unexplained weight loss or having previously lived for at least six months in a country designated by WHO as having high TB prevalence.

Results: Stepwise logistic regression identified significant associations between TB positivity and fever (p<0.01), weight

loss ($p<0.001$) and previously living in a high risk country for six months ($p<0.0001$). Presence of two or more of these factors had a positive predictive value of 76.2% that the subjects had TB with a negative predictive value of 84.1%.

Conclusion: Patients presenting at Mater Dei Hospital with two or more of: history of fever, weight loss, stay of at least six months in a high risk country for TB, should be immediately isolated until three sputum samples have been reported negative. The TB prediction score should be amended in the light of these findings.

P13.14
Antibiotic prescribing practices: Are microbial cultures being submitted prior to antibiotic prescription and are patients' renal function and drug allergies being considered?

Justine Camilleri, Nicholas Delicata, Jonathan Gauci, Darlene Muscat, Stephanie Attard, Kyra Bartolo, Anthea Brincat, Claudia Fsadni, Karen Anne Cassar

Introduction: Antibiotics are some of the most widely used therapeutic drugs worldwide. Important considerations when prescribing antibiotics should include identifying the likely causative pathogen and certain host characteristics. The audit's aim was to verify whether this is being done.

Methods: The audit was conducted on acute medical admissions of seven randomly-chosen firms between August and November 2013 at Mater Dei Hospital. A standard proforma was completed for each patient giving details on: antibiotics prescribed (if any), whether cultures were taken prior to antibiotic prescription and if these reached the laboratory, documentation of drug allergies, dose adjustment according to the patient's renal function, time taken until first dose and type of antibiotic prescribed.

Results: Of the 655 patients included in the audit, 177 (27%) were prescribed antibiotics. Only in 62.1% (n=110) of these were cultures obtained. Out of the 179 cultures taken, 150 samples reached the laboratory. History of drug allergies was documented in 96% (n=170) of cases, of which 1.8% (n=3) were incorrect. 7.34% (n=13) of patients required a dose adjustment but in 23.1% (n=3) this was not done. The mean time from first medical contact to first dose was 4.47 hours (range from 0-18 hours). In 10.2% (n=18) of patients the time of dose given was not documented. The most commonly prescribed antibiotic was co-amoxiclav (39.5%).

Conclusion: Although antibiotic resistance is a well-known problem, the importance of obtaining diagnostic specimens is still being overlooked. However, these results also highlight that doctors are taking into consideration certain patient characteristics prior to prescribing antibiotics.

P13.15
Demographic study of the HIV positive population in Malta

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Department of Medicine

Introduction: The number of newly diagnosed HIV positive patients in Malta has increased over the last 10 years. The aim of the study was to analyse the HIV positive population in Malta.

Methods: A demographic study of HIV positive patients currently attending the Infectious Disease clinic at Mater Dei Hospital.

Results: The total population currently attending our clinic consists of 248 patients, 58% of whom are Maltese. Out of all the patients studied, 77 % are males and 53% are men who have sex with men (MSM). At diagnosis, the majority were asymptomatic and diagnosed through screening tests carried out at the genitourinary and antenatal clinics or through contact tracing. The symptomatic patients presented with one of the following: opportunistic infections, tuberculosis, seroconversion illness, fever, diarrhoea, pneumonia, lymphadenopathy or haematological abnormalities. HIV infection was most commonly transmitted through sexual intercourse, with MSM being the commonest mode of transmission amongst Caucasians. Other less common modes of transmission included transfusion of contaminated blood products, mother-to-child transmission and intravenous drug use. The mean age at diagnosis was 34.9 years and the mean CD4 count at presentation was 352 cells/μL. To date, 89% of the patients are taking anti-retroviral treatment. The most common sexually transmitted disease in the population studied was syphilis.

Conclusion: This study showed that HIV infection in Malta is most prevalent in males and MSM. It was noted that MSM present with higher CD4 counts. The majority of patients are diagnosed at 30-40 years of age and are asymptomatic at diagnosis.

P13.16
Gastroenteritis...Are we putting our foot in it?

Anthea Brincat, Daniel Micallef, Claudia Fsadni

Introduction: Worldwide, gastroenteritis is the second leading cause of morbidity and mortality. The Infectious Diseases Society of America issued guidelines for the management of infectious diarrhoea with main recommendations being early rehydration, thorough clinical and epidemiological evaluation of the illness, selective faecal studies and selective antibiotic therapy. The aim of the audit was to evaluate current local practice so as to assess the need to for local guidelines.

Methods: All clinical notes of patients admitted to Mater Dei Hospital with a working diagnosis of gastroenteritis in October and November 2014 were reviewed.

Results: 96 patients were audited. The mean age was 48.6 years and the average length of stay was 5.7 days. Hydration status was recorded in 23.7% of patients. Travel history, health care contact, consumption of unsafe food and recent antibiotic was documented in less than 30%. Stool samples for culture were sent in 60.8% and a positive growth was detected in 27.1% of these samples. 50% were Salmonella, all of which were sensitive to ciprofloxacin. The other 50% were Campylobacter of which only 25% were sensitive to ciprofloxacin. 52.6% of patients were given antibiotics for an average duration of 7 days. 80.4% of which were given ciprofloxacin.

Conclusion: There is a strong need for local practice guidelines for the management of patients admitted with gastroenteritis. The focus should be on acquiring a thorough yet targeted history including risk factors that can aid identification of the most likely pathogen. Adequate samples, judicious use of antibiotics and awareness of local resistance patterns should be highlighted.

P13.17
Compliance with Carbapenem Resistant Enterobacteriaceae (CRE) infection control precautions at Mater Dei Hospital: a pressing concern

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Introduction: Carbapenem Resistant Enterobacteriaceae (CRE) are a growing concern in Malta. These organisms are often resistant to practically all antibiotics currently available. Therefore, the emphasis must be on effective infection prevention and control (IPC), particularly staff compliance with contact precautions in known CRE cases.

Methods: We studied adherence to IPC protocols in CRE patients within Mater Dei Hospital (MDH). 48 patients, colo-

nized or infected with CRE, were followed up 4 times over a 14-day period. A 10-point survey tool was used to assess adherence to MDH IPC policy, including direct observations of health care workers having contact with these patients.

Results: Facilities for compliance were generally available; alcohol rub, aprons and gloves were present in >95% of observations, but availability of dedicated equipment was only 13%. However only 35% of doctors and nurses donned the proper Personal Protective Equipment (PPE) and then 64% and 58% respectively did not remove them after exiting the room. When PPE was removed, 87% of doctors and 67% of nurses failed to perform proper hand hygiene afterwards. Cleaners were aware and able to explain correctly how the room should be cleaned in 76% of cases.

Conclusion: The findings of the study suggest that, despite adequate facilities and guidance, health care workers at MDH are failing to comply with evidenced based IPC procedures and exposing patients to potential harm from cross infection. These results would explain the recent marked increase in CRE cases and highlights the need for more intensive IPC efforts to correct these practices.

Disclosure: This study received ethical approval from the University Research and Ethics Committee of Malta and Data protection approval from Mater Dei Hospital. This study was carried out under the Infection Control Department of Mater Dei Hospital in conjunction with its staff. The authors claim receiving no funding from outside sources.

P13.18

Community-Acquired Pneumonia – Are we CURBing it appropriately?

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Introduction: The CURB-65 score is a validated tool used in defining severity and prediction of mortality in patients with community-acquired pneumonia. The 6-point score is easy to calculate in all patients presenting to A&E and helps in decision-making regarding the need for hospital admission and the choice of the most appropriate antibiotic. The aim of our audit was to assess if the CURB-65 score was calculated and whether decisions were truly based upon this score and local guidelines.

Methods: All patients admitted to Mater Dei Hospital with a diagnosis of pneumonia, lower respiratory tract infection or chest infection in October 2013 had their notes reviewed. Only patients with community-acquired pneumonia were included in the audit.

Results: 63 patients were admitted with community-acquired pneumonia in October 2013. The average patient age was 68.5 years. While all the data required for calculation of the CURB-65 score was documented in 54.7% of cases, the actual score was only present in 21.9%. The commonest missing parameter was confusion (39.1%), followed by respiratory rate (12.5%). Most patients were treated with co-amoxiclav monotherapy (31.7%), followed by co-amoxiclav and clarithromycin (30.2%) and levofloxacin monotherapy (20.6%). The management followed the local guidelines in only 36.5% of patients. In cases where the treatment was inappropriate, 58.3% were prescribed broader-spectrum agents than recommended by the guideline and CURB-65 score.

Conclusion: The audit shows that the CURB-65 score and the local guidelines for community-acquired pneumonia are grossly underutilized. The use of such tools can significantly prevent unnecessary hospital admissions and inappropriate treatment.

P13.19

Audit on management of acute exacerbation of COPD at Mater Dei Hospital

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Introduction: The aim of this audit was to analyse the assessment and management of patients admitted to Mater Dei Hospital with acute exacerbation of COPD, and to compare this with evidence-based guidelines.

Methods: Data was collected on assessment and management of patients admitted to Mater Dei Hospital with acute COPD exacerbations between January and May 2015.

Results: Preliminary results of one month of admissions with COPD exacerbations show a total of 54 patients (mean age 72±13, 70% males). 35 were current smokers. 92% were previously diagnosed with COPD. Whilst at A&E, nebulised salbutamol was prescribed in 92% of patients, ipratropium bromide in 87%, and systemic corticosteroids in 68%. A CXR was performed in all patients. ABGs, SpO2 and blood cultures were taken in 91%, 100% and 11% respectively. 2 patients required NIV and no patients required intubation. In the admission plan, nebulised salbutamol was prescribed in 100%, nebulised ipratropium bromide in 96%, systemic steroids in 83%, oxygen in 89%, thrombophylaxis in 87%, hydration in 24%. The flow rate of oxygen was not always documented and not always according to recommended concentrations. The inhaler technique was only assessed in 18.5%. The mean hospital stay was 6.4±4 days. Prior to discharge, few patients were referred for pulmonary rehabilitation and advised regarding recommended vaccinations.

Conclusion: Local management of acute COPD exacerbations is lacking in some areas. The implementation of a local guideline could help to optimise management of our patients.

P13.20

An audit on clinical practice guidelines for pneumonia at Saint Vincent de Paule Residence

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Introduction: Clinical practice guidelines (CPG) are designed to support the decision-making processes in patient care. The content of a guideline is based on a systematic review of clinical evidence - the main source for evidence-based care. CPG, based on standardised best practice, have been shown to be capable of supporting improvements in quality and consistency in healthcare. An audit in 2015 was done to see if local guidelines for community-acquired pneumonia is being followed at Saint Vincent de Paule Residence (SVPR). Auditing of antibiotic use and for investigations for severe chest infections was carried out. 60 patients with a chest infection were included in the audit. Mean age was 84.2 years. 42 (70%) had a mild chest infection whilst 18 (30%) had a severe chest infection. Appropriate prescribing was done in 91.7% of cases. As regards investigations, the audit showed that 55.6% had the appropriate blood investigations taken but only 33.3% had a CXR and only 16.7% had blood cultures taken.

Conclusion: This audit showed that doctors at SVPR are following CPG regards antibiotic prescribing for the treatment of pneumonia. On the other hand CPGs for investigations for severe pneumonias were not followed. It is recommended that the importance of following CPG in the investigation of pneumonias be discussed with the doctors at SVPR.

P13.21

The influence of immigration on extrapulmonary tuberculosis in Malta, 1995-2010

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Introduction: In the European Union, one-in-five tuberculosis patients has extrapulmonary tuberculosis (EPTB) and unlike pulmonary TB, this form of the disease does not show a downward trend. Since EPTB can effect virtually all organs, it has a wide range of clinical manifestations, which may cause difficulty and delay in diagnosis. This can cause complications, disabilities and lifelong sequelae. Following the large influx of irregular boat immigration from Africa to Malta since 2002, it was noticed that the number of EPTB cases in Malta was increasing. Thus this study sets out to analyse the EPTB trends in Malta to tailor TB control strategies accordingly.

Methods: Retrospective population study of national TB surveillance data from 1995-2010.

Results: Between 1995-2010, a total of 107 EPTB cases were reported in Malta and the reported incidence of EPTB increased from 0.53/100,000 to 3.11/100,000 person-years ($p<0.001$). The proportion of EPTB cases of total TB cases decreased pre-2002, from 20% in 1995 to 6% in 2001 (χ^2 $p=0.048$) and increased post-2002, from 21% in 2002 to 41% in 2010(χ^2 $p=0.019$). The migrant EPTB rate was 116/100,000 compared to 0.56/100,000 Malta-born rate. (χ^2 $p=0.001$). Post 2002, 58% of EPTB cases were among African migrants.

Conclusion: Between 1995-2010, the rate and proportion of EPTB cases in Malta has increased, mainly due to an increasing proportion of cases in African migrants. Clinicians should have a higher index of suspicion of EPTB in these migrants to avoid diagnostic delays.

P14.01

Physical restraint use at Mater Dei Hospital

Kimberly Caruana, Lara Camilleri, John Cordina

Introduction: According to the most recent local guidelines issued in September 2011, "a physical restraint is an object which lessens the patient's freedom of movement". However, if used adequately, physical restraints are of benefit for a patient's safety. The aim of the audit is to identify the different types of physical restraints used at Mater Dei Hospital and assess whether there is adherence to local guidelines.

Methods: A total of 6 wards were used, including medical, surgical and orthopaedic wards. The number of restrained patients was documented together with patients' demographics, the type of restraint, the reason and duration of restraint. Great importance was given to documentation. Comparison between the use of restraints in the morning and afternoon was also made. The data collected was then compared to local guidelines on use of restraints issued in 2011.

Results: A total of 272 patients were included in the audit, of which 36% were restrained. 60% of people restrained were males and 40% were females. The commonest age group being restrained was that between 81 and 90 years of age. Moreover, there was a greater number of restraint **use** in the afternoon as opposed to morning. The most common type of restraint used **were** bed rails in view of confusion. Only 9% documentation was present.

Conclusion: There is lack of adequate documentation when it comes to using physical restraint at Mater Dei Hospital. We suggest a standard document to be filled in and included in the patients' notes.

P14.02

The lived experience of daughters whose parents currently live in a residential home

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Introduction: Immediate family members are a critical source of support and informal care in late **life,** such family members play an important role in the admission and transition of the ageing into residential homes (RH). Research has shown that, after spouses, daughters of older people are usually those who take up most of the responsibilities of care within the care-receiver's family. This study therefore aimed at exploring the lived experience of daughters whose parents were currently living in a RH.

Methods: A qualitative method using interpretative phenomenological approach was adopted. Data was collected via audio recorded individual semi-structured interviews with six participants who were recruited through purposive sampling from a government residential home.

Results: Results highlight the stressful nature of tending to one's frail relatives. The findings uncovered a variety of elements that influence the subjective quality of the participants' experience with care-giving and residential home placement. A sense of filial obligation and duty to care were found to be central motives for care-giving. Furthermore, spirituality was a common method of coping. Finally, having control with the parents over the decision for admission to residential care, coupled with positive relationships with formal carers and non-familial residents, were found to appreciably enhance the resultant overall experience of RH.

Conclusion: The study emphasises that open communication between informal caregivers and service providers is critical to avoid conflicting views of care and enhance the overall experience for all parties involved by taking their needs and preferences into consideration.

P14.03

A complete audit of blood pressure control in stroke patients in a geriatric hospital in Malta

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Introduction: The National Institute for Health and Care Excellence (NICE) states that blood pressure (BP) control in stroke has the same guidelines as for BP control in high cardiovascular risk patients. The targets for non-diabetic stroke patients are a BP of less than 140/90 mmHg and for diabetic ones a BP of less than 130/80 mmHg. An audit was done in 2009 to show if BP in stroke patients is well controlled. A second cycle was repeated in 2015. The cohort of patients selected were those found in geriatric wards in Malta's geriatric hospital. Patients who had a very recent stroke (less than 2 weeks) were excluded from the audit as elevated BP levels are a common complication of acute stroke and usually normalise a few days to weeks after the event. As well as a BP reading by the doctor, epidemiological data, risk factors and anti-hypertensive medications if any were collected. Results of the both the first and second cycle showed that there is good BP control in this cohort of patients in Malta's geriatric hospital when compared with the guidelines as well as studies done in other countries.

Conclusion: BP is one of the main risk factors in stroke and so it is of paramount importance to have as optimum control as possible. The results of the audit showed that compared to other countries the department had a better control of BP in this cohort of patients.

P14.04

Are we sensitive enough to pain in older people in institutions?

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Introduction: Managing pain is a constant challenge in patients in long term care, yet there are few and limited studies on pain in institutionalised patients. The largest

study was the SHELTER (Services and Health for Elderly in Long TERm care) study (2013), which showed that up to 24% of elderly patients in significant pain were not on any analgesics. The aim of this study was to assess the prevalence of analgesic use among institutionalized individuals, to investigate factors associated with analgesic use and to compare analgesic use with the SHELTER study.

Methods: A randomised sample of 100 institutionalised patients from Saint Vincent de Paul Residence was taken, aged between 65 and 99 (mean age 79.73). Data was collected on prescription of analgesics and patient factors, including level of dependency. The frequency of use was then compared to the patient's perception of pain, collected by a short survey.

Results: Comparing this study with the SHELTER study, the main difference is in prescription of regular analgesia and analgesia as needed (PRN). In this study, less patients were prescribed regular analgesia (41.6% as compared to 53.7%) whilst more patients prescribed analgesia as needed (PRN) (25% as compared to 11.2% in the SHELTER study). 58% of patients in moderate to severe pain were found not to be on any regular analgesics.

Conclusion: There is a good proportion of inadequately treated pain amongst the elderly for several reasons. Chronic pain has serious detrimental effects on the quality of life and functionality of individuals.

P14.05
Prolonged outbreak of gastroenteritis in a nursing home in Malta, April 2014

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Introduction: On the 1st of May 2014 we were notified of an outbreak of gastroenteritis in a nursing home affecting 20 residents since 30th April 2014. We initiated an outbreak investigation to identify the source of infection and implement prompt control measures to prevent further cases.

Methods: We conducted a descriptive epidemiological investigation and calculated attack rates (AR), risk ratios (RR) and ***p-values*** for each of the affected floor using logistic regression. Cases were defined as residents/staff at the nursing home **who** developed at least one episode of diarrhoea and/or vomiting since 30th April 2014. An environmental inspection was carried out and faecal specimens were collected from cases for analysis.

Results: A total of 72 cases were reported throughout the duration of the outbreak which lasted 28 days. Sixty-three of the reported cases were residents (AR=31%) and 9 were staff (7%). Symptoms were mild with an average duration of 1.5 days. Twenty-five (40%) of the affected residents were located in High Dependency Unit (HDU) (AR=53%). When compared to residents on the 1st floor, HDU residents were 3.5 times more likely of being a case (***p-value***=0.006). Seven out of 10 stool specimens were positive for Norovirus by RT-PCR.

Conclusion: Norovirus is known to cause large outbreaks of gastroenteritis particularly in institutional settings due to person-to-person transmission. This outbreak identified a number of deficiencies in infection control, notably inadequacies in contact precautions and environmental cleaning amongst staff that could have led to undue prolongation of the outbreak.

P14.06
DAM anticholinergic burden in elderly

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Introduction: Anticholinergic burden has been linked to cognitive impairment, falls and death in the geriatric population. The anticholinergic burden score indicates clinically relevant anticholinergic burden.

Aims: To highlight commonly used drugs with anticholinergic side effects. **To assess how many patients in an institution have a clinically relevant anticholinergic burden score (>3).**

Methods: Treatment charts of 4 random patients from each ward at St. Vincent de Paule Residence were reviewed - a total of 112 patients. Data collected included age, gender, anticholinergic drug, dose and frequency. The anticholinergic burden scale on the STOP START (Screening Tool of Older People's potentially inappropriate Prescriptions and Screening Tool to Alert doctors to Right i.e.appropriate, indicated Treatments) toolkit was used as standard guidance.

Results: 57% of the sample had a clinically relevant anticholinergic burden score. Scores ranged from 0 to 14. 86% of the patients were on at least one drug with anticholinergic properties. The top class of drugs with anticholinergic properties used was benzodiazepines.

Conclusion: Anticholinergic burden is a modifiable risk factor for cognitive impairment, falls and death. There is potential to DAM anticholinergic burden by checking if there are any Drugs (anticholinergics) on board, opt for Alternatives (if possible) and Monitor patients for side-effects which can be wrongly attributed to ageing.

P14.07
The changing longevity of patients at St Vincent de Paul Residence

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Introduction: Long term care allows people, who are unable to care for themselves, retain their existing abilities as much as possible, while reaching their full potential.

Methods: Data was extracted manually using the mortality register at St Vincent de Paul Residence (SVPR). Two retrospective cohorts included a total of 719 patients, who died between July 2003-2004 and July 2013-2014. The collected demographic data included ages on admission and at death, gender, dates of admission and death, cause of death and co-morbidities. The length of stay was calculated using the dates of admission and death. The modified Crichton Royal Behavioural Rating Scale was used to assess the patients' cognitive function and dependency on admission, which was then correlated with the calculated length of stay.

Results: 50% of residents died within 23 months of admission in July 2003-2004; while in July 2013-2014, 50% died within 17.5 months. There was an increase in the mean age of admission over the decade under study: from 78.8 years in 2003-2004 to 80.4 years in 2013-2014. The combined mean length of stay for both genders was 4.4 years in the first cohort and 3.0 years in the second. Males also survived for a shorter period of time when compared to females in both cohorts. Cardiac conditions accounted for the commonest causes of death in both years.

Conclusion: The results suggest that more emphasis should be placed on palliative rather than restorative care at SVPR, given that patients are surviving for a shorter period of time.

P14.08
Assessment of vital sign charting at Karin Grech Hospital and Saint Vincent de Paule Residence

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Introduction: Rehabilitation Hospital Karin Grech (RHKG) and Saint Vincent De Paule Residence (SVPR) are two geriatric facilities. Vital signs and scores such as the Early Warning Score (EWS) are used to identify high-risk ward patients. The current situation in RHKG and SVPR is that there are several observation charts for taking parameters which are cumbersome to follow and detect early signs of deterioration.

Methods: A prospective study was carried out during 15

on-call duties at RHKG and SVPR during which a record of the parameters used to trigger calls was kept. The parameters used in Early Warning Score charts at Mater Dei Hospital were included for this purpose, namely respiratory rate, pulse oximetry, temperature, systolic blood pressure, heart rate level of consciousness and blood glucose levels.

Results: RHKG: 22 out of 50 acute calls (44%) did not communicate any of the EWS parameters to the doctor on call. Respiratory rate was not recorded in any of the calls. SVPR: 28 out of 34 acute calls (82.35%) did not communicate any of the EWS parameters to the doctor on call. Respiratory rate, oxygen saturations, pulse and consciousness were communicated in none of the calls. A complete set of parameters was available in none of the calls.

Conclusion: Parameter charting in acutely ill patients in both geriatric hospitals could be improved. Introduction of modified EWS charts may facilitate serial parameter charting, improve documentation of parameters such as respiratory rate and, therefore, provide a better picture of the deteriorating patient.

P14.09
Medical documentation practices at Karin Grech Hospital

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Introduction: Although the world of medicine seems to be changing and progressing with each day, the need for proper medical documentation has not changed. The medical record of today does not only reflect the level of care of the patient but also a communication tool to a wide variety of players including the medical team. Complete medical records are the cornerstones of quality health care.

Methods: An audit was carried out to assess the medical documentation practices within 6 wards at KGH and to see whether these meet the **RCP** (Royal College of Physicians) approved standards. The audit involved sampling 10 files at random from 6 wards using an online random number generator. The Audit was carried out over a span of three months. Only medical entries were considered in the audit. Using the RCP approved Generic Medical Record Keeping standards as the gold standard, **each** standard of Documentation was assessed per file per ward.

Results: 63% of files did not have the patient's name or ID on the medical record sheet. 100% of **files** lacked the date or time or the name of the medical officer making the entry. 2% of files did not use a standardised layout for documentation. 100% of files had patient admissions documented on a standardised proforma. 28% of files did not identify the most senior health care professional present at the time of documentation. 98% of files did not have **a** CPR status documented.

Conclusion: On average most of the medical entries were up to RCP medical documentation standards.

P14.10
Audit - medical record keeping at Mater Dei Hospital

Doriella Galea

Introduction: Good medical record keeping is of utmost importance for effective communication amongst the members of the multidisciplinary team. It is also a legal document, hence accurate record keeping may save many from medico-legal litigations which are on the increase.

Methods: Five acute medical wards were randomly chosen and the medical notes of the patients present were reviewed (total of 98). Medical notes were reviewed and standards compared with the "RCP Approved Generic Medical Record Keeping Standards"

Results: 19.4% of medical records did not have identification number (ID) while 1% did not have the patient's name. 4.1% had both name and ID missing. The rest (75.5%) had full patient identification. 3% of entries did not include physical examination. 100% were dated but 54.1% did not have the time documented. 55.1% did not have a name of the person making the entry or their designation. 3% of the entries were not signed. 7.1% did not have the name of the senior reviewing the patient.In 2% clear transfer plan was found. 69% had the old notes available at any point in time. 1% had a CPR status clearly documented. 2% had documented consent for different procedures. 1% had signed for refusal of treatment.

Conclusion: In general, medical record keeping is satisfactory but more awareness is necessary in order to improve the current standards. This would ensure a safer working environment with more effective handover.

P14.11
A comparison of level of documentation between the different admission proformas at Mater Dei Hospital

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Introduction: The aim of this audit was to assess the level of documentation for different aspects of the patient's social history and examination comparing this across the various hospital proformas. The results were compared to a previous audit that had shown an improvement in documentation following the introduction of the medical proforma in 2011.

Methods: All patients admitted immured the care of 7 consultant physicians between August and November 2013.

Results: The audit included 655 patient admissions. Blood pressure was documented in 97.7% (n=640) of all cases, the highest percentage across all proformas. The **mean** lowest percentage documentation was for urine testing (16.6%) (n=111). In clerkings on **the** medical proforma, living alone was documented in 76.8% (n=86), mobility in 53.4% (n=55), potential social casein 43.1% (n=29), Glasgow coma scale in 86.7% (n=130), oxygen saturation in 99.3% (n=149), blood pressure in 100% (n=150) and haemoglucose test in 88% (n=131). This compared well to a previous audit that had shown documentation of GCS, oxygen saturations and haemoglucose test in 80% of cases. Comparing different proformas, documentation was least in the old A&E sheet and most in the medical proforma. Documentation was noted to be better in the new A&E proforma compared to the old A&E sheet.

Conclusion: This audit confirms that the medical proforma can help improve the level of documentation in medical patients. It will be interesting to compare this data to future audits analysing use of the updated medical proforma that was launched earlier this year.

P14.12
Acute medical admissions: writing up a management plan

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Mater Dei Hospital

Introduction: The role of the admitting doctor is to assemble the relevant points from the patient history, examination and investigation in order to draft a management plan for each patient, facilitating continuity of care between the emergency department and the medical ward. The aim of our audit was to assess the quality and clarity of the medical admission plan.

Methods: The study population encompassed all patients admitted to Mater Dei Hospital under the care of seven medical firms during the period August to November 2013. These patients were admitted by doctors ranging from basic specialist

trainee to consultant level, from the Medicine and Emergency departments. The data was collected by seven medical basic specialist trainees who studied the patient files on the first day post-admission.

Results: The study included 655 medical admissions. The provisional diagnosis was documented in 83.5% (n=547). The management plan was deemed clear in 98.3% (n=644) and legible in 99.1% (n=649), while the treatment chart was deemed legible in 98.6% (n=644). Blood pressure charting was requested in 97.7% (n=640), temperature charting in 95.7% (n=626), oxygen saturation charting in 79.0% (n=365), and urine output charting in 11.6% (n=59) of relevant cases. Cardiopulmonary resuscitation (CPR) status was specified in 3.1% (n=20) of acute medical admissions.

Conclusion: There is room for improvement in the documentation of provisional diagnoses. While the management plan is largely clear and legible, not all the relevant parameter charts are requested by the admitting doctor. Importantly, CPR status is very poorly documented by admitting doctors.

P14.13
Medication errors: an audit on drug history-taking

Anthea Brincat, Justine Camilleri, Nicholas Paul Delicata, Darlene Muscat, Jonathan Gauci, Stephanie Attard, Kyra Bartolo, Paul John Cassar, Karen Anne Cassar

Introduction: Errors in drug history taking can lead to errors in prescription, which can in turn lead to serious patient adverse events. The study aimed at quantifying the frequency and type of errors noted in newly admitted acute medical patients.

Methods: The admission notes of all patients admitted under the care of seven medical consultants between August and November 2013 were analysed with regards to drug history. This was then compared to the drug history taken by the investigators on the following day from the patients or their relatives.
Results The study included 655 medical admissions. One or more drug errors were found in 104 patients (15.9%). In these patients, documentation in the medical histories regarding possible inaccuracies in the drug history was present in 14.4% (n=15). Source of drug history was specified in 16.3% (n=17). Drug omission noted in 65.4% (n=68). Additional incorrect medication/s were written in 10.8% (n=11). Dosage errors were noted in 26.0% (n=27). 6.7% (n=7) of patients had a medication erroneously recorded as a drug allergy instead of an adverse event whilst 1.9% (n=2) had an allergy that was not identified on admission.

Conclusion: Efforts to obtain a more accurate drug history, including correct history of drug allergies, should be made in order to decrease the frequency of errors in newly admitted medical patients. Suspicions of incorrect or incomplete drug histories should be documented in order to alert the caring clinician of possible inaccuracies.

P14.14
Presentation of falls to the Emergency Department

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Introduction: Falls and collapse are a common cause of presentation to the Emergency Department, and are often multifactorial in origin. The aim of this study was to assess the relative causes of falls in a cohort of subjects presenting at St James' Hospital in Dublin, Ireland over one week. This study took into consideration the age of the patient, taking 60 as the lower limit for the older population as defined by the WHO (World Health Organization). It also included whether an injury was sustained during the fall or collapse.

Conclusion: On further assessment of this older cohort, there is evidence for a linear relationship between frailty and frequency of falling. A minimum involved accidental injury, and where an intrinsic cause was suspected, appropriate referral for further patient assessment and follow-op was observed.

P14.15
Paracetamol overdose management - are we following the guidelines?

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Introduction: Paracetamol overdose can be potentially life-threatening. However, it is also one of the drugs to which an antidote exists.
Aims: To determine if the current guidelines are being adhered to **and the** outcome for these patients.

Methods: Patients admitted to MDH between April 2013 and March 2014 **were** recruited after being identified through the toxicology database. Their clinical notes were analysed.

Results: 47 patients with a mean age of 28 years (13-64) were admitted following a Paracetamol overdose. 40% of patients were students and 11% were unemployed. 57% of patients ingested other drugs together with paracetamol. 30% of patients ingested alcohol. 19% had a psychiatric history and 55.3% of all patients admitted to suicidal intent. Venous blood gases were only performed in 67% of cases. Other investigations not performed at presentation included ECG (13%) and blood glucose level (13%). 72% of patients presented at 1-8 hours after paracetamol ingestion. 32% had Paracetamol levels checked before 4 hours and thus these could not be plotted on the normogram. A total of 24 patients were given NAC, in 3 of whom it was not indicated. Only 63% of patients presenting at 8-24 hours had NAC started immediately. NAC doses, solutions and infusion rates were all according to guidelines.

Conclusion: This data demonstrates an overall good outcome for patients admitted with paracetamol poisoning. However, stricter adherence to the guidelines is required for this potentially lethal drug to which an antidote exists.

P14.16
Safe intravenous fluid prescription and administration in hospitalised adult patients: Where do we stand?

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Introduction: Fluid management should be accorded the same status as drug prescription. Inadequate fluid prescription (FP) has been associated with significant morbidity and mortality. We hereby present an audit on FP practises at MDH. Our aim is to improve the safety of FP in the adult in-patient population by the end of 2016.

Methods: FP appropriateness was analysed through case note examination. Subsequently, essential FP knowledge was evaluated via a questionnaire distributed amongst junior/middle grade doctors.
Results: A total of 32 case notes were studied, equating to 70 maintenance-fluid-days and 10 resuscitation-fluid-days. In terms of maintenance-fluid-days, fluid balance assessment was documented in 20%, indication 23%, oral-intake 3% and urine-output 14%. Type and rate of FP was documented in 67% and 51% respectively. Daily electrolyte analysis was performed in 54% and FP plan executed as prescribed in 63%. Maintenance fluid volume was inappropriately administered in 74%, excess sodium in 74%, insufficient potassium and glucose in 83% and 80%. The resuscitation strategy of 250ml bolus followed by re-assessment was carried out merely in 20% of resuscitation-fluid-days. There were a total of 106 questionnaire respondents. 57% of doctors feel insufficiently confident in FP. Fluid status assessment prior to FP and daily electrolyte analysis are routinely performed in

66% and 58% respectively. Electrolyte concentration of 0.9% saline and Hartmann's was unknown to 54% and 49% of doctors. 58% and 62% of respondents are uninformed of the daily recommended maintenance volume and potassium supplementation.

Conclusion: We aim to improve FP practices through teaching programs and novel fluid balance/prescription charts.

P14.17

Study on the responses to Early Warning Score (EWS) prior to in-hospital mortality

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Introduction: Early warning score (EWS) is a guide used by medical health care workers to quickly determine the degree of illness of a patient. Increasing EWS require escalation in medical attention. The aim was to identify responses to EWS prior to death.

Methods: Data regarding in-hospital mortality between May and August 2015 were obtained from the clinical performance unit. Clinical data were gathered from patient files. Patients from ITU, A&E and patients which were under non-medical consultants were excluded.

Results: There were 413 cases of inpatient mortality, of which 289 were included for analysis, of which 52.9% were female whilst 47.1% were male with an age range of 19 to 100 years. 21.1% were younger than 69 years of age whilst 25.3%, 40.5% and 27.7% were aged 70 – 79, 80 – 89 and 90– 99 years respectively. Data analysis includes the level of the EWS at which patients were reviewed prior to cardiac arrest, and the presence of documentation regarding DNR (do not resuscitate) status.

Conclusion: The audit studied the level of responses to increasing EWS in patients with deteriorating clinical status.

P14.18

Audit on the local hospital management of deep vein thrombosis

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Mater Dei Hospital

Introduction: Following established local and international hospital guidelines, patients with DVT may be managed in the community, unless any of the exclusion criteria are present. The current practice in Mater Dei Hospital is to admit all cases of suspected DVT, resulting in a number of unnecessary hospital admissions. This audit was carried out to determine the number of patients who could have been managed in the community and their total hospital stay. The aim is to design recommendations for the local outpatient management of DVT.

Methods: All patients with suspected DVT admitted in August 2014. Data collected included investigation tools, **treatment,** follow up, length of hospital stay and possible exclusion criteria using iSoft, electronic case summaries and medical notes. The data was analysed and recommendations for local outpatient management of DVT have been drawn up.

Results: Twenty-six patients were admitted to Mater Dei Hospital with suspected DVT. Of these, twenty cases were confirmed with Doppler ultrasonography. Six of the patients with confirmed DVT had at least one of the exclusion criteria for outpatient management. Fourteen patients did not have any criteria for hospital admission. This resulted in 84 unnecessary hospital bed days with a mean of 6 days per patient.

Conclusion Adherence to the local DVT hospital guidelines would save at least two hospital beds every day. These patients can be managed in the community provided the outpatient framework exists including a DVT clinic. As a conclusion to this audit we have made recommendations for the outpatient management of DVT **patients.**

P14.19

An audit of electrocardiogram (ECG) documentation in medical discharge summaries

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Introduction: Most patients admitted to hospital have a baseline ECG taken either in Emergency Department or in the admitting ward. In the absence of a fully computerised system it is important that on discharge the ECG findings are documented in the discharge letter. This ensures better continuation of care by general practitioners and aids the prompt assessment by physicians during subsequent admissions.

Methods: In this retrospective audit all medical discharge summaries over 1 month (September 2013) were analysed. The number of discharge letters with documented ECGs was recorded. The authors also compared if the ECGs documented were admission ECGs or ECGs taken during the patients' hospital stay. Patient demographics including age, sex and date of birth were noted. The documented ECGs were classified as those with regular rhythms, arrhythmias, ischaemic changes or other significant abnormalities. Patients admitted under cardiology and for elective procedures were excluded.

Results: 904 discharge summaries were reviewed. It was noted that in 21% of discharge letters there was no ECG documentation. 55% of documented ECGs reported normal sinus rhythm, with the remaining 45% reporting abnormal ECG changes. Despite this, only 11% of discharge letters had any record of ECG findings after the initial admission ECG.

Conclusion: The purpose of discharge summaries is to communicate information about patients' care. If notes are not completed properly, it can lead to clinical misadventure. Our aim is to insert a template in the Electronic Case Summary where ECGs can be documented to aid the rapid assessment of patients who are re-admitted with potential cardiac problems.

P14.20

Patients' perception and satisfaction of waiting time at medical outpatients

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Introduction: Patient satisfaction is an important determinant of health care quality. Decreasing waiting time is imperative in achieving patient satisfaction. The aim of this study was to determine the mean waiting time at medical outpatients and to assess waiting time satisfaction. A further aim was to identify factors that affect the patients' perceived waiting time.

Methods: Data was collected through questionnaire responses from 190 patients attending medical outpatients between 20th March and 9th April 2013. This included demographic data, waiting time and service satisfaction, expected and perceived waiting time, level of boredom and comfort while waiting. Moreover the actual waiting time was noted by the observer.

Results: On a 10-point Likert scale, the mean waiting time satisfaction was 7.1, while the mean service satisfaction was 9.3. The mean perceived waiting time was 55 minutes and the mean actual waiting time was 51 minutes. As perceived waiting time increased, patient satisfaction tended to decrease consistently and significantly ($p<0.001$). On the other hand, perceived waiting time had a positive and significant linear relationship with the actual waiting time ($p<0.001$) and the boredom level ($p<0.001$). Patients seated comfortably had a significantly lower perceived waiting time that those who were not ($p<0.001$). Perceived waiting time was not influenced by whether the patient was accompanied or being seen for the first time.

Conclusion: Overall service satisfaction was extremely positive, while waiting time satisfaction was moderate. Although reducing the actual waiting time may be difficult, altering patients' perceived waiting time may be beneficial to increase their satisfaction.

P14.21

Dermatology admissions: 2010-2014

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Introduction: A significant minority of dermatology patients require inpatient care. Locally, these are admitted to the eleven-bedded Dermatology Ward at Sir Paul Boffa Hospital. The aim of our study was to identify the commonest reasons for admission and trends over the past five years.

Methods: All patients admitted to the dermatology ward between 2010 and 2014 were included. Data was collected from patients' notes, iSoft and discharge summaries.

Results: 549 patients were admitted to the Dermatology ward over this time period. 62% of admissions were unplanned, 18% were day cases and 8% of admissions were elective. Data for the remaining 12% was not available. Whilst the number of elective and unplanned admissions remained stable over the years, the number of day cases is increasing significantly owing to an increasing number of patients on biologic agents. The commonest five diagnoses of patients admitted are: infected lower limb ulcers (22.0%), non-infected lower limb ulcers (11.4%), pyoderma gangrenosum (11.3%), psoriasis (8.1%) and bullous pemphigoid (7.5%). When day cases are excluded, 49% of admissions were re-admissions, reflecting the relapsing-remitting nature of most diseases. Patients staying for longer than a day are mainly admitted for topical therapy only (51%), or topical treatment combined with intravenous agents (33%).

Conclusion: The number of admissions to the dermatology ward remained stable over the past five years, a third of which related to lower limb ulcers. The fact that topical therapy is important in most patients highlights the importance of a specialised dermatology ward with staff trained in the management of such conditions.

P14.22

Care in the last days of life

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Introduction: Recognition that a patient is entering the dying, followed by the sensitive communication required with the person and those dear and near to the dying person is an integral and increasingly common part of our caring professional work. There, however, remain many areas for improvement in this. **This study aims to assess how often the health care team recognises a patient as dying, as well as their communication and care around this difficult time.**

Methods: Thirty predictable deaths at the Wirral Hospital in March 2015 were identified and case notes reviewed. These case notes were reviewed to look at rates of recognition of dying, communication with patient and relatives, as well as medical and nursing assessment of patients' symptoms and dying wishes. These results were compared to a similar review of case notes from October 2013.

Results: The dying phase was recognised in 73% of patients in this study. Most often this happened in the last day of life; reversible causes of deterioration were considered in all cases. The preferred place of death was only documented in 7 out of 30 patients. In 95% of cases, there was discussion of dying with the relative, but only in 18% was **the** case with patients. There was quite a high rate of anticipatory prescribing, with 83% having opioid analgesia and 70% having anticholinergics prescribed.

Conclusion: Much improvement needs to be made by health care workers in End-Of-Life Care, in **both their** care and compassion as well as the medical aspects of the dying phase.

P15.01

The determinants of first aid knowledge - a national cross-sectional study in Malta.

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Introduction: Timely and appropriate bystander first aid is the key to improving survival and outcome of acute injury and illness. This study aims to capture the current relevant knowledge and training status of the lay public in Malta.

Methods: Volunteers, recruited according to a probability quota sample, underwent a structured interview on which their first aid knowledge was scored. Student t-test, ANOVA and Pearson's Chi-squared test were performed for statistical analysis.

Results: 1,579 individuals (48.6% male, n=768) participated in the study. The score obtained was 67.1% overall, with no significant difference noted between genders (p=0.293). Age (p<0.0001), level of education (p<0.0001), occupation (p<0.0001), geographical region (p<0.0001), and language preferred at interview (p=0.0007) were all associated with differences in performance. Those previously formally trained in first aid (29.9%, n=473) performed better (70.2±9.3 *vs* 65.7±9.8%, p<0.0001), with no difference noted with additional training exposures (p=0.061), time since last training course (p=0.564), and between the various organisations delivering training (p=0.085). Reported exposure to first aid information in print (68.8±9.9 *vs* 66.8±9.8%,p=0.004) or social media (68.7±8.2 *vs* 66.7±10.1%, p=0.002) was associated with improved scores.

Conclusion: The general public has a limited knowledge of basic first aid. Informal exposures, and formal training, are associated with improved knowledge - although this is restricted in extent. There is need for greater emphasis on education in this field.

P15.02

Are patients with mental disorders getting the right deal?

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Introduction: The Mental Health Act lists nineteen rights applicable to persons suffering from mental disorders. This study describes the state of compliance with these rights in the public mental health services at end 2014.

Methods: 46 mental health care facilities were visited between June and September 2014. A standard questionnaire was devised to evaluate qualitatively the care environment, documentation, patient experience, privacy, autonomy, communication and social aspects of care. Further evidence was collected from information provided by staff, examination of patient records and private interviews with patients.

Results: No evidence of discrimination, abuse of restrictive care or cruel, inhuman or degrading treatment was elicited. Most mental health care is offered from derelict and shabby institutional facilities. A mix of acute, rehabilitation, residential and long term care services are often delivered within the same ward, impacting quality of care. Privacy and level of cleanliness varied between units. Communication is restricted in all inpatient wards. The inadequate development of outreach, crisis intervention and community support services cannot realistically facilitate treatment within community settings as the preferable care option. Good leadership and commitment of unit managers were the main determinants of good quality care. Motivation was better in acute wards and community services.

Conclusion: In public metal health facilities, the overall care ambience is austere and dated. The basic needs of the patient were satisfied in most cases. There was wide variation in quality of care. Substantial investment in infrastructure, human resources and training is required.

Disclosure: This study was the joint effort of all the professional staff of the Office of the Commissioner for Mental Health through their comments, remarks and observations during visits.

P15.03
Treatment chart audit of Mount Carmel Hospital

Chris Cremona
Malta Foundation Programme

Introduction: Aim: to evaluate the 435 inpatient treatment charts spanning over 23 wards in Mount Carmel Hospital so as to assess whether their quality is up to standards set forth by the BNF, Royal College of Psychiatrists and guidelines of the pharmacy department at MCH.

Methods: All treatments charts were reviewed and assessed based on the British National Formulary guidelines on treatment charts. 15 criteria were established. Each treatment chart given score from 0 to 15, based on fulfillment criteria. Two data sets were provided: (i) A compliance indicator by ward at Mount Carmel Hospital based on a 15 point system. (ii) Analysis of each criterion, and assessment of adherence on a hospital basis. All treatment charts were reviewed in the span of 10 days between 18th and 28th April.

Results: Compliance indicator by ward: The best performing wards were Female Ward 8 with a score of 13.6/15, Male Forensic Ward 13.2/15 and Seclusion with a score of 13.0/15.The worst performing wards were: Male Intellectual Disability Unit (23rd) with a score of 10.7/15, Female Ward 3A (22nd) with a score of 10.9/15 and Asylum Unit 8B (21st) with a score of 11.0/15. Analysis of each criterion: Least adhered criterion - Mention of date of birth - 6.2% Mention of allergy history - 33.8% (Full data set to be provided for adherence of each criterion).

Conclusion: Establish pro-active culture through awareness campaigns, making doctors, nurses and health care staff aware of the ramifications of treatment chart errors.

P15.04
Foundation doctors confidence in managing patients with mental health illness

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Introduction: Mental health illness is very common. As foundation doctors there are numerous circumstances where management of these patients is necessary. The aim of this audit was to check how confident foundation doctors are in managing patients with psychiatric problems.

Methods: A questionnaire was set up and distributed to all foundation doctors working at Mater Dei Hospital in August 2015, via an email. All data was kept anonymised. Perceived confidence for each question was rated on a 5-point Likert scale ranging from 1-little confidence, 2-somewhat confident, 3-confident, 4-quite confident to 5-extremely confident.

Results: 80 responses were obtained in total. Only 36.7% of the foundation doctors felt confident in taking a psychiatric history. 47.5% showed little confidence in using the DSM5 or ICD-10 to reach a diagnosis. Confidence in starting patient on first line medication was very low with 47.4% of foundation doctors stating that they have little confidence in doing so. In addition, only 2.5% of doctors felt extremely confident in identifying medication side effects. Assessing a patient's risk to self-harm varied from 35.9% feeling somewhat confident and 38.5% feeling confident in doing so. Only 3.9% feel extremely confident in identifying drug overdose.

Conclusion: The confidence of foundation doctors when dealing with psychiatric patients is poor. Continuous medical education in psychiatry needs to be organised during the foundation years in order to improve the knowledge, skills and confidence in psychiatry. A provisional teaching programme can be implemented and audited again to check if there is an improvement in foundation doctor confidence.

P15.05
An audit on foundation programme doctors attitudes towards psychiatry

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Introduction: 18 medical trainees were interviewed. Likert-type scale tool ATP-30 (attitude towards psychiatry-30 questions) was used and analysed. This allowed an assessment of the common attitudes, negative and positive that Foundation Programme trainee doctors have towards Psychiatry. In addition to ATP-30, questions were posed regarding the study of Psychiatry as an undergraduate, any interest in pursuing the speciality as a career, factors that influence the latter choice, and ways to transform Psychiatry into a more desirable speciality.

Methods: Questionnaires which included ATP-30 questions were assimilated to anonymous trainees.

Results: The results include those noted in the conclusion.

Conclusion: A positive response was noted whereby doctors felt that Psychiatry makes good use of medical training, allowing the appreciation of patients' medical and surgical problems. Unfortunately, a proportion of responders believe that it is not a substantial part of the medical curriculum and varied opinion regarding pursuing Psychiatry as a career was acknowledged. Response also enlightened the FP trainees' appreciation of the effectiveness of psychotherapy and pharmacotherapy, with the accompanying therapeutic attainment of rewarding outcomes.

P15.06
The mental health of newly graduate doctors and the effects of migration.

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Introduction: Several studies have shown high rates of psychiatric morbidity in doctors at various stages of their training (*Paice, et al.*, 2002; *Levine et al.*, 2006). Migration is also known to impact emotional wellbeing (*Bhugra*, 2004). Foreign doctors in Malta now make up over 30% of the junior doctor cohort.

Methods: A quantitative cross-sectional analysis was carried out by means of a self-report questionnaire including the General Health Questionnaire-28 (GHQ-28) (*Goldberg*, 1972) and the Cultural Distance Questionnaire. Interviews were carried out with experts and with subjects, and the information was triangulated.

Results: 117 (78.5%) junior doctors participated. 70.9% (83) of them were Maltese. 49.4% (58) were found to have GHQ-28 scores of more than 6, indicating significant psychological distress. Further analyses revealed that lacking leisure time ($p<0.001$), uncertainty ($p=0.009$), migration ($p=0.03$) and being female ($p=0.04$) were significantly related to caseness. In the migrant group it was lack of leisure time which, through logistic regression analysis, was found to explain caseness ($p=0.01$), whereas in the non-migrant group, lacking leisure ($p=0.008$), uncertainty ($p=0.002$), and being female ($p=0.013$) all individually contributed to caseness. No relationship was found between cultural distance and psychological distress ($p=0.35$). The themes that emerged from interviews were transition, lack of leisure and lack of personal relationships.

Conclusion: It is important for supervisors in medical education to be aware of the difficulties that trainees face, which may include psychological distress, significant enough to reach caseness. Lack of leisure time seems to be an important factor which may be an area addressed in a relatively straightforward manner.

P15.07

House officer stress syndrome: an overlooked reality?

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Introduction: The transition from medical student to medical doctor in training can be a stressful period for young doctors and this can have a negative impact on their mental well-being. House Officer Stress Syndrome was first described in 1981 by Dr. Gary Small in his article of the same title and this study is based on negative features described within the article.

Methods: An online questionnaire was submitted to Foundation doctor trainees via social media and data was collected over two months. Subjects were requested to select any negative symptoms they may have experienced during their training, the factors that contributed to these and ways that can improve their training experience and diminish stress.

Results: 47.7% of House Officers responded to the questionnaire. 29% of responders experienced depression, 3% resorted to substance abuse and surprisingly, 12% of responders stated that they had suicidal ideations. 87% claim that the negative effects are the result of an excessive work. 76% blame sleep deprivation. 60% blame lack of leisure time and 61% owe these negative effects to the fear of making mistakes. 41% of responders believe that more free time available to them will help combat stress. 21% have suggested a decreased number of night duties.

Conclusion: The majority House Officers have experienced some form of stress during their training. Awareness of House Officer Stress Syndrome may need to be increased and systems improved to reflect this and prevent devastating consequences.

P15.08

Breaking bad news in cancer: an assessment of Maltese patients preferences

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Introduction: It is unclear among Maltese physicians whether cancer patients wish to know their diagnosis. The aim was to assess Maltese patients› preferences for receiving a cancer diagnosis and being involved in their treatment, and then compare with results from similar international studies.

Methods: 199 Maltese adult patients with a diagnosis of malignancy of >1 month completed 2 standardised tools: the Measure of Patients› Perspective (MPP), a 32-item tool assessing patient›s preferences for being given news about their cancer, and the 2-item Control Preferences Scale (CPS) assessing patients› involvement in the decision-making process. Patients rated characteristics of the information, context and support given, on a scale from 1-5 for the MPP and their involvement in treatment decisions, from A-E, for the CPS. Demographic and medical data were collected. T-tests, one-way ANOVA and post-hoc analysis were used.

Results: Patients rated the ‹content› subscale (mean 4.17, CI 4.08-4.25, SD 0.59) as significantly more important (p=0.047) than 'support' (mean 3.73, CI 3.63-3.83, SD 0.68) and 'facilitation' (mean 3.86, CI 3.76-3.96, SD 0.68). On the CPS, although there is a trend away from a passive role, patients still exhibit a paternalistic attitude towards their physician. Patients with higher levels of education had significantly higher scores for 'content' (p=0.018) and 'facilitation' (p<0.001) on the MPP, as well as for choice of role on the CPS (p=0.036).

Conclusion: Maltese cancer patients want to be informed of their diagnosis, its treatment and its prognosis, with results similar to those from international studies.

P15.09

Prescription of benzodiazepines in acute psychiatric disorders

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Introduction: The benefit of benzodiazepines in reducing anxiety and agitation occurs at the expense of possible adverse effects including sedation, tolerance and dependence. A consensus statement issued by the Council of the College of Psychiatry of Ireland in 2012 asserts that these can largely be prevented by keeping dosages minimal, using short courses (four weeks or less) and by careful patient selection. The aim of our audit was to assess the quality and duration of benzodiazepine prescription.

Methods: The records of all patients in the two acute admission wards at Mount Carmel Hospital in July 2013 were reviewed.

Results: 54.2% out of 142 patients had been prescribed benzodiazepines, 79.2% of whom had been taking these drugs for longer than four weeks. Anxiety was the most common indication for starting a benzodiazepine (47.5%), followed by psychosis (21.3%). In patients on benzodiazepines for more than four weeks, the consultant was involved in this decision in 85.7% of cases. However, a documented explanation for this decision was present in only 11.3% of cases. Evidence of an attempt in decreasing the dose was available in 28.6% and documentation of patient education regarding dose reduction was present in 3.3%.

Conclusion: Our data shows that benzodiazepines are commonly used for longer than four weeks in acute admission wards. We propose that dispensing of benzodiazepines beyond the recommended period should require a documented reason by the prescriber. This may provide an opportunity for the prescriber to reconsider the appropriateness of such treatment and look into other effective options available.

P15.10

The acute management of aggressive inpatients at Mount Carmel Hospital

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Introduction: Aggression in a mental health facility can create a volatile environment which might threaten the well-being of patients, their relatives and the staff. Carers in psychiatric hospitals must receive ample training that enables them to manage aggressive patients safely and effectively, without disregarding proper patient care.

Methods: Episodes of aggression that took place in the acute wards of Mount Carmel Hospital (MCH) between the months of September to December 2014 were recorded retrospectively. The acute wards consisted of Mixed Admissions Ward, Male Ward 1, Female Ward 1 (FW1), Male Dual Diagnoses Unit (DDU), Female DDU and Asylum Seekers Unit. The patients' demographics, diagnoses, stages of illness, modes of admission and the management of each episode were recorded. The standard used was the National Institute of Clinical Excellence Quick Reference Guide titled Violence: The short-term management of disturbed/violent behaviour in psychiatric inpatient settings and emergency departments.

Results: There were 59 cases of aggression during the period under study. Most cases of aggression were by female patients and mainly took place in FW1. The majority of these patients had been informally admitted. De-escalation was attempted in 42% of the cases, chemical restraint in 34% and physical restraint in 3%.

Conclusion: There is currently no standard pathway at MCH for managing cases of acute aggression and such cases are not usually properly documented. The recommendations listed in the NICE guideline should be adhered to as much as possible when managing aggressive patients, so that the safety of both patients and staff is guaranteed.

P15.11

Referral practice among doctors for patients needing admission to Mount Carmel Hospital.

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Introduction: Tickets of referral assist clerking and in the enforcement of the mental health act. Initial reviewers who may be more aware of the patient's background may provide this information when transferring a patient to Mount Carmel hospital.

Methods: Permission to review ticket referrals for new admissions from the community to Mount Carmel Hospital during the month of June 2015 was attained from the Chairman of Psychiatry. Files of new admissions were assessed to see if the following were present: referral ticket; drug history; next of kin details; documented handover with staff at Mount Carmel hospital. Place of initial assessment was also noted. All data was anonymized and data input was done using a prepared proforma. Patients referred from Corradino Correctional Facility were not included as referrals were made by the caring consultant's firm.

Results: 72 admissions were assessed. 88.89% (n=64) of these admissions included an official ticket of referral. Health centres referred most patients (29.17%, n=21). A similar number lacked a drug history. 78.08% (n=56) were lacking next of kin details. 40.28% (n=29) of the cases had documentation of a handover with a senior on call.

Conclusion: Poor quality and missing information are often present in referral tickets. Continuous medical education and a referral ticket specific to Mount Carmel hospital would be ideal.

P15.12

Demographic characteristics of the local parasuicide population: A retrospective review over four months

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Introduction: Epidemiological knowledge of parasuicide is still limited by lack of data. Published literature and a number of preliminary studies have shown that parasuicidal acts are more common than thought of among society. Identifying common characteristics in these patients may help identify the patients at risk of committing suicide and help in prevention.

Methods: The aim of this study was to describe the epidemiological characteristics and clinical variables of a cohort of subjects admitted to the Emergency Department at Mater Dei Hospital in Malta following the ingestion of an illicit substance with suicidal intent between June and September 2013. The study also looked at whether patients had already been diagnosed and were being treated for a psychiatric disorder prior to the event. It excluded events related to alcoholism and illicit drugs of abuse.

Results: A total of 56 patients (M:F 55.4:44.6 %) fulfilled inclusion criteria. There was a bimodal distribution by age, with a female prevalence in the older age group. 62.5% of the patients had a previous diagnosis of psychiatric problems with a preponderance of depression and anxiety disorders. The majorities of patients were unemployed and came from the southern eastern district of the island. The drugs which were commonly being used are benzodiazepines and SSRIs (selective serotonin reuptake inhibitors).

Conclusion: The study highlighted the need for better patient documentation as well as the identification of preventive strategies that can help decrease the problem.

P15.13

Service evaluation of the perinatal mental health clinic in Malta

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Introduction: Mental disorders, most commonly depression and anxiety, are seen to affect 10 – 15% of women within the perinatal period (pregnancy to one year postpartum). This is considered a public health issue due to the debilitating effects on the mother, her relationship with the unborn child and the rest of the family. This evaluation of the Perinatal Mental Health Clinic (PMHC), aims to provide an overview of the women who have been referred in 2014; including their management and outcomes. Gaps within the services will also be addressed in order to propose a way forward.

Methods: Data which included demographics, referral source, time of assessment, marital status, past psychiatric history, diagnosis, treatment, and referrals to other professionals, was extracted from all new cases referred to the PMHC in 2014. Evaluation of this specialist service will then be compared to international guidelines.

Results: The National Obstetric Information System (NOIS) registered a total of 4335 births in 2014. The PMHC saw 112 new cases; 64.3% were pregnant and 35.7% postpartum. Notably, 65.1% had a previous psychiatric history and 56.3% were married. Referrals were made through midwives (56.3%), obstetricians (14.3%) or self-referred (17.9%). The main diagnoses were depression (24.1%), anxiety (24.1%) and personality disorder (13.4%). A biopsychosocial treatment approach was used; including psychiatric medication (42.9%) psychological services (59.8%) and social work services (17.9%).

Conclusion: The need for a perinatal mental health strategy with integrated pathways and community outreach is felt within the service in which all mental health providers would participate and providers reached more effectively.

P15.14

Incident reporting in a mental health facility - an exercise in futility?

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Introduction: Incident reporting systems provide vital information on adverse events in a healthcare setting. Analyses of incident reports lead to guidelines and protocols that enhance patient safety and quality of care. Literature shows gross underreporting of incidents and more so of near-misses. This may be due to a blame culture and finger-pointing towards persons submitting reports. Aim: Apart from fulfilling a legal requirement, this study aims to stimulate an increase in incident reporting and improve its quality.

Methods: Healthcare professionals working in mental health inpatient facilities were informed about the benefits of blame-free reporting, report writing, incident categorisation and report submission. Data from reports received were inserted in an excel spreadsheet.

Results: Throughout 2014, 74 incident reports involving 89 patients were submitted. No near-misses were reported. All reports were submitted by health care workers. Males were twice more likely to be involved in incidents. The commonest were 'Patient Protection Events'. Incidents were more likely to occur between 16:01h and 20:00h. The highest number of incidents occurred on the Maximum Secure Unit.

Conclusion: There is selective reporting of incidents. Near-misses were not reported. Staff is reluctant to report any

incident that can go by unreported. Reporting is the realm of nurses. Reporting will improve by supporting a blame-free culture in health care settings. Staff will perceive inherent value in reporting incidents when action is taken to prevent the recurrence of such incidents. This improves both patient safety and quality of care.

P15.15
Drivers of change for life expectancy and mortality in Malta

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Introduction: Life expectancy (LE) increased significantly across Europe over the past 40 years. Whilst general trends in life expectancy patterns characterise Western and Eastern Europe, country specific patterns also occur. This study presents detailed demographic and epidemiological analysis of changing life expectancy in Malta and compares this to other European countries.

Methods: Mortality data for Malta by cause of death, gender and age were extracted from the World Health Organisation Database for 1955-2013. Life expectancy at birth by gender and age group were calculated. Changes in life expectancy at birth were then decomposed into contributions by age groups and selected causes of death. Trends in life expectancy for Malta were also compared with selected EU countries.

Results: Between 1955 and 2013 LE in men and women increased by 13.2 and 14.95 years respectively. Two distinct demographic periods emerge. During the first period increasing LE was driven by a fall in infant mortality. LE in older age groups only started to increase in the 1980s in Malta, later than in other Western European countries, and coincided with the start of a downward trend in cardiovascular mortality.

Conclusion: The period under study was a critical time for political, economic and social development in Malta. Patterns of migration, development of the social welfare state and expansion in health services are all believed to have shaped the unique pattern of LE. Malta has transitioned from an Eastern European to a Western European country in terms of its mortality profile over the past 30 years.

P15.16
Who are the frequent attendees in the Mater Dei Hospital A&E Department?

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Introduction: In the Malta Health Literacy Survey 2014, 3.1% of the study population aged 18+ years reported attending the A&E Department more than 3 times in the previous two years. Nationally, this represents around 4500 adults sharing 20,000 visits to the A&E Department in one year.

Methods: The subset of frequent attendees was identified and analysed. Data was compared to national figures from the same survey, in order to determine the typical profile of the frequent A&E attendees and to focus upon and reduce the burden and cost of frequent attendance.

Results: No gender differences were elicited. Those in the 31-40 and the 71+ year's age groups and those residing in the Northern Harbour and South Eastern Regions were more represented. Frequent attenders were more health literate compared to the general Maltese population. They tended to have smaller monthly incomes, were overweight or obese, were less well-educated, had more long term illnesses, and had worse self-assessed health and worse self-assessed social status. The co-terminosity of A&E and Health Centre services made it impossible for Gozitan participants to report frequent A&E attendance.

Conclusion: Frequent A&E attendance is often a sign of vulnerability. Identifying them presents an opportunity to improve care and use resources more efficiently. Patients suffering from chronic or terminal conditions should still benefit from safe care including primary care, social care and palliative care as necessary. Challenging behaviour, substance abuse and mental disorders should be tackled and managed by establishing and addressing underlying causes, whilst ensuring safety of other patients and staff.

Disclosure: Data extracted from the NSO source data utilised in the Malta Health Literacy Survey 2014, commissioned and funded by the Office of the Commissioner for Mental Health.

P15.17
How is the updated ticket of referral doing?

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Introduction: The outpatient interface is important for patient care. An updated Ticket of Referral (TOR) was introduced end 2013; our study reviewed its usage in referrals from primary to secondary care, using Medical Consultant (MCC)/ Schedule V clinics as an exemplar.

Methods: Prospective study of consecutive new case referrals with all personal data anonymised. Completeness of field completion, established quality criteria, and legibility were assessed, and whether written or printed.

Results: Of 103 consecutive referrals, 3 exclusions were due to an older version submitted, resulting in n=100. Identity card number, name, address, r easons for referral and referring doctor signature were completed in 100%; with 'date' in 98% and 'referring doctor' name, and 'registration number' in 96%. 88% had a rubber stamp; 79% completed 'age', 76% 'telephone', 47% 'mobile'; date of birth complete in 10 out of 66 possible, (due to differing versions of the TOR). 19% completed 'Next of Kin' - with telephone number (13%) and mobile numbers (18 %). 22% were noted to have investigations and 1% attendance at other clinics. Quality criteria included past history (54%), current treatment (71%) and blood pressure (34%); 100% were written, with 19% containing illegible areas.

Conclusion: Data completion was high for patient and doctor details and reasons for referral, whilst fields related to 'Next of Kin' were mainly omitted. Quality criteria were variably completed - notably current treatment was absent in over a quarter - with implications for patient safety. Legibility was an issue in 19%.

P15.18
Documentation standards for inpatient file entries at Mater Dei Hospital

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Malta Foundation Programme

Introduction: Proper documentation in inpatient files is vital for patient safety and accountability.

Methods: Medical, surgical, obstetric and gynaecological wards at Mater Dei Hospital (MDH) were included in the audit after obtaining necessary permissions. All entries in each patient file over the previous day were analysed. Each entry was checked for inclusion of date, time, place, signature, registration, name, designation and pager number. Empty beds and patients who had not been inpatients for the full 24 hours on the previous day were excluded. Statistical analysis was applied to results to ascertain any significant differences in documentation between different departments.

Results: A total of 682 entries were included in the audit. Date (98.4%, n=671), signature (97.7%, n=666) and registration number (82.7%, n=564) were most documented. Name (14.5%, n=99) and designation (2.1%, n=14) were least documented. Pager number was never documented. Of the entries included, 8.2% (n=56) had one or more illegible components. Surgical en-

tries were statistically more likely to have a documented name, while medical entries were more likely to have a documented time (p=0.05). Moreover, it was noted that out of 500 beds included in the audit, 8.6% (n=43) had no entry as the patient was not seen by a doctor.

Conclusion: The results highlight inconsistencies in documentation by doctors at MDH, which can deduct from patient safety and accountability. This highlights the need for a local guideline outlining documentation standards expected from doctors at MDH.

P15.19
Patients' willingness to cross-border healthcare: the Maltese perspective

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Introduction: The purpose of this study is to identify and analyze factors influencing willingness to access cross-border healthcare by evaluating patients' behaviours, attitudes, experiences and expectations.

Methods: This study employed a quantitative cross-sectional approach surveying outpatients of a general hospital. Quota sampling was used to recruit patients who have never experienced treatment abroad and patients who did experience treatment abroad. Univariate analysis was used to analyse the data.

Results: The respondents were found to be willing to access cross-border healthcare. Age (p-*value*=0.006), education (p-*value*=0.008), language literacy (p-*value*=0.000), literacy on cross-border healthcare (p-*value*=0.000) and financial resources (p-*value*=0.000) were found to have a significant association with willingness to access cross-border healthcare. Gender, employment status, and occupation were not found not to be significantly associated with willingness to access cross-border healthcare. The respondents would base their decision to seek treatment abroad on the GPs/specialists referral and they are willing to seek treatment abroad for specialised care.

Conclusion: The respondents are more likely to access treatment abroad for specialised care rather than to by-pass long waiting times in Malta. The study is context specific. Education of the public on the differences between specialised care programme and patients' rights under EU directive should be implemented with GPs/specialists playing a major role. The EU policy on cross-border healthcare should consider focus on country specific factors when EU citizens access cross-border healthcare.

P15.20
How do medical students study anatomy?

Mubarak Alghuroba, Ahmad Abdulrhman, Isabel Stabile

Introduction: The purpose of the study was to examine how Year 1 and 2 students study gross anatomy and its relationship to their socio-demographic features.

Methods: All Year 1 and 2 students were asked to respond to a short anonymous online questionnaire.

Results: 177 students responded (59.9% of Year 1 and 40.1% of Year 2), of whom 25.4% had a previous degree. Almost 80% of those with a previous degree found lectures to be useful as a learning method compared with 68% of those without (p<0.05). Almost two thirds of those without a degree learned best by working on their own time in the dissection hall compared to just under half of those without a degree. Critical thinking sessions and writing and answering quizzes were found to be more useful by students without a degree than those with (72% *vs* 62%; 82% *vs* 72% respectively). Significantly more Year 1 students found video dissections useful as a learning tool (88% Year 1 *vs* 67% Year 2). Overall, significantly more year 1 students feel more time should be dedicated to lectures (35% *vs* 24%) and working alone in the dissection room (73% *vs* 51%) compared to Year 2 students. There were no significant differences between male and female students in either year.

Conclusion: Degree students appear to be more independent in their approach to learning anatomy, while those without a degree (ie. most local students) preferred critical thinking and other more active learning approaches.

P15.21
Usefulness of online self-learning tutorials and quizzes for medical students at the University of Malta

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Introduction: Self-directed learning, e-learning, and formative assessment in the form of online quizzes, have been shown to be associated with enhanced learning and improved test scores among medical students. This study aimed to assess the perceived usefulness of online self-learning tutorials and formative assessment (online quizzes) for medical students.

Methods: A questionnaire and online tutorial on thoracic imaging were distributed to medical students who had prior exposure to studying thoracic anatomy.

Results: All respondents had previously utilised an online learning tutorial and all of them had found it helpful (47% moderately helpful; 53% very helpful). The majority found the supplementary thoracic imaging tutorial to be moderately to very helpful in: understanding thoracic anatomical relations (81%); learning thoracic anatomy (78%); revising thoracic anatomy (86%); and, application of clinical relevance (81%). Nearly all students (97%) reported the desire to utilise similar online tutorials to study other topics. In addition to taking advantage of online tutorials, 92% of respondents had utilised online quizzes with 79% finding them moderately to very helpful and only 21% finding them slightly helpful.

Conclusion: Most medical students at the University of Malta believe there is benefit to utilising online self-learning tutorials and quizzes to enhance learning. Greater efforts should be made to increase the availability and quality of these self-learning tools in order to meet the increasing demands of our crowded curricula.

P15.22
Unskilled and unaware: self-assessment of first and second year medical students in anatomy spotting examinations

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Introduction: Accurate self-assessment and insight into limitations are an important part of medical training. The aim of the study is to investigate the ability of low and high performing students in judging their performance in their practical anatomy exams.

Methods: At the end of the practical exams in 2014/15 Year 1 and 2 students were asked to estimate the mark they felt they had obtained. The difference between actual and perceived marks was further analysed based on gender, nationality and year of study.

Results: A statistical significant difference of 9.9 and 12.4 marks was found between actual and perceived results for first and second years respectively. High performing students estimated an average of 18.4 marks below their actual mark, compared to 2.5 marks for low performing students. A statistically significant difference of 13.1 marks was found for female students compared to 5.6 marks for male students. There

was no difference based on nationality and between first and second year students.

Conclusion: The lack of insight of low performing, especially female students is cause for concern and may indicate that additional training is required. It remains to be determined whether this lack of insight also extends to written examinations in this and other disciplines as well as clinical skills. It is unclear whether poor performers over-estimate their performance because their relative incompetence deprives them of the skills needed to recognise their deficits.

P15.23
Attitudes of medical students in Malta to the teaching of embryology and histology

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Introduction: Embryology and histology are two aspects of basic biomedical sciences. The aim of this study is to investigate the attitudes of pre-clinical students, who are undergoing tuition in the basic biomedical sciences, towards these two subjects.

Methods: The data was collected by means of a survey. Apart from filling in their gender, age, nationality, year of study, participants ticked statements regarding embryology and histology that they completely agreed with.

Results: 50.9% of the students participated in this survey. Some interesting findings from the data collected were either regarding both histology and embryology combined, such as the fact that only 3.2% believe that embryology is one of the most clinically relevant basic sciences, while 4.3% believe that histology is one of the most clinically relevant basic sciences. Furthermore, only 25.9% of the participants believe that a doctor would be of limited effectiveness without embryology, while 37.8% believe the same for histology. Interestingly, 3.8% of the students believe that Western medicine can do without embryology, like Eastern or alternative medicine, while 4.3% believe the same for histology. The study also discovered some differences between the students' regard for embryology and that of histology. For example, 45.9% of the students believe that although embryology is interesting, it needs selective understanding in the clinic, while only 31.9% believe the same thing for histology.

Conclusion: In conclusion, the study has shed further light on how medical students regard histology and embryology with the rest of their medical curriculum.

P16.01
Implementation of pre-emptive pharmacogenomics in the Maltese population

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Introduction: Genetic variation between individuals provides predictive information on treatment effectiveness and risk of toxicity in commonly used pharmaceuticals. Pharmacogenomic approaches are increasingly being used to assist in the rationalization of drug use, and hence improving the quality of personalized health care and reducing the costs of the overall healthcare expenditure.

Methods: 45 DNA samples from healthy volunteers residing in Malta were analyzed with the DMET+ platform (Affymetrix, Santa Clara, CA, USA), including a broad coverage of 1,936pharmacogenomic markers in 231 relevant pharmacogenes on a single GeneChip platform. Data analysis included principal component analysis, ancestry analysis and shortlisting of the most relevant actionable pharmacogenomic biomarkers.

Results: Although the Maltese population clusters together with the Caucasian population, as expected, the allele frequencies for several pharmacogenomic markers, in the Maltese population are significantly different compared to those observed in the Caucasian population. For example, the allele frequencies observed for several CYP2D6 alleles in the Maltese population are different compared to those observed in Caucasians, while although the TPMT*3C allele frequency is 3% in the Caucasian population, this allele is completely absent in the Maltese population.

Conclusion: These findings warrant further investigation during the Phase II of the project that will soon commence. Overall, individualization of drug therapy is the ultimate goal, providing the rationale for implementing pre-emptive pharmacogenomics in healthcare provision in developing countries in Europe and worldwide.

Disclosure: The DMET+ funding was provided by Affymetrix through the PGENI initiative.

P16.02
Design of novel inhibitors of *Mycobacterium tuberculosis* replication using azole antifungals as leads

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Introduction: Mycobacterium tuberculosis (Mtb) continues to be a source of significant morbidity and mortality due to the constant emergence of resistant strains. Azole antifungals have been found to exert an inhibitory activity on Mtb CYP121 enzymes, compromising its viability; and were used in this study as leads for the *in silico* design of novel agents capable of superior inhibitory activity at this locus.

Methods: Protein Data Bank (PDB) crystallographic deposition 2IJ7 describing the coordinates of the Mtb CYP121 enzyme: fluconazole complex was selected as a template. Fluconazole was extracted computationally from the Mtb Ligand Binding Pocket (LBP), and its affinity for its cognate receptor was calculated *in silico*. The two triazole rings and the hydroxyl group inherent to azoles constituted the pharmacophoric scaffolds onto which novel moieties could be added for the construction of novel structures.

Results: Novel high affinity structures capable of binding to the Mtb LBP with high affinity were designed and segregated into families according to pharmacophoric structure and Lipinski rule compliance.

Conclusion: The designed molecules exhibiting the optimal combination of affinity and Lipinski rule compliance are suitable for further optimisation and *in vitro* validation studies. The entire molecular cohort may be included into chemical libraries for high throughput screening.

P16.03
Design and optimisation of novel lead carbonic anhydrase inhibitors for the management of neoplastic disease.

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Introduction: Neoplastic disease progression results in a scenario in which tumour cell vasculature is not sufficient to maintain homeostasis. Compensatory mechanisms have consequently evolved, an example of which is the over-expression of Carbonic Anhydrase IX (CA (IX)) which, through reduction of intracellular CO_2, reduces hypoxia and promotes metastasis. This study uses CA (IX) as a target for the design of novel inhibitors.

Methods: Protein Data Bank crystallographic deposition 3IAI describing the holo acetazolamide: CA (IX) complex was used as a template. The affinity of the complex components was

measured in X-Score v1.3 to establish a baseline. Structure activity data from the literature identified the sulphonamide moiety on acetazolamide as vital for inhibition, and used as a scaffold for the design of 3 seeds with pre-designated growing sites which sustained novel chemical growth within the CA(IX) ligand binding pocket according to the GROW algorithm of LigBuilder v1.2.

Results: A total of 465 Lipinski's rules compliant molecules (n=120, 172 and 173 from seeds 1, 2 and 3 respectively) were generated. These were segregated, for each seed, into pharmacophorically distinct families and ranked according to affinity and physicochemical parameters. The binding affinity of the generated structures (pKd) ranged between 9.46 and 10, significantly higher than the established baseline for acetazolamide (pKd=4.90).

Conclusion: This study was successful in designing Lipinski's rule compliant molecules of an affinity higher than acetazolamide for CA (IX) which was attributable to accessing of hydrophobic pocket proximal to the amine moiety of the acetazolamide seed. The optimal structures were identified for further optimisation synthesis and *in vitro* validation.

P16.04

The design and optimisation of novel structures capable of epidermal growth factor inhibition for the management of neoplastic disease

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Introduction: Over-expression of Epidermal Growth Factor Receptors (EGFRs) due to gene amplification has been associated with the development of tumours of epithelial origin, including breast, lung and colon. EGFRs are consequently targets for the design of antagonist molecules with the potential of solid tumour management. 2-O-caffeoyl tartaric acid (2OCTA), 2-O-feruloyl tartaric acid (2OFTA), Emetine (EMT) and Rosmaricine (RSM) are molecules for which there is evidence, from Chinese Pharmacopeia, of their ability to antagonise EGFR. These molecules were used as templates in the *de novo* design of novel EGFR inhibitors.

Methods: Protein databank crystallographic deposition 2ITY, describing the *holo* gefitinib: EGFR complex, was used to define the pharmacophoric space available for novel molecular growth. 2OCTA, 2OFTA, EMT and RSM were successively docked into the EGFR ligand binding pocket (LBP) and conformational analysis performed. The optimal conformer for each molecule became the scaffold onto which novel moieties were computationally introduced at *loci* considered non-critical to binding using the GROW module of LigBuilder®.

Results: 66, 16, 17 and 55 molecules were designed from 2OCTA, 2OFTA, EMT and RSM scaffolds respectively after a larger cohort (n= 1770) was assessed for Lipinski rule compliance. These molecules were classified according to pharmacophoric similarity, physiochemical parameters and ligand binding affinity. Their binding affinity (pKd), ranged between 10 and 5.76 compared to 6.05 for gefitinib.

Conclusion: The highest affinity Lipinski rule compliant molecules are being suggested for further optimisation, synthesis and *in vitro* validation. This *in silico* study validated the utility of the selected lead scaffolds in the design of novel EGFR inhibitors.

P16.05

Design and optimisation of novel anti-prostate cancer drugs capable of CYP17A1 receptor modulation using Galeterone as a lead molecule

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Introduction: Galeterone is an experimental drug that shows promise in the management of advanced prostate cancer, a leading cause of mortality in males. It was used in this study as a lead for the design of novel anti-prostate cancer drugs which modulate the CYP17A1 receptor.

Methods: Protein databank deposition 3SWZ, describing the *holo*- Galeterone: CYP17A1 complex was identified, and the affinity of Galeterone for its cognate receptor quantified in X-Score for baseline establishment. The complex was also used to generate 2D topology maps in Pose view which, together with Structure Activity Relationship data from the literature, guided the generation of a seed structure that retained the critical hydrogen bonding moieties and eliminated the hydrophobic steroidal side effect provoking nucleus *de novo* design was carried out subsequent to ligand binding pocket mapping, using the LINK algorithm of LigBuilder v1.2 which tethered the polar moieties in synthetically feasible modalities.

Results: A total of 65 molecules were generated, 18 of which were not Lipinski rule compliant. The 47 remaining molecules were ranked according to affinity and physicochemical parameter.

Conclusion: None of the generated molecules had a binding affinity that equalled that of Galeterone, however, the drug design strategy employed, eliminated its steroidal core making this molecular cohort important for further optimisation given that it is expected that all steroid associated adverse effects would no longer be part of their side effect profile.

P16.06

Targeting the mevalonate and mammalian target of rapamycin pathways in breast cancer

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Introduction: Breast cancer is the commonest cause of cancer mortality in Maltese females. The availability of eukaryotic translation initiation factor 4E (eIF4E) is reduced by mammalian target of rapamycin (mTOR) inhibitors e.g. rapamycin and metformin. Expression of 3-hydroxy-3-methylglutaryl-coenzyme A reductase (HMG-CoA reductase), the mevalonate pathway rate limiting enzyme, is regulated by eIF4E. Additionally statins e.g. simvastatin, are HMG-CoA reductase inhibitors.
Aims: Investigating the effect of HMG-CoA inhibitors in breast cancer cells, when used in combination with mTOR inhibitors, as opposed to being used alone.

Methods: Previous results indicate that when Hs 578T, MDA-MB-468 (ER- PR- HER2-), MCF7 (ER+ PR+ HER2-) cells were treated with rapamycin or metformin; sensitisation was reached by MDA-MB-468 and MCF7 with rapamycin. Sensitisation is cell viability decrease, statically maintained through 3 consecutive higher concentrations. Sensitisation concentration (C_s) and time-point (T_s) were determined. Both cell lines were exposed to rapamycin C_s. Following T_s, simvastatin was added as 0, 5, 10, 15, 20, 65, 110, 155, 200μM. After 24 hours an MTT assay was carried out.

Results: For both cell lines C_s and T_s were 35ng/mL and 24 hours respectively. MDA-MB-468 and MCF7 cells did not

reach IC_{50} with simvastatin alone, but when pre-exposed to 35ng/mL rapamycin both attained an IC_{50} at 5.7μM and 134 μM simvastatin respectively.

Conclusion: The results obtained indicate that addition of an mTOR inhibitor decreases the HMG-CoA inhibitor dose required to attain IC_{50}. This depicts that pursuing two different pathways converging on the same target, using the lowest possible drug concentrations, results in an optimum response.

P16.07

DESIRE: an EU FP7 funded project on strategies for innovative research to improve diagnosis, prevention and treatment in children with difficult to treat epilepsy

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Introduction: DESIRE is an FP7 funded project involving 25 partners in 11 countries, with more than 250 researchers and 19 centres involved in the clinical trial. DESIRE will focus on epileptogenic developmental disorders (EDD), i.e. early onset epilepsies whose origin is closely related to developmental brain processes.

Methods: A major cause of EDD is malformations of cortical development (MCD), either macroscopic or subtle. EDD are often manifested as epileptic encephalopathies (EE), i.e. conditions in which epileptic activity itself may contribute to severe cognitive and behavioural impairments. EDD are the most frequent drug-resistant paediatric epilepsies carrying a lifelong perspective of disability and reduced quality of life. Although EDD collectively represent a major medical and socio-economic burden, their molecular diagnosis, pathogenic mechanisms (PM) and rationale treatment are poorly understood.

Results: The work plan is organised in a series of work packages (WPs) which span from clinical observation, to whole exome studies, cellular and animal models and basic research, identification of biomarkers and improvement of diagnostic methods, and back to the clinical trials and assessment of innovative, targeted treatment strategies.

Conclusion: DESIRE will advance the state-of-the-art with respect to the genetic and epigenetic causes of EDD, to elucidate molecular networks and disrupted protein complexes and search for common bases disorders; diagnostic tools (biomarkers) through the study of a unique and well-characterized cohort of children to provide standardized diagnosis for patient stratification and research across Europe and treatment of EDD using randomized, multidisciplinary clinical protocols a to address novel preventative strategies.

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P16.08

The design of novel structures with an aminopiperazinone, aminoimidazole and aminoquinazoline scaffold capable of inhibiting the β-secretase enzyme for the management of Alzheimer's disease.

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Introduction: Alzheimer's disease (AD) is a progressive neurodegenerative disorder associated with dementia. Amyloid-beta plaques, the formation of which is mediated by β-secretase, are characteristic neuropathological hallmarks that may be associated with disease pathogenesis. This project aimed to utilise the aminopiperazinone, aminoimidazole and aminoquinazoline scaffolds for the *in-silico* design of novel structures capable of its inhibition.

Methods: 3 pdb crystallographic depositions describing the bound coordinates of the *holo-* β-secretase bound to an am inopiperazinone, aminoimidazole and aminoquinazoline molec ule (pdbIDS 3u6a, 3igb & 2q11 respectively) were identified and their affinity measured using X-score to create a comparative baseline. 2D topology maps were generated in Poseview and used together with structure activity data from literature to create 2 seed structures from each representative molecular class which were planted into their cognate ligand binding pockets such that novel moieties could be introduced at the pre-designated growing sites using the GROW module of LigBuilderv1.2

Results: 200 novel structures were generated from each seed segregated into families according to structural similarity and ranked by affinity and physicochemical parameters. The affinity of the optimal generated molecules exceeded baseline (p*K*d = 8.87 and 6.8, 9.95 and 8.35, 9.99 and 10.00 *vs* 6.38, 5.98 and 6.76 for both seeds of the aminopiperazinones, aminoimidazoles andaminoquinazolines respectively. Subsequent assessment for compliance with Clark's rules yielded 176, 58 and 15 moleculesfrom the aminoimidazole, aminopiperazinone and aminoquinazoline seeds respectively.

Conclusion: *In silico* calculated high affinity and predisposition for cerebral penetration makes a case for synthesis of the optimal generated molecules and further *in vitro* validation.

P16.09

Drug design at the beta- secretase enzyme for the identification of novel structures for the treatment of alzheimer's disease

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Introduction: Alzheimer's disease affects cognitive function through formation of ß- secretase mediated extracellular cerebral protein plaques and intracellular neurofibrillary tangles. This implies that ß- secretase is a key mediator of this condition, and its antagonism could effectively mitigate disease progression. This project uses three experimental molecules GRL-8234, AZD3839 and an indole acyl guanidine as leads in the *in silico de novo* design of novel antagonist molecules.

Methods: Protein databank (PDB) depositions describing the bound coordinates of the three lead structures complexed with ß- secretase were identified (PDB ID- 2VKM, 4B05, 4IVS respectively). The affinity of each small molecule for its cognate receptor was calculated in X-Score for baseline affinity establishment. 2D topology maps explaining the important interactions between resident ligand and receptor were generated in each case using Pose view and non-critical moieties computationally removed in the process of creating seed structures (n=3,2,3 respectively) on to which novel moieties were computationally introduced using the GROW module of LigBuilder.

Results: A total of 60 novel structures were generated and were classified according to lead molecule provenance, pharmacophoric structure, ligand binding affinity, and Lipinski rule compliance. Special attention was given to log P, which was skewed in the direction of increased lipophilicty, given that blood brain barrier (BBB) penetration was a prerequisite.

Conclusion: The highest ranking molecules from each pharmacophoric family were singled out for optimisation and *in vitro* validation. This study is valuable in identifying molecules of high ß- secretase affinity with computed physicochemical parameters that predict oral bioavailability and BBB penetration.

P16.10

Design of novel A_{2A} adenosine receptor antagonists for the treatment of Parkinson›s disease

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Introduction: Parkinson's Disease (PD), a chronic neurodegenerative condition, arises from progressive damage of intra-cerebral dopaminergic neurons resulting in decreased dopamine concentration and generalised muscle contractions. Management of PD includes restoring dopamine levels to compensate for the loss of intra-cerebral dopamine input. Research focuses into the design of non-dopaminergic agents specifically at the A_{2A} adenosine receptors found abundantly in the basal ganglia co-localised with the D_2 receptor. A_{2A} adenosine receptor inhibition enhances D_2 receptor signalling, increasing dopamine levels and causing motor symptoms to subside. This study consequently aimed to design and optimize *in silico*, novel molecules capable of antagonising the A_{2A} adenosine receptor using the investigational antagonist SCH412348 as lead molecule.

Methods: Protein Databank crystallographic deposition 3EML describing the bound co-ordinates of the human A_{2A} adenosine receptor bound to the experimental drug ZM241385 was used as a template for this study. The affinity of the complex was established; SCH412348 docked into the A_{2A} adenosine receptor ligand binding pocket, and conformational analysis performed such that two SCH412348 conformers with optimal stability and affinity were identified each being used to generate a seed capable of sustaining molecular growth.

Results: This process led to the identification of 24 of structurally diverse high affinity Lipinski rule compliant molecules with a log P that favoured intra-cerebral penetration and that bound to the A_{2A} adenosine receptor in diverse poses.

Conclusion: This study has produced a cohort of 24 molecules that are sufficiently robust for further optimisation and molecular dynamics validation. The optimal structures will be recommended for synthesis and *in vitro* studies.

P16.11

Design of novel anti-prostate cancer drugs which modulate the CYP17A1 receptor using ketoconazole and orteronel as lead molecules

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Introduction: Prostate cancer is one of the most prevalent forms of the disease, causing significant morbidity and mortality. Ketoconazole (anti-fungal) and orteronel (experimental anti-androgen), have been implicated as inhibiting the CYP17A1 enzyme, a mediator in androgen synthesis, and a target for the management of prostate cancer. These molecules were used as leads in the design of novel anti-prostate cancer drugs.

Methods: PDB X-ray crystallographic deposition 3RUK describing the *holo*-CYP17A1: abiraterone complex was modelled in Sybyl-X, and their mutual affinity calculated in X-Score. Ketoconazole & orteronel were docked into the CYP17A1 ligand binding pocket (LBP), and conformational analysis performed in each case. Optimal conformers for each were identified, and, based on structure activity data, and topology maps created in Pose view, 2 and 3 seed structures capable of sustaining novel molecular growth, were designed for ketoconazole and orteronel respectively. Novel growth at these *loci* was sustained by the GROW module of LigBuilder v1.2.

Results: A total of 1000 molecules were generated by LigBuilder v1.2 and grouped into pharmacophorically similar families and ranked by LBP (p*K*d), physicochemical parameter, and Lipinski rule compliance. This yielded 6 and 59 novel molecules deriving from ketoconazole and orteronel respectively.

Conclusion: This study demonstrated from affinity data, that both ketoconazole and orteronel present good scaffolds for molecular growth within the CYP17A1 receptor ligand binding pocket. Further *in silico* studies, molecular dynamics simulations and *in vitro* studies on the molecular cohort obtained from this study could yield novel molecules, capable of CYP17A1 inhibition which would have clinical utility in the management of prostate cancer.

P16.12

The design and optimisation of novel structures capable of modulation of a homology model of the human 1 adrenergic receptor for the management of hypertension

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Introduction: Hypertension is the cause of significant morbidity and mortality. The design of novel high affinity β_1-antagonists could result in dose reduction and more effective management of hypertension. This project aimed to construct a homology model of the human β_1-adrenoceptor and to design, *in silico*, novel structures capable of its inhibition.

Methods: Execution of this study was limited by non-availability of crystallographic data describing the human β_1-adrenergic receptor. Protein databank crystallographic deposition 2YCW describing the bound coordinates of the turkey β_1-adrenergic receptor: carazolol complex was used as a template for the construction of a homology model using UCSF Chimera. Carazolol was docked into the homology model ligand binding pocket, conformational analysis performed and the optimal conformation identified. Seed structures, capable of sustaining molecular growth were modelled and planted inside the mapped LBP in an orientation identical to that of the best conformer *de novo* growth was then allowed using LigBuilder.

Results: The homology model with the lowest Root Mean Squared Deviation (5.673Å) was selected from five proposed models. 19 carazolol conformers were generated and the one with the highest affinity (p*K*d: 5.9) and lowest energy (414.1 kcal/mol) was the selected scaffold for seed structure creation. Of the four seed structures modelled, 798 structures were generated, 69 of which were Lipinski rule compliant.

Conclusion: This study was successful in generating a homology model for the human β_1-adrenergic receptor in whose ligand binding pocket novel molecular growth was sustained. The highest affinity Lipinski rule compliant structures are proposed for optimisation and *in vitro* validation.

P16.13

Drug design at the angiotensin converting enzyme using rubiatriol as lead molecule

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Introduction: Angiotensin Converting Enzyme (ACE), a key enzyme in Renin Angiotensin System for production of angiotensin II and a mediator for hypertension, is a target for cardiovascular disease management. Arisawa *et al.* claim that the naturally occurring triterpene Rubiatriol, has ACE-inhibitory activity. This study aimed to, using Rubiatriol as lead molecule, validate this hypothesis using *in silico* techniques and to design novel high affinity structures for the ACE using *de novo* methods.

Methods: Protein Databank crystallographic deposition 2C6N describing the ACE: Lisinopril complex was selected as a template. Binding affinity of Lisinopril for the ACE was calculated using X-Score. Rubiatriol was docked into the ACE Ligand

Binding Pocket (LBP), and conformational analysis performed. Structure activity relationship data and 2D topology maps generated in Pose view highlighting the interactions of the optimal conformer with the LBP amino acids, guided the creation of five seed structures onto which novel growth was sustained within the ACE ligand binding pocket using the GROW module of LigBuilderv1.2. The generated molecular cohort was assessed for Lipinski rule compliance.

Results: The Lipinski rule compliant molecular cohort was, for each seed, segregated into families of similar pharmacophoric structure, and ranked according to binding affinity and physicochemical parameter. The highest ranking molecules were identified for optimisation and *in vitro* validation.

Conclusion: This study is valuable for validation of the hypothesis of Arisawa *et al.* using *in silico* methods, and for suggesting that the rubiatriol scaffold was a suitable lead for the generation of ACE modulating molecules with a binding affinity superior to that of Lisinopril.

P16.14
Drug design in order to modulate the PDE4B receptor

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Introduction: Cyclic nucleotide phosphodiesterase 4B (PDE4B) isozymes catalyse the hydrolysis of cyclic AMP to 5' AMP. Inhibition of the receptor preserves intracellular cAMP resulting in the suppression of TNF-α and other pro inflammatory cytokines whilst promoting the expression of anti-inflammatory mediators. *In vitro* evidence from workers at the Jagellonian University in Poland was indicative of the fact that an analog series of xanthine derivatives were antagonists of this receptor. This study sought to validate this theory computationally and to use their respective scaffolds as templates in order to model analog structures capable of superior antagonism at the target.

Methods: Protein databank crystallographic deposition 4MYQ describing the *holo*-PDE4b: antagonist A-33 complex was used as a template. The small molecule was separated from the complex and baseline binding affinity determined. Each xanthine analog was successively docked into the PDE4b ligand binding pocket, conformational analysis performed and the optimal scaffold determined for each. The two overall best scaffolds were selected for construction of a seed structure, with seed modelling being based on 2D topology maps generated in Pose view. *De novo* growth was subsequently sustained using LigBuilderv1.2 and the generated structures evaluated for Lipinski rule compliance.

Results: 1 and 42 novel structures deriving from seeds 1 and 2 respectively were Lipinski rule compliant. Their affinities (p*K*d) ranged between 5.27 and 6.96 *vs* 7.55 for A-33.

Conclusion: The xanthine scaffold is suitable for the design of PDE4b modulators. The designed molecules were computationally locked into an antagonist conformation. The optimal structures require further computational validation, synthesis and *in vitro* testing.

P16.15
Drug design at the sphingosine-1-phosphate receptor for the management of multiple sclerosis

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Introduction: Multiple Sclerosis (MS) is a chronic autoimmune, progressive disorder affecting the central nervous system through inflammation, demyelination and neurodegeneration. Sphingosine-1-phosphate receptor (S1PR1) modulators have been approved for the management of MS. Phosphorylated fingolimod mimics endogenous sphingosine-1-phosphate (S1P), a bioactive lipid that regulates remyelination. Fingolimod was used in this study as a lead molecule for the *in silico* design of novel S1PR1 modulators.

Methods: Protein Data Bank crystallographic deposition 3V2Y describing the *holo*-selective antagonist mimic {(3R)-3-amino-4-[(3-hexylphenyl) amino]-4-oxobutyl} phosphonic acid (ML5), bound to S1PR1 was selected as a template. Molecular modelling was carried out in Sybyl-X®. The apo-S1PR1 Ligand Binding pocket delineated the 3D-space within which novel molecular growth could be sustained. Structure activity data and 2D topology maps generated in PoseView guided the creation of seed structures onto which novel moieties could be computationally introduced at loci considered non-critical for binding onto the scaffold of a fingolimod conformer identified as optimal through conformational analysis. Four such seed structures were generated.

Results: A total of 630 molecules (n=30, 200, 200 and 200 for seeds 1 to 4 respectively) were generated and classified according to physicochemical parameter, structural similarity and binding affinity. Assessment for Lipinski rule compliance further reduced the cohort size to 125 (n=3, 9, 2 and 111 for seeds 1 to 4 respectively).

Conclusion: The optimal structures from each pharmacophoric class are suggested for optimisation, synthesis and *in vitro* validation to assess potential clinical efficacy.

P16.16
Estimation of chiral pharmacokinetics of fluoxetine from urine samples

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Introduction: Fluoxetine is aracaemic mixture of (R)-fluoxetine and (S)-fluoxetine enantiomers. Population pharmacokinetics is the study of the sources and correlates of variability in drug concentrations among individuals who are the target patient population receiving clinically relevant doses of the drug.

Methods: The chiral pharmacokinetics of fluoxetine and nor fluoxetine were investigated utilising a validated methodology for the extraction and chiral separation of the enantiomers of fluoxetine and nor fluoxetine, in urine and plasma with GC-MS. A total of 10 urine and saliva samples from 10 unrelated patients were employed in the studies.

Results: A two-compartment model was found to be adequate to describe the saliva concentration-time profile of nor fluoxetine. Mean half-life of (S)-fluoxetine in the patients was found to be 97.47±0.14h (mean±SD), while the mean half-life of (R)-fluoxetine in the patients was equal to 97.52±0.34h (mean±SD).

Conclusion: These values agree with previously published data for the racemic drug. This analytical methodology thus enables the determination of the enantiomers of fluoxetine in biological samples, following the administration of the racemic drug, alone or in combination with other medications.

Disclosure: Research Fund Committee, University of Malta, Grant no CPHRP02-04.

P16.17
A validated HPLC method for lamotrigine analysis in plasma samples

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Introduction: Lamotrigine is one of the new AEDs which widely used as mono or poly-therapy in treatment of epilepsy in Maltese paediatric population. Monitoring of LTG levels in biological fluids is a valuable aid to adjust the administered dose,

monitor pharmacokinetic interactions and assess patient compliance.

Methods: The chromatographic analysis of spiked plasma samples was carried out on a reversed phase Waters Symmetry® C18 column (250mm x 4.6mm; 5.0µm particle size), using water, methanol, acetonitrile, and trimethylamine (68.7:25:6:0.3, v/v/v/v) as mobile phase. The wavelength detection was set at 237nm.

Results: Validation of the method was carried out in regard of selectivity, linearity, precision, accuracy, limit of detection and quantification, and recovery. At 30□ C and flow rate of 0.8ml/min, the peak for lamotrigine was symmetrical in shape with a retention time 20.358min. Lamotrigine analog [2,4-Diamino-6-(4-methoxyphenyl)-1,3,5-triazine] was found to be best internal standard with good resolution and no interference with endogenous matrix.

Conclusion: This analytical method will be used to analyse patient samples for the development of a pharmacokinetic model for lamotrigine. The model will include the influence of covariates such as drug plasma concentrations, age, weight, cytochrome 450 (CYPs) genotypes and co-administered AEDs.

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P16.18

SPAN: EU lifelong learning funded project on science for prevention academic network

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Introduction: The Science for Prevention Academic Network (SPAN) has been awarded a large grant to support the establishment of a network of prevention scientists and educators across Europe. The project will develop and share best practice in the prevention science education training and workforce and support the development of innovative ICT based content for prevention science.

Methods: SPAN will achieve this by bringing together experts from 32 European institutions across 25 countries to map the prevention science sector, improve education and training, build networks and run workshops with researchers, with a particular focus on young researchers.

Results: SPAN has assessed how improve the integration of Prevention Science degree/quality assurance standards, methods and approaches in the European Higher Education Sector in such a way that improves the quality and increases the volume of staff and student mobility across Europe. it is also implementing the sharing of best practice and facilitating the development of innovative practices in Prevention Science education and training.

Conclusion: The project is presently developing a quality plan designed to improve the integration of prevention science in higher education across Europe and will provide recommendations on how best to align prevention science with the European Credit Transfer and Accumulation System (ECTS) and encouraging institutions to develop their internal quality assurance procedures, create credit allocations for their programmes, to validate them according to their national and/or institutional rules and to monitor the credit allocations

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P16.19

Tex-OE enhances the oxidative burst response in neutrophils differenciated in vivo with high levels of glucose.

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Introduction: Diabetics exhibit an increased risk of developing infections due to glycosylated albumin, which bind to neutrophils, rendering them defective. Changes develop in the oxidative burst capability which reduces the leukocyte's ability of killing pathogens. Tex-OE is an active extract which has been shown to rapidly increase the production of Heat shock proteins in the presence of stress, thus reducing the neutrophilic defect and providing a protective function.

Methods: Since neutrophils have a developmental life span of 5-8 days, a technique other than HGT or HbA1c testing was developed. Stem cells were collected from fresh cord blood using theHistopaque technique. These were differenciated into neutrophils using Filgrastim; a G-CSF, and subjected to either normal glucose or high glucose levels for 7 days; mimicking the haematologicalenvironment of a poorly controlled diabetic. Neutrophils were then subjected to Tex-OE, and the extent of the neutrophilic oxidative burst, at normal or high glucose levels, was determined using nitro blue tetrazolium reduction (NBT). The above mentioned techniques shall be repeated on fresh blood samples obtained from the Diabetic clinic.

Results: Tex-OE allows a correction of the defective oxidative burst in differentiated neutrophils exposed to glucose during their development. Ongoing work will be presented to show whether selecting neutrophils on the basis of glycated albumin will allow this *in vitro* effect to be replicated in vivo.

Conclusion: Tex-OE should result in a better microbial kill and enhanced immune response. Whether this can also be shown to be the case in patient derived neutrophils in-vivo remains to be seen.

Disclosure: TEX-OE was extracted from the skin of the prickly pear (*Opuntia ficus indica*) by the Institute of Cellular Pharmacology (ICP) Ltd. The Malta Council for Science and Technology (MCST) was also involved in the funding of this project through the HOTSPOTS project. We would also like to give our special thanks to the Diabetic outpatient staff and diabetic consultants for supplying us with blood samples.

P17.01

Learning the hard way: an analysis of current patterns of radiological errors and discrepancy at Mater Dei Hospital

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Department of Medical Imaging, Mater Dei Hospital

Introduction: Error in the interpretation and reporting of radiological examinations has long been recognized and is felt to be unavoidable. Retrospective review of cases where errors have been made and an appreciation of the error and possible causal factors have educational benefit. Furthermore, it may enable modification of reporting behaviour, radiological technique or even departmental practice to reduce the frequency of errors in future studies. There is evidence that error rates are reduced following the establishment of a departmental discrepancy review meeting. Such a meeting is held fortnightly in the local Radiology Department.

Methods: All discrepancies from January 2012 till present will be included in this review; the imaging modality, error type (interpretation; observation; communication; technical errors) and relative frequency will be recorded. The errors themselves as well as teaching points will also be recorded and an attempt will be made to draw out recurrent error patterns and review areas on various modalities in an attempt to better understand

why errors occur and reduce their frequency; selected cases will be used to better illustrate these learning points.

Results: Data collection is currently ongoing; results are not yet available for analysis.

Conclusion: Error will remain an inevitable part of Radiology. However, we hope that this review of local discrepancies may allow us to recognise certain suboptimal areas in our practice and make the necessary changes to reduce error to the minimum possible.

P17.02
An audit of staff knowledge of Royal College of Radiologists current recommendations on the management of mild and severe contrast medium reactions.

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Introduction: To ensure that all staff involved in administering intravenous contrast knows how to manage mild and severe contrast reactions. This is based on the fact that internal guidelines currently do not exist. This audit's aim is thus to help elicit the gaps in knowledge of the staff concerned.

Methods: A questionnaire is distributed via an online survey to: All radiologists, radiographers who work in CT, radiographers who work in MRI, and staff who work in the angiosuite. Once the audit is performed, internal guidelines are drafted to protocol treatment of allergic contrast reactions. Guidelines for patients at risk of contrast reactions including pre-medication should also be drafted. Once these guidelines are in practice a re-audit will be performed.

Results: Preliminary results demonstrate that there are lacunae in the recognition, prevention and management of allergic reactions to contrast.

Conclusion: The preliminary results demonstrate a need to formalise a protocol for the recognition, treatment and prevention (pre-medication) of contrast reactions. Posters will be created with treatment guidelines. These will be readily available in places where contrast administration occurs.

P17.03
Percutaneous varicocele embolization at Mater Dei Hospital: A five-year review.

Lara Sammut, Nathania Bonanno, Adrian Mizzi
Medical Imaging Department

Introduction: To assess the efficacy of percutaneous varicocele embolization over five years.

Methods: Patients who underwent percutaneous varicocele embolization for symptomatic varicoceles or fertility problems between January 2010 and August 2015 were audited retrospectively. All procedures were performed under local anaesthesia. Catheterization was performed via right common femoral vein puncture. Cobra catheter was advanced into the left gonadal vein. Embolisation was performed using platinum coils (average 4 coils of 8mm-10mm diameter). All patients were discharged home on the same day of procedure.

Results: 27 male patients (aged 19-46years; mean age, 31years) were audited. The indication in 63% was pain/discomfort, fertility problems in 33%, whilst in one patient the varicocele was an incidental finding on ultrasound. All, but two, of the unilateral embolisations were technically successful and venography post-embolization showed complete venous occlusion with no passage of contrast through the coils. In the above-mentioned two patients, the procedure was abandoned, as the left testicular vein could not be catheterized. There were no immediate complications. So far, 75% of patients reported complete resolution of symptoms. When the indication was fertility, sperm counts were noted to increase post-embolization. There were 5 patients who experienced a recurrence after an average of 6 months, but only 1 patient had to be re-treated. This patient had re-embolization after 1 week and was successful. No recurrences required surgery.

Conclusion: This audit represents a 93% success rate of unilateral percutaneous retrograde varicocele embolization in our hospital. This minimally-invasive outpatient procedure offers many advantages including a high success rate, low recurrence rate and rapid return to normal activity.

P17.04
Are we imaging low-risk prostate cancer patients unnecessarily?

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Introduction: The combined use of Prostate-Specific Antigen (PSA) and Gleason score in prostate malignancy to assess risk of metastatic disease is an established practice and is important in planning treatment options. Low-risk patients are defined as having a PSA ≤10 and Gleason ≤6. Established evidence-based guidelines discourage staging imaging for patients newly diagnosed with low-risk prostate carcinoma. This audit aims to assess local adherence to the above guidelines, namely whether whole-body bone scintigraphy and staging Computed Tomography (CT) scans are being performed unnecessarily exposing the patient to the risks of radiation and contrast and placing financial burdens on the healthcare system.

Methods: Patients with histologically-proven prostate malignancy diagnosed between June 2014 and June 2015 were included in the audit (n=362). Demographic details, Gleason score and PSA were collected using iSoft ICM software; patients at low-risk for disseminated disease were identified. The frequency of inappropriately performed whole-body bone scintigraphy and staging CT studies was recorded; the frequency of positive findings on the two modalities was also recorded. American College of Radiology Standards: - 0% of patients diagnosed with low-risk prostate cancer should have a staging CT scan - 0% of patients diagnosed with low-risk prostate cancer should have whole-body bone scintigraphy performed, unless the patient complains of bone pain

Results: The audit is ongoing; therefore complete data is not yet available for analysis.

Conclusion: If results show that standards are not currently being met, appropriate measures will be taken to reduce the unnecessary financial and radiation expenses being incurred.

P17.05
Radiographic assessment in patients with haematuria, post-blunt abdominal trauma, at Mater Dei Hospital's Accident & Emergency Department.

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Introduction: The kidneys are the most commonly injured genitourinary organ. Blunt mechanisms of renal injury include motor vehicle collisions, falls, sports injuries, etc. The 2015 Guidelines on Urological Trauma by the European Association of Urology clearly state the indications for radiological investigation. The aim of this audit was to assess the indications for radiological assessments performed so as to rule out any underlying renal trauma, in patients who presented to the A&E De-

partment post-blunt abdominal trauma and were noted to have either gross or microscopic haematuria.

Methods: The Picture Archiving and Communication System (PACS) at Mater Dei Hospital was used to review results of radiological investigations performed in the setting mentioned above, throughout the year of 2014. Data, both positive and negative findings was recorded on a spreadsheet. Results were recorded as percentages, portraying the number of renal traumas which were detected and the number of radiological assessments which were actually indicated.

Results: Results show that the majority of imaging performed, did not reveal any underlying renal trauma & was not actually indicated. No patients with microscopic haematuria were found to have renal trauma of note.

Conclusion: One must not immediately resort to imaging in patients with haematuria post-blunt abdominal trauma, keeping in mind that imaging costs time, money and radiation (when performing CT Scans).

P17.06

A study comparing computed tomography and magnetic resonance imaging in the loco-regional staging of colorectal cancer

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MID

Introduction: MRI is the optimal imaging modality for pre-operative local staging of Colo-Rectal Cancer (CRC). Nevertheless advances in CT, have raised interest in the potential role of CT for this purpose. Our study compares CT and MRI in the local staging of CRC.

Methods: Twenty-two patients who specifically had a 64-slice CT and 1.5T MRI of the rectum for staging of CRC between January 2013 and January 2014 were included retrospectively: 16 male (median age 66years). The radiological parameters assessed include tumor (T) stage, tumor distance from the anal verge, regional lymph node involvement (*N* stage) and Circumferential Resection Margin (CRM) involvement.

Results: In 45% the same tumor stage was reported in both CT and MRI. CT down-staged the tumor in 55% but never upstaged. Tumor distance from the anal verge was equal in CT and MRI in 0.05%. In 77%, tumor distance from the anal verge was less on CT than on MRI and vice versa in 18%. In 59%, N Stage was the same on both CT and MRI. CT under-staged the *N* Stage in 14% whilst upstaged in 27%. In assessing CRM involvement, CT findings were the same as MRI in 68%. In 18%, CT showed involvement of the CRM whilst MR didn't. In the remaining 14%, CT showed no CRM involvement whilst MRI showed involvement.

Conclusion: Results show concordance between CT and MRI in *N* Stage and CRM involvement. CT down-staged the T stage and tumor distance from the anal verge due to reduced contrast resolution of CT when compared to MRI.

P17.07

Outcomes of arterial embolization of renal angiomyolipomas; A 7-year overview

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Introduction: Angiomyolipoma (AML) is a benign renal neoplasm. Indications for intervention are therapeutic or prophylactic. This study was conducted to evaluate the outcomes of AML embolization at our institution.

Methods: This is a retrospective study of all AMLs treated at Mater Dei Hospital over the past 7 years with Selective Arterial Embolization (SAE). Nine patients (2 male; mean age, 47) underwent embolization for 10 AMLs between January 2008 and July 2015. Of these, 5 had tuberous sclerosis with multifocal AMLs and 4 had a solitary sporadic AML. Polyvinyl alcohol particles and micro-coils were the embolic agents of choice. In all technically- successful cases, embolization of the feeder artery and vascular stasis was achieved. The outcomes of embolization were determined over a mean follow-up period of 16.7 months (range, 2-72).

Results: 75% of SAE of renal AMLs were technically successful. Therapeutic embolization was performed in two patients to control acute tumour haemorrhage; prophylactic intervention, in 7, and for 8 lesions with a demonstrable increase in size. All tumours were >4cm at time of intervention. Eight had no immediate complications; one experienced post-embolization syndrome. One had retro-peritoneal haemorrhage with superimposed infection 3 months post-procedure. Repeat embolization was carried out in one case. No recurrence was recorded; all embolized tumours were smaller on follow-up imaging. One patient underwent partial nephrectomy following SAE of a large AML.

Conclusion: Embolization has an emergent therapeutic role in patients with acute retro-peritoneal haemorrhage secondary to AML, and prophylactic in patients with AMLs > 4cm. It can be combined with surgical treatment.

P17.08

ALVARADO, ultrasound and computed tomography for the diagnosis of acute appendicitis in the Emergency Department.

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MDH

Introduction: Appendicitis is one the most common causes of an acute abdomen. The ALVARADO score is a clinical decision rule that uses a 10 point scale to aid diagnostic accuracy. Ultrasound (US) and CT scans are imaging modalities often used to aid in the diagnosis of appendicitis. This audit compared imaging with ALVARADO scores and assessed whether scans were being performed unnecessarily in the Emergency Department (ED).

Methods: ALVARADO scores were calculated for all patients (n=310) presenting to the ED over a 3 month span that had either an US or CT scan in view of suspected appendicitis. Scores were also calculated for all patients undergoing an appendectomy during the same time period. Histology results for all appendectomies were obtained.

Results: This audit showed a positive correlation between rising ALVARADO scores and the probability of a histologically positive diagnosis of appendicitis. Of the 90 patients presenting to the ED with ALVARADO scores of <3 and were scanned, only 1 patient (1%) had confirmed appendicitis on histology. Of the 52 patients with ALVARADO scores of 4 who received scans, 5 (10%) had appendicitis. 52 patients with ALVARADO scores >6 underwent appendectomies, 47 (90%) of which had appendicitis on histology. Only 13 of these patients had undergone surgery without any imaging.

Conclusion: The data gathered adds support to literature which recommends that scanning patients with ALVARADO scores of 4-6. It also demonstrated that a large number of scans are being performed in patients with scores of ≤3 and ≥7.

P17.09

An audit of current investigation and management of the incidentally discovered adrenal mass in order to establish local guidelines

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Introduction: Adrenal incidentalomas are adrenal masses, generally 1cm or more in diameter, discovered incidentally. The widespread use of medical imaging has resulted in the frequent discovery of asymptomatic adrenal masses. As such, guidelines are useful to guide appropriate treatment.

Methods: We hereby present a retrospective audit identifying all newly diagnosed adrenal lesions over a 6-month period between January and July 2014. Formal imaging characterisation and hormonal profiling are reviewed for the relevant patient population in order to determine whether appropriate investigation and follow up is performed. It became clear that there were no formal local guidelines regarding the long term management and follow up of adrenal incidentalomas. For this reason we determined to review existing international guidelines in order to compile and build acceptance for local guidelines.

Results: To propose local guidelines for the management of adrenal incidentalomas, published international guidelines published from 2010 to 2014 were reviewed.

Conclusion: Adrenal incidentalomas have become an increasingly common radiological finding. Auditing of local practice and the establishment of locally accepted guidelines has therefore become imperative. We hope our review will increase local awareness and lead to streamlined investigation and treatment of such cases.

P17.10
CT pulmonary angiograms at Gozo General Hospital

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Introduction: Diagnosing and managing Pulmonary Embolism (PE) early is imperative. A guideline exists whereby a work-up for suspected PE can be carried out. Our aim was to identify all CTPAs done at Gozo General Hospital (GGH) and assess whether the Two-Level PE Wells score for suspected PE was followed.

Methods: All CTPAs done at GGH, 85 in total, were included. In cases where no PE was present, presence of other pathology was noted. Clinical details were collected from online request forms, discharge letters and patients' clinical notes. For each patient, available D-dimer result was noted. Patients were then divided into high and low risk groups according to the mentioned score. The number of high risk patients in whom an unnecessary D-dimer level was taken was recorded as well as low risk patients with a low D-dimer level (0.5 ug/ml or less) and thus with an unnecessary CTPA.

Results: Of all CTPAs, 12 were PE positive giving a 14.12% positive result. Of the negative cases, 37 (43.53%) had an alternative diagnosis. Patients were categorised into high (61%) and low risk (39%) groups. In the high risk group (Wells score >4) D-dimer was requested in 74.19%. In the low risk group, 21.16% had low D-dimer while in 13.46% no D-dimer was requested; all low-risk cases with low D-dimer level had negative CTPA.

Conclusion: More adherence to the mentioned Wells score when doing a workup for suspected PE is needed. This reduces unnecessary CTPA's and D-dimer testing.

P17.11
Achieving the anatomical image criteria for PA chest radiography

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Introduction: The chest radiograph remains the most frequently requested radiological investigation. It is essential to specify the anatomical structures that should be visible on the chest radiograph to ensure an accurate diagnosis. In our local practice, we have identified this area as one that should be subject to audit process.

Methods: One hundred and fifty posteroanterior erect chest radiographs performed in Primary Health Centres and at the Medical Imaging Department at Mater Dei Hospital over five consecutive weekdays during June 2015, were retrospectively evaluated. The criteria used were obtained from guidelines published by the American College of Radiology and the European Commission.

Results: The 150 radiographs reviewed were of 62 females and 88 males. The age range varied from 5 to 89 years, with a median age of 56 years. Compliance rates exceeded 95% in 3 criteria. 82% of radiographs were obtained at full inspiration. Patient rotation was observed in 37% of cases. The medial borders of the scapulae were projected outside the lungs in only 43% of radiographs. Lung apices were visualized in all radiographs. The costodiaphragmatic recesses were not always depicted. The vertebral bodies were seen in approximately 81% of cases.

Conclusion: Thoracic symmetry and projection of the scapulae outside of the lungs were the criteria least satisfied. A departmental presentation to address the criteria not being fully achieved has been held and changes have been implemented. The results for the second round radiographs will be presented and compared to the first round results at the Malta Medical School Conference.

P17.12
Lateral chest x-ray use

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Introduction: A lateral Chest X-Ray (CXR) delivers more than twice the dose of ionising radiation than a PA CXR. Very often lateral CXRs add little clinical value to the diagnosis obtained on the PA CXR. Traditional indications for a lateral CXR have largely been surpassed by Computed Tomography (CT) of the chest.

Methods: All lateral CXRs taken in government hospital and health centres over a two-week period were collected using Picture Archiving and Communication System. Clinical details provided, referring department and official diagnosis on the report of each radiograph were noted. The images were then reviewed independently by a consultant radiologist to assess whether the lateral CXR was indicated and whether it had provided useful information to facilitate the diagnosis.

Results: Clinical indications on requests varied from assessment of resolution of pneumonia to assessment of a lung lesion prior to biopsy. In most cases a CT scan was carried out a few days later to reach a diagnosis. Review of previous imaging would have been sufficient in the rest. Almost half of the CXR taken were taken in view of chest trauma. More than half of oblique/rib views were taken in spite of a lack of online request by requesting physician.

Conclusion: None of the lateral CXRs taken were indicated or contributed to the diagnosis. Lateral CXRs should only be performed when requested specifically by the radiologist. Education of staff on requesting lateral CXRs and radiation exposure associated with these views will aid in decreasing the amount of inappropriate requests.

P17.13
Skull x-rays for head injury: an audit of local practice

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Introduction: Skull X-Ray (SXR) is not indicated in head injury. In January 2014, the National Institute of Health and Clinical Excellence (NICE) updated clinical guideline 176. This guideline advises that SXRs should not be used to diagnose brain injury. With availability of Computed Tomography (CT) scanning, the SXR can almost never be justified in the assessment of head injury. However, it is an important part of a skeletal survey in suspected Non-Accidental Injury (NAI). The absence of a fracture on SXR can be falsely reassuring, and SXR

is suboptimal in revealing a basal skull fracture. This audit aims to look at our local situation – to assess whether SXRs are being performed for head injury.

Methods: Patients who had a skull radiograph as a first investigation for head injury between January 2012 and December 2013 were included retrospectively in this audit. Radiograph findings were categorized into normal or abnormal, and any subsequent work-up with CT, if present, was noted.

Results: 384 patients (mean age, 46; range 3months-90years) were audited. 32.8% of SXRs were requested from Accident & Emergency (A&E) Department at Mater Dei Hospital; 44.8% from A&E Department, Gozo General Hospital; 18.8% from Health Centres; 3.6% were requested on an in-/outpatient basis. 370 patients (96.4%) had a normal skull radiograph; 20 of these went on to having a CT brain. No SXRs were performed in the setting of NAI.

Conclusion: This audit illustrates that guidelines are not being closely adhered to, and a large proportion of unwarranted SXRs are being requested at our institution.

P17.14
Venous thromboemobolism and screening for occult cancer - a retrospective study of current local practice

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Introduction: Unprovoked Venous Thrombo Embolism (VTE) may be the first indicator of occult cancer. Current literature notes that up to 10% of patients with unprovoked VTE will be diagnosed with cancer in the following year.

Methods: The reports of 514 computed tomography pulmonary angiograms (CTPA), 1123 lower limb Doppler ultrasound scans and 179 lung perfusion scans were reviewed to determine the number of VTE events. Available clinical details of these cases were then reviewed to assess whether VTE was truly unprovoked. The extent to which patients with VTE are investigated for occult cancer with Computed Tomography (CT) or ultrasound of the abdomen at Mater Dei Hospital was established and the number of patients diagnosed with occult malignancy recorded. Information was gathered from Radiology Information System, Picture Archiving and Communication System, Electronic Case Summaries and patient notes.

Results: Out of 1816 investigations, 217 were positive for VTE. In 3 of these cases, malignancy was concomitantly detected on CTPA. Fifty-two out of the remaining positive 214 VTE cases were unprovoked and almost two thirds of these were investigated further for occult malignancy. Occult malignancy was identified in 9% of unprovoked VTE cases.

Conclusion: A significant number of patients at MDH are subjected to further investigations to detect occult abdominal or pelvic malignancy. Malignancy detection rates are similar to those quoted in a recent large randomised controlled clinical trial. The results of this study will be used to formulate local guidelines for screening for occult cancer with abdominal imaging in patients with unprovoked VTE.

P17.15
Accuracy of arterial duplex ultrasound scanning in the assessment of peripheral arterial disease

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Introduction: Angiography is the gold standard for assessment of Peripheral Arterial Disease (PAD) however its invasive nature and potential to cause nephrotoxicity make it less than ideal as a diagnostic tool. Arterial Duplex Scans (ADS) are a safer and cheaper assessment tool which can provide the necessary information to guide interventional management. Aim: To assess accuracy of arterial scans performed at the Vascular Laboratory (VL) at Mater Dei Hospital (MDH)

Methods: Analysis of ADS and subsequent angioplasties carried out at MDH since the official opening of the VL in January 2015 is carried out. Site and degree of stenoses described on reports from the VL are compared with findings on Digital Subtraction Angiography (DSA) carried out during the subsequent intervention.

Results: A total of 17 legs were analysed over the first 3 months. Patient distribution was balanced (53% female, 47% male) with an average age of 74 years. The average time from ADS to intervention was 26.2 days with 53% of patients having an intervention within 12 days of ADS. 88% of scans were carried out for native vessels. Image analysis revealed 94% concordance between ADS and DSA in the femoropopliteal segment but only 66% concordance in the infrapopliteal segment.

Conclusion: Findings are in keeping with those found in literature review which shows that ADS are a safe, cheap and reliable method of assessing PAD with good diagnostic agreement with findings on DSA, especially in the above popliteal region.

P17.16
Audit of appropriateness and outcome of CT and MR brain scanning for headaches at a regional general hospital

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Introduction: Headache is a common disorder with numerous potential causes. The relative rarity of secondary headaches, compared with the large number of patients with primary headache, brings into question the value of routine neuroimaging studies, either CT or MR to exclude underlying causes of headache. The aim of this audit is to assess the appropriateness and outcomes of CT and MR brain scanning for headaches at a regional general hospital. The American College of Radiology Appropriateness Criteria (ACRAC) for headaches was selected as the standard for this audit.

Methods: This audit involved a retrospective review of radiological requests and reports from the local Radiology Information System (RIS) for all CT and MRI brain scans performed for patients with a clinical history of headache at Mater Dei Hospital, Malta from the January to June 2015. The headache variants were allocated an AR according to the ACRAC-assigned values for patients presenting with headache. Cases were further divided into 'normal', and 'positive' findings (i.e. intracranial or extracranial lesions). The distribution of normal versus positive findings among groups with different AR values will be reviewed.

Results: Results are still ongoing. However, thus far suggest that up to 10% of CT and MR brain scans for headaches may have been inappropriate. The yield of positive findings was highest in those with a history of trauma.

Conclusion: This audit suggests that a significant proportion of CT and MR brain scanning for headaches is inappropriate, and the development of a local guideline for imaging referral is indicated.

P17.17
CT colonography - a patient satisfaction survey

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Introduction: CT Colonography (CTC) is a radiological examination of the large bowel which is safe and involves minimal bowel preparation. This service was introduced locally in July 2014 and has been performed at Gozo General Hospital since then. The service is now well-established and over 500 examinations have been performed thus far. The aim of this survey was to prospectively assess patient satisfaction with the service offered and identify areas needing improvement.

Methods: The service was audited using a written questionnaire that was distributed to the patients immediately after the procedure. Participation was voluntary and anonymous. Patients were asked eight questions including: whether they were given sufficient information about the examination, how they preferred to receive the information, any side effects encountered with the bowel preparation and how they rated the discomfort of the examination.

Results: 70 out of the 100 distributed questionnaires were returned. 95% of patients felt they were given enough information about the examination. 49% of patients preferred to receive the information verbally. 83% did not have any undesirable side effects from the bowel preparation prescribed. 91% found the diet instructions easy to follow. Most of the patients found the exam only mildly uncomfortable. The majority of patients praised the excellent service received by the radiographers in Gozo and found them very helpful.

Conclusion: The majority of patients are satisfied with the CTC service. A number of useful suggestions were also made and where possible these will be implemented to continue improving this service.

P17.18

An evaluation of the CT enterography service in Malta

Stefan Zammit, Kristian Micallef

Introduction: CT enterography is a very useful tool for the assessment of small bowel pathology and is often regarded as a first line modality in the evaluation of suspected inflammatory small bowel disease. We therefore aim to assess the service provided in Malta. A cohort of 88 patients undergoing CT enterography from November 2013 through to April 2014 was recruited. We aimed to identify whether we have appropriate age cut-off point for MR *vs* CT enterography and assess the effective radiation doses for this examination, the indications and referrers.

Conclusion: With an average local range of 10.7mSv - 14.3mSv, the results fall well below the internationally quoted 15mSv per CT enterography assessment. Currently only patients below 16years are offered MR instead of CT enterography. 4 patients from a total of 88 were younger than 20 years. In view of such a small number of patients below the age of 20 requiring CT enterography it would be commendable and feasible to increase the age cut off to perform a MR enterography to 20 years.

P17.19

An MRI care pathway for Malta

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Introduction: Healthcare systems should compete at the right level to create value in terms of improved service quality by developing expertise, reducing errors, increasing efficiency and improve outcomes. Service quality is contingent on the design of the care pathway through which the service and the value within it are experienced by the patient. A clinical pathway defines the optimal care process, sequencing and timing of interventions by health care professionals for a particular diagnosis or procedure. The purpose of this study was to develop further a model of MR Care Pathway appropriate for a regional healthcare system.

Methods: A nominal group technique was conducted amongst a panel of 13 MRI experts to gather qualitative and quantitative data about the MR Care Pathway, and the outcomes required to evaluate the process using established quality criteria.

Results: The outputs and associated quality criteria required at each stage of the pathway were discussed. The data indicate that participants attached the highest importance (>70) by means of ranking to setting a safety checklist at referrer stage, MR education to referrer, benchmarking and defining quality. The experts were also of the view that the current model should include the provision of adequate patient information prior to MRI and the establishment of referral guidelines and transparent prioritisation guidelines.

Conclusion: A model of a MR Care Pathway has been successfully refined using a multi-stakeholder approach. This is the first published medical imaging care pathway developed in Malta using a formal research process.

P17.20

Qualification and certification frameworks for MRI radiographers in the major English speaking countries

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Introduction: In response to the rapid expansion in MRI technology, it is essential that MRI radiographers acquire the specific competences necessary for the effective, safe and economical use of MRI devices and that these competences be assessed, corresponding qualifications established and fitness for practice certified. A comparative survey of MRI qualification and certification frameworks for MRI radiographers was carried out with the aim of identifying elements of good practice which could be utilized in the development of national qualification and certification frameworks.

Methods: Documentary analysis of the English language literature and websites of professional bodies and data from a web based questionnaire amongst MRI radiographers.

Results: The initial results indicated that the English speaking countries (UK, US, NZ, AU and CA) are the most advanced in MRI qualification and certification framework. The documentary evidence supported by survey results indicate that NZ and CA have a mandatory MRI qualification and certification that is accredited and based on a national competence profile. US have two registration pathways. UK and AU an MRI qualification and registration is desirable but not mandatory.

Conclusion: It is being recommended that MRI courses to be based on a competence profile based on the novice-expert continuum and referenced to an international qualification framework. Professional regulatory body should establish a specialist register based on mandatory qualification, and certification process. Regulatory body establishes a list of accredited schools and universities offering PG qualifications in MRI.

P17.21

Carotid ultrasound doppler imaging at Mater Dei Hospital

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Introduction: Significant carotid stenosis, defined as >70% by the North American Symptomatic Carotid Endarterectomy Trials (NASCET), carries serious prognostic implications and may incur surgical intervention. Carotid Ultrasound Doppler (CUD) imaging should be requested when relevant in view of the patient's clinical presentation - namely onset of occlusive disease related to the territories supplied by the internal cerebral artery (ICA). The 2011 Society for Vascular Surgery guidelines recommend that surgical intervention is performed

within 2 weeks in symptomatic patients with significant stenosis, highlighting the importance of early investigation. Our aim was to determine the common reasons for CUD requests, as well as the average waiting time between symptom onset, investigation and surgery if appropriate.

Methods: All the CUD procedures performed over an 8-month period in 2014 were audited.

Results: 73.4% of CUD requests were in relation to potential ICA embolic disease. 26.6% had no clear indication, of which 1.9% were coincidentally found to have significant stenosis. Waiting times between the index event and imaging were less than 6 weeks in 72.1% of cases, and over 6 months in 0.9%. Only 20% of individuals with significant stenosis underwent carotid endarterectomy, two thirds of whom were within 2-4 weeks of the index event. The date of the index event in the other third was not known. Of the remaining 80% with significant stenosis, the decision not to opt for surgery was clearly documented in only one case.

Conclusion: More appropriate and timely referrals for imaging and surgery are indicated. The development of a guideline should be encouraged.

P18.01

The experience of spouses whose children survived cancer

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Introduction: This qualitative study aims to better understand the lived experience of spouses whose children survived cancer.

Methods: The data was obtained through joint in-depth semi-structured interviews with each of the five couples. The emergent themes were analysed through Interpretative Phenomenological Analysis.

Results: The major themes revolved around the resiliency that couples showed in dealing with a myriad of emotions as time stood still. The various coping styles the couples used were also given prominence. These included the support they received from: the extended families, work, religion and spirituality. Additionally, changes in marital intimacy were noted. Some spouses highlighted that their communication increased, while for others it decreased. This was also linked with the time allocation to the couple dyads and the level of conflict the spouses claimed to engage in. Finally, the experience these couples underwent seems to have also marked their parenting style particularly with regards to their child who had cancer.

Conclusion: This study highlighted the importance of providing ongoing support for families experiencing cancer. It is also helpful for professionals working in the field of cancer as it may help them to better understand the families' experiences and to also pay special attention to the couple dyad.

P18.02

T-lymphocytes and natural killer cells in B-Cell chronic lymphocytic leukaemia; what is their role in the disease?

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Introduction: B-cell chronic lymphocytic leukemia (B-CLL) is a lymphoproliferative disorder which manifests in immunodeficiency and infections. Studies show that both the B-cell and the T-cell compartment impact prognosis and disease. Our study quantified the T-lymphocytes and Natural Killer (NK) cells in untreated B-CLL patients and were compared to an age-sex matched healthy control population. Patient's results were then correlated with prognostic indicators (Rai Stage, Lymphocyte Doubling Time (LDT), CD38 and ZAP70).

Methods: Peripheral blood was collected from 25 B-CLL patients and 20 healthy control population. The blood was stained with the following monoclonal antibodies (CD3/CD4/CD8/CD16+56/CD19). The lymphocyte subsets were identified using a 4-colour FACS Calibur flow cytometer (BD Biosciences).

Results: Statistical analysis showed that T-lymphocytes (predominantly CD8+ cytotoxic T-cells) and NK levels were significantly increased in the B-CLL population. A noticeable increased level of NKT cells was also observed suggesting a correlation with a prolonged treatment free survival due to tumour lysing capabilities. Moreover, the T-cell expansion paralleled the tumour clone (CD19+Bcells). Different scenarios were observed in poor risk patients (CD38+ve, ZAP70+ve and elevated Rai Stage) who tend to have both the CD4 and CD8 elevated. The association of CD4 and CD8 with prognostic markers could distinguish a group of patients with an indolent course of disease from patients with a poor clinical outcome.

Conclusion: Evaluating the immune status (T and NK cells) at the time of diagnosis for B-CLL patients could provide an insight into prognostication and treatment response thus providing better patient management.

Disclosure: Faculty of Health Science (University of Malta) Pathology Department (Mater Dei Hospital)

P18.03

Sensitivity and specificity of troponin I in the detection of acute myocardial infarction at the Emergency Department, Mater Dei Hospital

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Introduction: Troponin I exists in three isoforms, the cardiac form being the only one present in the myocardium. This specificity makes it a suitable cardiac marker in the diagnosis of acute myocardial infarction. We here investigated the sensitivity and specificity of the ultra sensitive Troponin I assay in relation to the golden standard electrocardiogram for the local Maltese population in the Accident and Emergency setting.

Methods: Electrocardiograms being performed at the Accident and Emergency Department where screened for ST/non -ST elevation myocardial infarction for a period of 1 year. Utilising the iSoft database, results were extracted for all cases having serial testing of Troponin I. Statistical analysis was performed so as to obtain the sensitivity and specificity of Troponin I.

Results: A total of 922 cases where documented in this study and clustered according to their electrocardiogram and their primary and secondary Troponin I results. The sensitivity and specificity of Troponin I was found to be 91% (95% CI 89.1%-92.8%) and 62% (95% CI 59.1%-65.4%) respectively.

Conclusion: The sensitivity of Troponin I in the detection of acute myocardial infarction is relatively high. The low specificity can be attributable to other conditions that may give rise to elevated Troponin I results. Whilst the electrocardiogram is regarded as the golden standard technique for early diagnosis of ST elevation myocardial infarction, it is of little diagnostic value in non-ST elevation myocardial infarction cases. Serial testing of Troponin I and electrocardiograms is recommended for a definitive diagnosis of acute myocardial infarction.

P18.04

Pre-analytical variables affecting FVIII levels

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Introduction: Factor VIII or the anti-haemophilic is an important constituent of the coagulation cascade and decreased levels lead to the classical Haemophilia A. FVIII is well known for its instability and immediately after blood collection the FVIII activity levels are gradually reduced. Pre-analytical vari-

ables may affect haemostasis assays mainly due to the release and activation of platelet factors. We investigated 4 different pre-analytical variables and their effect on this assay.

Methods: Plasma from healthy donors was utilised for the analysis of Factor VIII and determine whether 4 pre-analytical variables namely (I) delivery via pneumatic tube system versus by hand, (II) immediate versus 24 hours post blood collection processing, (III) single versus a double spin centrifugation and (IV) a refrigerated versus a non refrigerated centrifugation would affect the precision of the assay. Statistical analysis was utilised to determine if such variables would produce a significant impact on FVIII levels.

Results: Only the processing variable produced a statistically significant effect (*p-values* <0.05) on FVIII levels.

Conclusion: The results obtained clearly demonstrate that all requests for FVIII levels should be rapidly processed by the laboratory. It is therefore of outmost importance that when blood is withdrawn, samples are to be immediately sent to the laboratory for further processing.

P18.05
Preanalytical variables affecting free Protein S levels

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Introduction: Protein S acts as a cofactor for activated protein C and therefore decreased levels are associated with an increased risk for thrombotic events. Free protein S is measured locally using an enzyme linked immunosorbent assay which has been described by the College of American Pathologists as having intermediate precision. Pre-analytical variables may affect haemostasis assays mainly due to the release and activation of platelet factors. We here investigated 4 different pre-analytical variables and their effect on this assay.

Methods: Donated plasma from healthy controls was utilised for the analysis of free protein S and determine whether the pre-analytical variables, namely (I) delivery via pneumatic tube system versus by hand, (II) immediate versus 24 hours post blood collection processing, (III) single versus a double spin centrifugation and (IV) refrigerated versus a non refrigerated centrifugation would affect the precision of the assay. Statistical analysis was utilised to determine if such variables would produce a statistical significant impact on free protein S results.

Results: All variables tested produced statistically significant effects (*p-values* <0.05) on free protein S estimation.

Conclusion: The results obtained clearly demonstrate that all requests for free protein S and thrombophilia screens should be delivered by hand directly to the laboratory where they are to be immediately processed. Plasma separation should be performed using the double spin technique in a temperature controlled centrifuge.

P18.06
Establishing the pre-analytical variables for FVII and FXI levels

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Introduction: Factor VII and FXI are two haemostatic factors which when deficient, give rise to Proconvertin deficiency and Rosenthal syndrome respectively. Whilst FXI deficiency is usually asymptomatic, severe FVII deficiency may even lead to intracranial haemorrhages. Haemostasis assays are greatly affected by pre-analytical variables thus giving rise to inaccuracies which may eventually lead to misdiagnosis or erroneous patient management.

Methods: Plasma from 9 healthy donors was utilised for the analysis of Factor VII and FXI levels against a set of pre-analytical variables, namely (I) delivery of plasma using the pneumatic tube system versus by hand,(II) immediate processing versus a 24 hour delay, (III) single versus a double spin centrifugation and (IV) refrigerated versus a non refrigerated centrifugation. Statistical analysis was carried out to determine if such variables would produce a statistical significant impact on the accuracy and precision of these assays.

Results: FVII levels were statistically (*p-values* <0.05) affected by a delay in processing, delivery by pneumatic tube system and also with a single centrifugation, whilst FXI levels where only affected with a single centrifugation.

Conclusion: The results obtained emphasise the need to implement guidelines for the reduction of pre-analytical errors when requests for such assays are necessary. Such guidelines will ensure a higher precision and accuracy of haemostasis assays.

P18.07
Investigating patients with non-haemolytic transfusion reactions for IgA deficiency and Anti-IgA antibodies.

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Introduction: IgA-related transfusion complications form part of non-haemolytic transfusion reactions (NHTRs) where patients with selective IgA deficiency and/or anti-IgA antibodies are most likely to develop life-threatening allergic reactions. Most of these reactions are caused by the interaction of anti-IgA antibodies in an individual with very small quantities of IgA present in the supplied blood product. Those patients who suffer from allergic reactions following transfusion of blood products due to IgA deficiency and/or the presence of anti-IgA antibodies can be identified using new commercialised kits based on the Particle Gel Immuno-Assay (PaGIA) technique; where agglutination in the gel cards is assessed visually using plasma from the affected patient.

Methods: Plasma samples from 27 patients who had experienced an NHTR between January and April 2015 were tested using PaGIA cards to detect the presence of anti-IgA antibodies or the abscence of IgA. The tests were carried out as per manufacturer instructions; they were loaded with the plasma and anti-sera manually and the reactions were also interpreted manually.

Results: The results showed that all 27 patients had sufficient levels of IgA and also lacked anti-IgA antibodies.

Conclusion: This resaerch concludesa that these adverse events were not induced by IgA deficiency or the presence of anti-IgA antibodies. Implementation of the PaGIA technique will help determine if NHTRs are IgA-related, thus providing suitable blood components e.g. washed red cells, only when necessary.

P18.08
Validation of the pneumatic tube system at Mater Dei Hospital for the transport of red cell units

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Introduction: The aim of this study was to validate the Pneumatic Tube System (Sumetzberger, Austria) installed at Mater Dei Hospital for transportation of Red Cell Units (RCUs) from the blood bank to selected hospital wards which would

require blood urgently. The current delivery system involves the physical transportation of RCUs from the blood bank to the ward by trained couriers in validated blood transport boxes.

Methods: Prior to the departure of the RCUs to the ward an aliquot of blood from the blood bag was aseptically drawn to measure the haematocrit and haemoglobin levels to establish the extent of haemolysis. The RCU was then placed into a sealable plastic bag, into a PTS canister and transported to the pre-set destination using the PTS. In each canister a temperature data logger was placed to record the temperature during the journey. After the journey, another aliquot was taken to compare pre- and post-transport haemolysis levels. The haemolysis levels were measured spectrophotometrically. The collective effect of haemolysis, temperature and journey duration on the red cells were used to determine if the PTS is safe to transport RCUs.

Results: The results showed that there was no effect on the red cell integrity during the journey. However, the system was unreliable due to prolonged waiting times prior to the initiation of the journey from the blood bank.

Conclusion: Although the PTS does not affect the integrity of the red cells the system, as it is set, is not reliable for urgent transport.

P18.09
Age but not body mass index affects overall survival in Hodgkin Lymphoma

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Introduction: Literature review indicates that there is an association between risk of developing Hodgkin lymphoma and body mass index (BMI). However, there is sparse data on the association between BMI and survival rate in patients with Hodgkin lymphoma. We investigate the relationship between BMI and survival rate of Hodgkin lymphoma patients at Mater Dei Hospital, Malta.

Methods: Patients with Hodgkin lymphoma treated at Mater Dei Hospital between January 2010 and December 2013 were identified. Data on BMI, performance status, albumin, glomerular filtration rate (eGFR), lactate dehydrogenase (LDH) and stage of Hodgkin lymphoma at diagnosis were retrospectively collected.

Results: Out of a total of 54 patients identified 57% were males. There was no statistical difference across genders in survival rate. Approximately 36.5% of the patients presented with BMI <25 whereas 63.5% presented with BMI >25. There was no statistical difference in survival rate between the two groups. The mean age was 45 years (range 16-82 years) and 33.3% (n=18) were aged >60 years. A significant difference in overall survival was detected between patients >60 years of age and those <60 years of age (p=0.003). Eight (44%) patients aged > 60 years died. There was a positive correlation between age and performance status (p=0.0002) and a negative correlation between age and eGFR (p=0.0001) and albumin levels (p=0.0001) but not with stage, BMI, height, weight or LDH.

Conclusion: We concluded that the younger the patients are at diagnosis, the better the overall survival (OS). However, there is no correlation between BMI and OS for our population.

P18.10
Optimization, validation and comparison of flow cytometric methods for the measurement of ZAP-70 in B-cell chronic lymphocytic leukemia

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Introduction: B-cell Chronic Lymphocytic Leukemia (B-CLL) is a clonal lymphoproliferative disorder which exhibits clinical heterogeneity. A prognostic marker for B-CLL is Zeta-chain-associated protein kinase-70 (ZAP-70) which is an intracellular protein. When expressed in high levels in B-CLL cells, ZAP-70 implicates a poor prognostic outcome. The aim of this study was to introduce ZAP-70 as part of the diagnostic and prognostic services in Malta by establishing a method for the determination of ZAP-70 in B-CLL patients.

Methods: A technically validated method of sample preparation was optimized for use within the Haematology Laboratory, Pathology Department at Mater Dei Hospital. This method was then compared to two other methods of sample preparation to determine the best method to use for ZAP-70 testing. The Percentage Positivity (PP) and the Mean Fluorescent Intensity (MFI) were determined for each sample and the best approach to report ZAP-70 positivity was chosen.

Results: Statistical Analysis showed that our optimized method, cytoplasmic to membrane staining (C&M) discriminates better between ZAP-70 positive and negative populations. Moreover, false positives were reported with the MFI approach and hence, the PP approach was chosen to identify ZAP-70 positivity.

Conclusion: This study established the best method for ZAP-70 testing which is currently in use at the Haematology Laboratory Mater Dei Hospital as part of the B-CLL diagnostic and prognostic panel. ZAP-70 plays an important role in patient management, it helps the Haematologists to distinguish between the aggressive and the indolent B-CLL, with ZAP-70 positive patients being monitored more closely.

Disclosure: Faculty of Health Sciences. Pathology Department, Mater Dei Hospital.

P18.11
Disease-free survival in molecular subtypes of breast cancer in Malta

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Introduction: Breast cancer is the commonest incident tumour in the Maltese islands. The disease is heterogeneous and exhibits diverse clinical prognosis and survival rates. Proper patient classification helps stratify breast cancer groups to ascertain likely prognostic outcome and select treatment. Breast cancer survival has commonly been described in terms of disease-free survival and five-year overall survival. The aim of this study is to determine disease-free survival together with site of metastasis while stratifying clinical outcomes with known prognostic markers and novel genetic markers.

Methods: We randomly selected 100 patients in each year between 2009 and 2011 notified with a primary diagnosis of invasive breast cancer at the Malta Cancer Registry. We collected retrospective data pertaining to patient demographics, tumour type, treatment undertaken and time to relapse with site of metastases. The primary end-point was disease-free survival; defined as the first documented radiological relapse following complete tumour resection. Patient survival data was stratified using multiple prognostic variables.

Results: The average annual incident rate of breast cancer was calculated at 317.4 cases per year between 2009 and 2013. The mean age of presentation is 61.5 years with 46.7% presenting at Stage I, 42.2% at stage II and 11.1% with Stage III disease (p<0.01). 91.3% were estrogen receptor positive and 6.9% HER2 positive. 3-year overall survival was 80.2% and 84% in 2009 and 2010 respectively.

Conclusion: This study helps classify the Maltese breast cancer cohort and determine selective survival by subgroup analysis while helping to identify variables with prognostic clinical relevance to the Maltese population.

P18.12

Cytogenetics of chronic lymphocytic leukaemia in Malta

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Introduction: Chronic lymphocytic leukaemia (CLL) is a haematological malignancy which is commonly found in adults. It is characterized by mature B lymphocytes which accumulate in the blood. CLL has various prognostic indicators which include age, gender, chromosomal abnormalities and haematological parameters. Chromosomal abnormalities seen in CLL include crytpic abnormalities which require the use of molecular cytogenetic methods or molecular genetic methods for detection.

Methods: Blood was collected from 21 untreated patients with CLL who consented to participate in this study. Chromosomal suspensions were prepared using standard methods in the Cytogenetic Laboratory. Fluorescence in situ hybridization (FISH) using probes specific for 17p13.1, 11q22.3, 13q14.3 & CEP 12 *loci* were used. The results obtained by FISH were compared with those obtained using G-banded karyotyping. Furthermore the chromosomal aberrations detected were correlated with the patients' age, gender and haematological parameters.

Results: The most common chromosomal abnormality was deletion (del) 13q14x1 (40%), followed by del 17p13x1 (20%), del 11q22x1 (15%), trisomy 12 (10%) and del 13q14x2 (10%). FISH results obtained proved more robust when correlated with other prognostic indicators. The results were also compared with karyotype results seen in the Cytogenetic Laboratory. Karyotyping identified chromosomal abnormalities, which were not detected by the FISH panel but failed to identify some cryptic chromosomal abnormalities which were seen only by FISH.

Conclusion: In conclusion, both FISH and karyotyping techniques are recommended in patients with CLL in the Maltese medical setting to improve patient management.

P18.13

Sunitinib therapy and cardio-vascular toxicity in the local population: are we doing enough?

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Introduction: Sunitinib is an oral chemotherapy consisting of a multi-target tyrosine kinase inhibitor resulting in inhibition of tumour angiogenesis and proliferation. Amongst its side effect profile are its adverse effects on cardiac function, including grade 3 hypertension (systolic >180mmHg or diastolic >110mmHg), QTc prolongation, left ventricular dysfunction and cardiac failure. Our aim was to audit local practices for cardiovascular monitoring in those patients on Sunitinib therapy.

Methods: The reference protocol adopted was the Royal Surrey Chemotherapy Protocol for Sunitinib. Patients were recruited over a 5-year period from 2010 till 2015. Data was collected from case notes, discharge summaries and transthoracic echocardiogram results. Demographics, clinical indication for Sunitinib, cardiac history and adverse cardiac events while on Sunitinib were noted. The aim was to identify those patients with a positive cardiac history or subsequent cardiac events and correlate this with cardiac imaging.

Results: 113 patients were recruited with a male to female ratio of 2.2 and mean patient age of 64 years. 84% of patients received Sunitinib for metastatic renal cell carcinoma, followed by carcinoid (5%) and gastro-intestinal tumours (5%). 56 patients (49.5%) had a documented cardiac history. Only 17 out of 56 patients (30%) had documented transthoracic echocardiography screening as per Royal Surrey Guidelines.

Conclusion: This audit highlights the need for increased awareness of cardio-toxic potential of Sunitinib and standardisation of national protocols in this regard.

P18.14

Chemicals from the quinolone and colchicine analogues cause differentiation in human acute myeloid leukaemia stem cells.

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Introduction: Acute Myeloid Leukaemia (AML) is the commonest leukaemia of adulthood and carries a dismal prognosis. One subtype of AML known as Acute Promyelocytic leukaemia (APL), was found to respond to All-Trans Retinoic Acid (ATRA) which resulted in an improved prognosis. The aim of the study was to identify a number of chemicals which cause cell differentiation in HL-60 AML cells similar to the effect of ATRA on APL.

Methods: The cells were exposed to 126 different chemicals at a concentration of 1 μM and 10 μM. The response of the cell lines was assessed using reduction of nitro blue tetrazolium (NBT) normalised to cell number by dimethyl thiazolyl diphenyl tetrazolium (MTT) assays to show differentiation marker activity/cell number. The effects at day 3 and day 5 post-incubation at 37°C were noted to assess for both monocytic and granulocytic differentiation.

Results: Of the 126 chemicals tested, 30 showed promising results. Cells exposed to these chemicals showed increased differentiation when tested using the NBT/MTT assay and compared to controls. From these 30 chemicals, those from two particular groups (Colchicine Analogues and Quinolones) appeared to be among the most effective chemicals at inducing differentiation in HL-60 AML cells.

Conclusion: Chemicals such as the Quinolones and Colchicine analogues tested during this study appear to lead to the differentiation of HL-60 AML cells. Such chemicals may, in the future, lead to a new group of oncological agents which aim to treat cancer through differentiation of cancer cells.

Disclosure: Chemicals for this study were received from STEMCHEM COST consortium CM110.

P18.15

Low Incidence of venous thromboemolism (VTE) but with high early mortality in patients with diffuse large B cell lymphoma (DLBCL) receiving rituximab based chemotherapy

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Introduction: The incidence of Venous Thromboembolism(VTE) in patients with Diffuse Large Bcell Lymphoma(DLBCL) is 8.9-12.8%[1,2]. We analysed the incidence of VTE in patients with DLBCL at our Level3 HaematologyUnit and considered the effect of VTE on survival.

Methods: The hospital electronic-results systems, patients' notes and local databases were used for data collection of patients with new onset DLBCL or grade3 Follicular Lymphoma presenting between January 2010–December 2014. The vari-

ables studied were VTE (proven radiologically with Ultrasound Doppler, Computed Tomography or Ventilation/Perfusion scans), age, gender, Lactate Dehydrogenase, Stage, WBC, eGFR and Albumin.

Results: We had a total of 140 patients. Mean age, stage and LDH were 62.4 years, 2.8 and 483 respectively. 8 VTEs were recorded (incidence 5.7%). 75% of episodes occurred in females. Median age for patients with VTE was 64.5years whilst mean time was 34days (range 0-95). Mean stage and LDH were 3.5 and 706 and all had bulky disease (maximum diameter>5cm). Median survival for those with VTE was 16.8 months whilst this has not been reached for those without. There was a correlation between survival and age (Pearson r -0.26, p 0.0018) and VTE (Spearman r -0.2, p 0.02). We found no correlation between age and VTE and no correlation between survival and the other variables.

Conclusion: A relatively low incidence (5.7%) of VTE was found; most occurring early in the disease; the majority within the first cycle of chemotherapy. 75% were females over 60 years. We found a correlation between survival and VTE which seems to be independent from age. VTE is a poor prognostic factor in DLBC.

P18.16
Correlation between different INR tests in patients with stable anti-coagulation control

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Introduction: Warfarin treatment is usually monitored using the international normalized ratio (INR). The INR can be performed using a laboratory analyser or a point-of-care (POC) machine. However, the two ways of measuring the INR may vary in their results. The aim of this study was to compare the accuracy of these different INR tests.

Methods: Consecutive adult patients, attending the Anticoagulation Clinic at Mater Dei Hospital (Malta) during the month of August 2015, were screened. Inclusion criteria were: diagnosis of atrial fibrillation, venous thromboembolism or mechanical aortic valve replacement; ongoing warfarin treatment for at least 3 months; and stable anti-coagulation control (defined as two previous INRs between 1.8 and 3.2). Patients were tested simultaneously for laboratory INR and for capillary and venous INR, using the POC Coagucheck XS Plus.

Results: Thirty patients were enrolled. Mean (SD) age was 70 (±10.9) years; 33.3% were males. Indications to anti-coagulant treatment were: atrial fibrillation (66.7%), venous thromboembolism (26.7%) and aortic valve replacement (6.7%). The duration of anticoagulant treatment was 3-6 months (10%), 6-12 months (10%), and more than 1 year (80%). The current mean (SD) warfarin dose was 4.4 (± 2.3) mg. Median (IQR) laboratory INR was 2.30 (1.94-2.56). The POC capillary and venous INR showed a very strong positive correlation with the laboratory INR (both r = 0.95, p<0.001) and more than 90% of results were within 0.5 INR units.

Conclusion: The results of our study confirmed the POC system as a valid alternative to the laboratory INR in patients with stable anticoagulation control.

P18.17
A hairy cause of cytopenias

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Haematology Department

Introduction: Hairy cell leukaemia (HCL) is a mature B-cell lymphoproliferative disorder characterised by the presence, in peripheral blood and bone marrow, of lymphoid cells with 'hairy' cytoplasmic projections. The most common clinical presentations are cytopenias (particularly monocytopenia) and splenomegaly. HCL accounts for 2-3% of all leukaemias. 600 new cases are diagnosed in the United States each year. This is the first ever report on local Maltese data relating to HCL.

Results: A total of 9 patients were diagnosed with HCL in the period between January 2010 and August 2015. This gives an incidence rate in Malta of 1.6 cases per year. Male to female ratio is 8.1 with a median age of 64 years (range 53 - 79). Four patients (44%) had circulating HCs identified by peripheral blood morphology. Seven patients out of the eight that had imaging studies had splenomegaly (87.5%); two patients (25%) had hepatomegaly; two patients (25%) had lymphadenopathy. All patients received cladribine as first-line treatment. One patient did not have a bone marrow aspirate carried out at any stage of management. Two patients have not yet had response assessment. Two out of the six patients in whom response assessment is available, achieved a complete remission (33%); four achieved a partial remission (67%). All patients are alive with a mean follow up of 26.2 months.

Conclusion: HCL is a rare disorder with a good prognosis. The incidence in Malta is similar to that in the US. It needs to be borne in mind in any patient being investigated for cytopenias.

P18.18
Cystic fibrosis mutations and polymorphisms in men at the assisted reproduction clinic at Mater Dei Hospital, Malta

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Introduction: Cystic fibrosis transmembrane receptor (CFTR) mutations and certain intron 8 thymidine polymorphisms, particularly 5T homozygosity or compound heterozygosity with another CFTR mutation, are associated with male subfertility. Congenital absence of the vas deferens causing obstructive azoospermia is typical of these genetic profiles. Other mechanisms may contribute to functional and secretory pathologies.

Methods: The CFTR profile and fertility status of men attending the male urology infertility clinic (MUIC) at Mater Dei Hospital were evaluated. CFTR screening was performed utilising allele specific hybridisation technique for a panel of 57 mutations and 3 poly-T allele (5T/7T/9T) variants. Statistical analysis of these parameters was used to characterise the presenting population.

Results: From 89 eligible individuals, 48 were investigated for subfertility at the MUIC. Fisher's exact test revealed no significant difference in the incidence of mutations and 5T polymorphisms between subfertile and non-subfertile subgroups (p=0.410). 10 of the 48 patients from the subfertile group were azoospermic, one of whom had congenital bilateral absence of the vas deferens, with Phe508delta/Asp110Glu mutations. Comparison of mutation and 5T rates of severely dyspermic groups from the MUIC and from the Sapienza University, Rome cohort n=4/31 and 11/99 respectively, revealed no significant difference between the two populations, Fisher's test p=0.825.

Conclusion: No significant difference was detected in CFTR mutation and 5T allele variant frequency between the individuals investigated for infertility and other men in the assisted reproduction cohort, or between the severely dyspermic group and a similar Italian population. The MUIC was launched in December 2014, and significance may change with increasing numbers.

P18.19

The investigations taken when a low vitamin B12 level is noted.

Gordon Muscat, Jessica Gauci, Martha Grima, Nicholas Delicata, Gerald Busuttil

Introduction: Vitamin B12 (B12) is important in many of the body's metabolic processes, and its deficiency has many well known causes and complications. A proper work-up is thus essential when investigating a low B12 level. In this audit B12 deficiency was considered to be B12 levels less than 200 pg/mL.

Methods: A retrospective analysis of the investigations performed on all patients found to have B12 deficiency from January 2014 till June 2014 was done using the Isoft Clinical Manager. The number of patients with B12 deficiency who had associated investigations done were noted.

Results: 21,678 B12 levels were taken in total, of which 1,687 (7.78%) had B12 deficiency. In patients with B12 deficiency, the following number of the following investigations were taken: full blood count: 1667 (98.8%) , folate: 1637 (97.0%), ferritin: 1552 (92.0%) , thyroid stimulating hormone: 1559 (92.4%), T4:1563 (92.6%), anti-intrinsic factor: 62 (3.67%), anti-gastric parietal cell antibody: 120 (7.11%), tissue transglutaminase: 519 (30.8%), calcium: 1176 (69.7%), albumin: 834 (49.4%), total protein: 656 (38.8%), vitamin D: 76 (4.50%), iron profile: 511 (30.3%), gastroscopy: 79 (4.70%), colonoscopy: 43 (2.56%).

Conclusion: It was noted that full blood count, folate, ferritin, thyroid stimulating hormone and T4 were most commonly taken, that anti-intrinsic factor, anti-gastric parietal cell antibody, vitamin D, gastroscopy and colonoscopy were rarely taken and that tissue transglutaminase, calcium, albumin, total protein and iron profile were taken at an intermediate level. Using this data a guideline will be created so that B12 deficiency can be adequately investigated.

P18.20

Wrong blood in tube: A retrospective analysis of potential adverse events.

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Introduction: Wrong blood in tube (WBIT) occurs when a blood sample for blood transfusion is collected and labelled with the details of another patient. In European hospitals patient misidentification has been classified as a 'never event'; because of its potential to cause severe adverse events such as transfusion of wrong components. WBIT is usually detected if the patient has a historic blood group available at the blood bank. It is suspected therefore, that more WBIT events are occurring without being detected.

Methods: Between January 2013 and July 2015 a total of 26 WBIT were detected at the Mater Dei Hospital Blood Bank. Each WBIT was investigated by finding out the health care professional who took the blood sample for re-training and fact finding. The Health Care Services Standards would also be notified with the case.

Results: Most cases (80.8%) were detected because of the availability of a historic blood group on the laboratory information system. The other cases (19.2%) were detected at ward level and subsequently the blood bank was informed. Three of the latter cases had the request form and blood sample bottle prewritten, while in the remaining two cases the erroneous patient had the same blood group as the proper patient.

Conclusion: In order to avoid WBIT, positive patient identification must be carried out proactively. It is being recommended that each request incorporating a blood group should be repeated on a second sample and additionally, a detailed root-cause analysis should be carried out.

P19.01

Genetic polymorphisms associated with loss of immunologic self-tolerance in myasthenia gravis

Melanie Grima, Keith Sacco

Introduction: Myasthenia Gravis (MG) is a B cell driven, T cell dependent autoimmune neuromuscular disorder characterised by a relapsing-remitting disease pattern. The presence of polyclonal IgG anti-acetylcholine receptor antibodies (anti-AChR) or anti-muscle specific kinase antibodies suggests that loss of immune self-tolerance is key to the pathogenesis of MG. Auto-reactive AChR specific CD4+ T cells interact with B cells to produce anti-AChR antibodies. It is postulated that regulatory T cells lose their suppressive capabilities due to reduced cellular expression of transcription factor forkhead protein 3 (FOXP3) hence mRNA and protein expression of FOXP3 is reduced, leading to production of pathogenic T helper 17 cells. Increased levels of interleukins 10 and 17 lead to chronic inflammation, contributing to T cell impairment. MG associated thymomas lack functional tolerogenic autoimmune regulators, expression of human leukocyte antigen class II molecules and tolerogenic AChR positive thymic myeloid cells. For this reason, AChR positive myasthenia gravis improves after thymectomy.

Conclusion: Myasthenia gravis may be associated with genetic polymorphisms, microRNAs such as miRNA-146a whose expression may be significantly increased. The TT homozygous genotype of DNMT3B-579 T allele is associated with risk of thymomas, but not to other myasthenic features. FOXP3 IVS9+459 G is protective against myasthenia. Dysregulated FOXP3 may be the cause of failure of self-tolerance. This review sums the key genetic polymorphisms recently described that affect the immunopathogenesis of myasthenia gravis. Further knowledge of such mechanisms can aid in patient classification for prognosis and therapeutic management.

P19.02

A novel system for testing seizure prediction models based on scalp electroencephalogram

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Introduction: Epilepsy is a serious neurological disorder, which renders its victims susceptible to repeatedly occurring seizures. Affecting around 1% of the entire population, it persists as the third most occurring mental disease and while a substantial sub-set of these cases can be treated through medication or respective surgery, around 25% are medically intractable and thus require alternative approaches towards better handling this disorder. This project presents a novel system designed with the overarching goal of facilitating the process of testing various seizure prediction models based on the vast CHB-MIT scalp Electro-Encephalo-Gram (EEG) database.

Methods: The system presents an environment which allows users to inject their own models for testing, with minimal effort, while at the same time providing the flexibility to alter various parameters of the tests, as they deem necessary. As an evaluation of the system proposed, the results obtained from three different seizure prediction models based on Empirical Mode Decomposition (EMD) and Phase Space Representation (PSR) plots for five patients from the CHB-MIT database are presented.

Results: The overall best average sensitivity and specificity obtained across the three models were 52.18% and 78.21% respectively for a two-minute time window prior to a seizure onset. While somewhat disheartening, it is worth noting that the models seemed to perform remarkably better for some patients over others.

Conclusion: The results obtained show reasonable cause for further investigation into the applicability of the models tested in the field of seizure prediction. Such research could be facilitated through the use of the system proposed herein.

P19.03

Episodic ataxia type 1: typical and atypical clinical phenotype associated with mutations in Kv1.1 K channel

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Introduction: Episodic ataxia type 1 (EA1) is an autosomal dominant K^+ channelopathy characterized by constant myokymia, episodes of spastic contractions of the skeletal muscles and epilepsy. To date ***KCNA1*** is the only gene known to be associated with EA1, which encodes for the ***voltage-gated*** K^+ channel Kv1.1.

Methods: Medical history, neurophysiological investigations and genetic analysis of patients were performed. To examine the structural and functional consequence of the mutation on Kv1.1 channels, homology models were constructed, mutant and wild-type ***KCNA1*** cDNAs were cloned and, the heterologous expression of channels was performed by means of mRNA microinjections into Xenopus ***laevis*** oocytes. Whole-cell and single-channel K^+ **currents were measured using the two-electrode voltage-clamp and patch-clamp techniques.**

Results: In this presentation, we summarise the main breakthrough findings in the pathogenesis and therapeutics of EA1. Furthermore, we report several new cases characterized typical and strikingly atypical phenotypes. The functional studies showed that the new heterozygous point mutations identified in the ***KCNA1*** gene impair Kv1.1 channel function with variable effects on channel assembly, trafficking and biophysics.

Conclusion: Loss-of-function mutations in ***KCNA1*** may result in high variable and unexpected neurological deficits.

P19.04

X-linked Charcot Marie-tooth due to a c.475G>A mutation in the GJB1 gene in the Maltese population

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Introduction: X-linked Charcot Marie-Tooth (CMTX) is the second commonest type of hereditary motor and sensory neuropathy after CMT1A, occurring in approximately 10% of cases of Charcot Marie Tooth syndrome. CMTX1 - the commonest subtype of CMTX - is caused by mutations in the ***GJB1*** gene.

Methods: Patients with hereditary peripheral neuropathy attending the genetic clinic were asked to participate in the study. Clinical, electrophysiological, pedigree analysis and mutational data was collected on all. We identified 7 individuals from four families segregating the same mutation, a c.475G>A change in exon 2 of the ***GJB1*** gene. The c.475G>A mutation has been reported previously in one patient and segregation studies were lacking. To determine whether the c.475G>A mutation is a polymorphism among the Maltese population, we analysed 400 random samples of cord blood from the Malta Biobank for the presence of the mutation.

Results: The c.475G>A mutation in the ***GJB1*** gene was segregated in all affected members of the 4 families; both male and female family members carrying the mutation had symptoms and signs of polyneuropathy. The mutation was not identified in 400 random cord blood samples, confirming that it is not a polymorphism. The clinical and neurophysiological phenotype of the individuals with CMTX will be presented.

Conclusion: CMTX seems to be a common cause of inherited peripheral neuropathy in Malta. The presence of the c.475G>A mutation in the ***GJB1*** gene in all families might indicate a founder effect.

Disclosure: Research Grant, University of Malta

P19.05

Functional electrophysiological assessment from optic nerve and callosal slice in mice to study ischemic injury

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Introduction: White matter injury is increasingly recognised as an essential contributor to brain injury in stroke. Sequential compound action potential (CAP) recordings across axonal fibres is a key technique for functional assessment, and an invaluable tool to test for promising therapeutic drugs White matter tracts frequently used in basic experimental research are the optic nerve and the corpus callosum. The aim of this study was to establish an ***in vivo*** protocol for these preparations.

Methods: We directly compared the effects of ischemia on nerve conduction using the adult optic nerve (a completely myelinated white matter tract) and the adult neocortical slice (consisting of approximately 70% unmyelinated axons), employing the same perfusion chamber, flow rate, artificial CSF composition, and gas mixture. CAP was recorded in vivo using suction electrodes and bipolar electrodes respectively. CAP failure and the extent in recovery following ischemia was subsequently tested.

Results: The CAP recorded from the optic nerve consisted of three discrete peaks, while that recorded from neocortical slices had a typical biphasic profile. These peaks represent the heterogeneous velocity of impulse propagation of the various axons. Minimal difference in sensitivity to ischemic injury was found between the two preparations.

Conclusion: Both tracts offer a valuable medium for the study of the pathophysiology of white matter injury during ischemia.

P19.06

Neural networking in cognitive mindfulness

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Introduction: Recent advances in the fields of neuroscience and psychology have led to a greater understanding of data integration from interoceptive and exteroceptive sources. This review highlights the neural networks and anatomical structures associated with the development of 'self', as well as how they are influenced both anatomically and physiologically by disease processes.

Conclusion: Emphasis is placed on the working of the default mode, salience and executive networks and their dysregulation in individuals practicing meditation and individuals suffering from Attention Deficit Hyperactivity Disorder (ADHD). The importance of the Anterior Cingulate Cortex (ACC) in these networks is discussed in terms of its anatomy and functional connections in normal individuals and disease states. Integrative body mind training will also be discussed for its beneficial role in neurocognitive health, and how it may be of use in individuals suffering from neurocognitive diseases. We review how such diseases alter an individual's perception of stress, and the resultant effects from a neuroendocrinological perspective.

P19.07

A novel phenotype in a patient harboring a heterozygous point mutation in the *KCNJ10* gene

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Introduction: A 2-year old boy from non-consanguineous parents presents with tonic-clonic seizures, ataxia, hypotonia, profound developmental delay and failure to thrive. EEG recordings were typical of hypsarrhythmia. All family members were clinically unaffected. Genetic screening revealed a novel heterozygous missense variant in the gene ***KCNJ10*** that encodes for the Kir4.1 channel known to be essential for glial function, control of neuronal excitability, and systemic K^+ homeostasis.

Methods: To examine the functional consequence of the mutation on Kir4.1, mutant and wild-type ***KCNJ10*** constructs were cloned and heterologously expressed in Xenopus ***laevis*** oocytes. Whole-cell K^+ currents were measured using the two-electrode voltage-clamp technique.

Results: Wild-type ***KCNJ10*** expression resulted in robust and typical inward-rectifier currents. In contrast, currents from oocytes expressing the mutation were significantly reduced. Kir5.1 subunits display highly selective heteromultimerization with Kir4.1 subunits constituting channels with unique current kinetics. The effect of the mutation on the current from the heteromeric Kir4.1/5.1 channel was examined and was also found to be significantly reduced.

Conclusion: In this study, we present a heterozygous (***non-compound***) ***KCNJ10*** mutation that results in the reduction of inwardly- rectifying currents from homomeric Kir4.1 and heteromeric kir4.1/5.1 channels. This loss-of-function mutation results in a novel severely-disabling phenotype involving dysfunction of multipleorgans.

Disclosure: Telethon GGGP11188A

P19.08

5-HT_{2C} receptor modulation of the lateral habenula activity: an electrophysiological and neuroanatomical study

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Introduction: The role of serotonin (5-HT) in the modulation of the lateral habenular nucleus (LHb) is poorly understood. We focused our study on the role of the 5-HT2C receptors (5-HT2CRs) in the LHb.

Methods: Standard single cell extracellular recordings were performed *in vivo* in anaesthetized rats. The effects of intravenous (i.v.) administration of different 5-HT2C agonists, RO60-01745, lorcaserin and CP-809101 on LHb neuronal activity were investigated. The expression of 5-HT2CRs in the LHb was investigated by immunohistochemical approach using mouse anti-5-HT2CR monoclonal antibodies.

Results: Among the different 5-HT2CR ligands used in this study only RO60-01745 (5-640 μg/kg, i.v.) caused a significant dose-dependent increase of the firing rate with the maximum effect elicited by the dose of 640 μg/kg, with a 64 ± 12% increase in the basal firing rate ($p < 0.01$). Lorcaserin (5-640 μg/kg i.v.) and CP-809101 (5-640 μg/kg i.v.) did not induce any significant changes. Immunoishochemical experiments showed a diffuse 5-HT2CR immunolabeling in cell bodies and neuropil of the LHb.

Conclusion: Our data shows for the first time that i.v. administration of 5-HT2CR agonist RO60-0175 increases LHb neural activity and that this receptor is expressed in the LHb. Nevertheless, the effect might be mediated by 5-HT receptors other than 5-HT2CRs since lorcaserin and the very selective CP-809101 lacked of any effects. These findings might be important for therapeutic intervention for those CNS disorders in which a dysregulation of the LHb has been suggested, such as depression and anxiety.

P19.09

Glutamate release mechanisms in pre-myelinated CNS white matter

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Introduction: Ischemic injury to developing White Matter (WM) can lead to a selective pattern of injury known as periventricular white matter injury, the most common pathological substrate associated with cerebral palsy. There is evidence that the over-activation of ionotropic glutamate receptors mediates the ischemic cell injury/death of both developing oligodendrocytes and small pre-myelinated axons which populate WM regions at this age. Here we investigate possible mechanisms of ischemia-induced glutamate release from developing WM.

Methods: Using glutamate-specific microbiosensors, real-time extracellular glutamate concentrations were recorded during 30 minutes of modelled ischemia from inside the developing rat optic nerve (postnatal day 10). Glutamate concentrations were monitored under a variety of conditions and pharmacological treatments aimed at blocking potential release mechanisms. Compound action potential recordings were used as a measure of functional recovery.

Results: The mean resting extracellular glutamate concentration was 1.41±0.33μM (mean ±SEM). Glutamate concentrations increased steadily during modelled ischemia, increasing by 5.64±0.84μM before returning to baseline following reperfusion. Blockade of excitatory amino acid transporters, swelling-mediated release, hemi-channels and system Xc- did not inhibit glutamate release. However, removing calcium or depleting nerves of their vesicular stores significantly attenuated total release. Furthermore, vesicle-depleted nerves showed improved functional recovery following oxygen-glucose deprivation.

Conclusion: Ischemia evokes a robust release of intracellular glutamate in developing WM, leading to a significant increase in extracellular glutamate concentrations. The results suggest that a significant component of release is mediated through vesicular exocytosis.

P19.10

In vivo real time non-invasive monitoring of brain penetration of chemicals with near-infrared spectroscopy: concomitant PK/PD analysis

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Introduction: Near-Infrared Spectroscopy (NIRS) is a non-invasive technique that can be used to monitor changes in oxygenation of hemoglobin. Importantly, the absorption spectra of near-infrared light differ for the oxygenation–deoxygenation states of hemoglobin (oxygenate (HbO2) and deoxygenate (Hb), respectively) so that the two compounds can be directly monitored. In the literature, different methodologies report different basal values of HbO2 and Hb absolute concentrations in brain. In the present work, an attempt to calculate basal HbO2 levels in rat CNS has been attempted via evaluation of the influence of exogenous oxygen or exogenous carbon dioxide (CO2) on the NIRS parameters measured in vivo.

Methods: The possibility that changes of hemoglobin oxygenation in rat brain as measured by NIRS might be a useful index of brain penetration of chemical entities has been investigated. To test this hypothesis, different compounds from differ-

ent chemical classes were selected on the basis of parallel ex vivo and in vivo pharmacokinetic (PK/PD) studies of brain penetration and overall pharmacokinetic profile.

Results: It appeared that NIRS might contribute to assess brain penetration of chemical entities, i.e. significant changes in NIRS signals could be related to brain exposure, or vice versa the lack of significant changes in relevant NIRS parameters could be indicative of low brain exposure.

Conclusion: Non-invasive NIRS allows determining penetration of drugs in brain and therefore could be used to study neurobiological processes and psychiatric diseases in preclinical but also in a translational strategy from preclinical to clinical investigations.

P19.11

Acute nicotine induces anxiety and disrupts temporal pattern organization of rat exploratory behaviour in hole-board: a potential role for the lateral habenula

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Introduction: Nicotine is a very addictive drug, and it has been shown to exhibit anxiogenic behaviour. The Lateral Habenula plays a vital role in the regulation of anxiogenic behaviour. The aim of our study is threefold: firstly, to clarify the effect of a wide range of nicotine doses on the anxiety state of animals in the unfamiliar hole-board environment; secondly, to explore the effects of the LHb lesion in comparison to the sham lesion on basal animal emotional reactivity and finally, to evaluate the effect of the LHb lesion on nicotine-induced changes of rat exploratory behaviour.

Methods: 80 male Sprague Dawley rats weighing between 250 and 350g were used. The treatment groups were: saline (vehicle), nicotine and 1 mg/kg, 0.5 mg/kg and 1 mg/kg, all administered intraperitoneally (i.p.). The animals were subsequently placed in the center of the hole-board for 10 min, whilst being recorded by video camera. The video recordings were blind analyzed off-line.

Results: Video analysis and statistics show that treatment with nicotine has an anxiolytic effect on lesioned rats, indicating the involvement of the lateral habenula in the anxiogenic pathway.

Conclusion In conclusion, this study demonstrates that nicotine itself leads to anxiety-like behaviour under normal conditions and acts as an anxiolytic under some circumstances (i.e., stressful conditions). The LHb greatly potentiates the anxiolytic-like properties of nicotine, further supporting the role of the LHb in the neuronal circuits that mediates nicotine's aversive effects.

P19.12

Synergistic activity of cannabinoid type 1 and serotonin 2B/2C receptors for the prevention of status epilepticus in rats

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Introduction: Cannabinoid type 1 receptor (CB1R) **mediates the anticonvulsant effects of cannabinoids in different animal models of epilepsy. Activation of the serotonin 2C receptor (5-HT2CR) has been shown to be antiepileptic and KO mice for this receptor displayed increased seizure susceptibility.** Furthermore, CB1R KO mice exhibit altered expression and impaired functionality of the 5-HT2CR in several brain areas. Here we tested the interaction between 5-HT2CR and CB1R in the prevention of status epilepticus (SE) using the rat pilocarpine (PILO) model.

Methods: Sprague Dawley rats were injected with PILO (360mg/kg) and monitored for 3 hours by cortical electroencephalographic (EEG) and hippocampal **field potential recording. Pre-treatment with the cannabinoid agonist WIN 55,2122** (WIN), the 5-HT2C/2BR agonist RO60-0175 (RO) or their combination (RO+WIN) was performed 45 min before PILO administration. Antagonists were injected 15 min before the agonists.

Results: PILO induced SE in the 85% of rat tested with a dramatic increase of EEG total power in both cortex and hippocampus. WIN and RO had no effect in preventing SE. Co-administration of RO+WIN significantly reduced the occurrence of PILO-induced SE. Administration of CB1R antagonist AM251 completely blocked behavioural and EEG antiepileptic effects of RO+WIN. Intriguingly, antiepileptic effects of RO+WIN were potentiated by the administration of 5-HT2CR antagonist SB242084 while were prevented by the treatment of 5HT2BR antagonist RS127445. The administration of the 5HT2AR antagonist MDL11,939 had no effect on RO+WIN treatment.

Conclusion: These data indicate a synergistic interaction between the 5-HT and EC system which might represent a suitable target for the identification of new antiepileptic treatment.

P19.13

Role of the lateral habenula in mediating rewarding properties of nicotine

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Introduction: Tobacco smoking represents a well-known risks factor for health. So far, a better understanding of the neurobiology of nicotine addiction is still needed. The Lateral Habenula (LHb) is an epithalamic structure known to inhibit the DA system through activation of the RMTg, a GABA-ergic area located caudally to the ventral tegmental area (VTA). The RMTg receives a strong glutamatergic input from the LHb and is activated bynicotine in rats. Thus, the LHb might represent a possible target for the action of nicotine.

Conclusion: The LHb might play an important role in mediating the effects of nicotine on the midbrain DA system.

P19.14

A laser speckle contrast imaging system to study blood flow dynamics in the rodent brain

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Introduction: Optical imaging modalities have become increasingly prevalent in biomedical research for discerning functional and anatomical information. Laser Speckle Contrast Imaging (LSCI) is a non-invasive full-field optical imaging technique that gives a 2-D microcirculatory surface flow map within live tissue. We have developed the hardware of a laser speckle imaging system to permit the functional study of blood flow dynamics in the rodent brain. A graphical user interface was designed in LabVIEW for system control and image processing algorithms were coded in MATLAB.

Methods: Laser speckle imaging and two-photon imaging were employed to assess the role of astrocyte $K_{ir}5.1$ channels in vasodilation after a period of hypercapnia in ***Kcnj16*** knock-out mice. In parallel experiments, LSCI and two-photon imaging were used to map the spatiotemporal evolution in cerebral blood flow around the ischemic focus in a mouse stroke model.

Results: In the $K_{ir}5.1$-/- knockout group, the mean increase in arterial blood flow and vasodilatory response was found to be less than that of the control group. A delayed response to vasodilation during hypercapnia was followed by a delay in blood flow normalization after the insult. During focal ischemia, blood

flow data revealed a high correlation between measurements obtained from LSCI and Doppler flowmetry. The phenomenon of neovascularization and collateral perfusion to the ischemic focus was a prominent feature.

Conclusion: The simple non-invasive setup of LSCI that excludes exogenous contrast agents is a powerful tool to monitor in real-time cerebral vascular reactivity and blood flow dynamics in physiology and disease.

Disclosure: Malta Government Scholarship Scheme (MGSS)

P19.15

Assessment of neuronal and glial injury in a rodent model of focal ischemia

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Introduction: Animal models of focal ischemia simulating human stroke are indispensable tools to investigate mechanisms of injury and develop potential therapeutics. Since human cortical strokes affect both grey and white matter equally, we sought to directly assess the spatio-temporal dimension of the ischemic core as well as of perilesional tissue in a rodent model of stroke. Here we systematically evaluated regions differently impaired by focal ischemia and assessed the cellular identity of the cell types that are most affected.

Methods YFP and CD-1 mice underwent a transient 60 minute occlusion of the middle cerebral artery (MCAO) via an intraluminal filament followed by 24 hours of reperfusion. Successful occlusion was followed by Laser Doppler Flowmetry. Infarct volume was assessed by 2,3,5-triphenyltetrazolium chloride staining since this reliably identifies the infarct core at 24 hours of reperfusion. Infarct volume was corrected for edema. Cresyl Violet (CV) and Fluoro-Jade B were used to visualise degenerative neurons and Luxol Fast Blue (LFB) to assess myelin damage. The modified Bederson score, corner test and wire hanging test complemented neurological assessment. :

Results: Ischemic lesions were observed in cortical and subcortical regions. Histological assessment of damaged neurons showed structural abnormalities, nuclear shrinkage and overall loss in CV staining. White matter regions revealed a loss in oligodendrocyte number and myelin. Neurological deficit scores reflected sensorimotor damage.

Conclusion: The mouse intraluminal filament model provides the advantage of reproducible transient ischemia of the MCA territory and for the assessment of neuronal and glial injury which are both equally vulnerable to ischemic damage.

P19.16

Role(s) of the 5-HT2C receptor in the development of maximal dentate activation in the hippocampus of anesthetized rats

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Introduction: Substantial evidence indicates that 5-HT2C receptors are involved in the control of neuronal network excitability and in seizure pathophysiology. Here, we have addressed the relatively unexplored relationship between Temporal Lobe Epilepsy (TLE), the most frequent type of intractable epilepsy, and 5-HT2CRs.

Methods: In this study, we investigated this issue using a model of partial complex (limbic) seizures in urethane-anesthetized rat, based on the phenomenon of Maximal Dentate Activation (MDA) using 5-HT2C compounds, electrophysiology, immunohistochemistry, and western blotting techniques.

Results: The 5-HT2C agonists mCPP (1mg/kg, i.p) and lorcaserin (3mg/kg, i.p), but not RO60-0175 (1-3mg/kg i.p.), were antiepileptogenic reducing the MDA response duration. The selective 5-HT2C antagonist SB242084 (2mg/kg, i.p) unveiled antiepileptogenic effects of RO60-0175 (3mg/kg, i.p) but did not alter those induced by mCPP and lorcaserin. Compared with control rats, electrically stimulated rats showed an increase in glutamic acid decarboxylase levels and a heterogeneous decrease in 5-HT2CR immunoreactivity in different hippocampal areas.

Conclusion: In our animal model of TLE, mCPP and lorcaserin were anticonvulsant; likely acting on receptor subtypes other than 5-HT2C. Epileptogenesis induced early adaptive changes and reorganization in the 5-HT2CR and GABA systems.

REVIEWS AND CASE REPORTS

P.001

A Paleolithic or a Mediterranean diet?

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Introduction: Diabetes mellitus is a global epidemic. Its development is the result of a combination of risk factors including obesity and an inappropriate lifestyle. Various dietary patterns had been studied including a Mediterranean diet, a high protein and low carbohydrate diets. The Mediterranean diet has been stated to be the best diet to follow for maintenance of glucose control. A Paleolithic diet, although its main macronutrient is protein, has not been readily studied in comparison to a Mediterranean diet and its effect on glucose management.

Methods: A literature review on the dietary evidence of the Paleolithic diet and Mediterranean diet was performed. This was compiled using Google scholar and PubMed databases with the search years 1990 – 2014. An individual dietary review on each diet as well as dietary comparisons were performed to establish which diet is suggestive for diabetic control.

Results: Analyzing the data available resulted in both diets showing good glycemic control as well as a decrease in HbA1C and lipid profile values, even though the main macronutrients differ from each other. Both diets showed no difference in the body's metabolism including the renal function.

Conclusion: It appears that a diabetic patient has the luxury of a dietary choice and still be able to maintain a good glycemic control. Although more research is needed, the key is in the understanding the amount and type of food consumed and to stay away from a Western diet.

P.002

Fasting or Non-Fasting? An Insight Into Lipid Profile Testing

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Introduction: It is common practice for physicians to advise patients to fast for 14 hours prior to lipid profile testing, particularly for the Triglyceride component. In preparation for a large prevalence survey, a literature review was performed to find the evidence base for this requirement, given that the need for fasting may negatively affects response rates.

Methods: A literature review on the evidence for the fasting time requirement for an accurate lipid profile result was performed. This was compiled using Google scholar and PubMed databases and the search years were from 1990 to 2014 using the following keywords: "fasting times for lipid test / triglycerides".

Results: A 14-hour fast lacked an evidence base. Non-fasting states appeared to predict cardiovascular risk better when compared to fasting states. An assessment of numerous national studies concluded that a minimum fast of 7 hours for females and 8 hours for males would be sufficient to ensure a valid Triglyceride level. Most recent research suggests that the same prognostic value would be obtained irrelevant of whether a patient fasted or not. Other factors (e.g. supine position) may have greater influence on Triglyceride validity.

Conclusion: Fasting for a period of time is inconvenient for everyone and can affect compliance. Simultaneous glucose testing makes the fast worthwhile though non fasting lipid profile testing has more accurate predictive value for CVD risk. It is recommended that national guidelines be updated according to the most recent evidence.

P.003

The adequacy of diagnostic cystoscopic bladder resection specimens

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Introduction: The most important prognostic indicator of bladder cancer is the stage at diagnosis. There is a documented association of increased mortality in patients who have had a diagnostic cystoscopic resection of bladder cancer with either the absence of detrusor muscle or no mention of its' presence in the pathology report.

Methods: The histology reports and original request forms of all diagnostic cystoscopic resections for bladder cancer taken over a period of one year were analysed to assess for age at diagnosis and sex, whether this was the first diagnosis or not, the grade and stage, the presence or absence of detrusor muscle, whether this was mentioned at all and if it was involved by tumour.

Results: A total of 124 cases of diagnostic cystoscopic resections were included in the study. Detrusor muscle was represented in 53% and was similar to what is reported in the literature. The presence or absence of detrusor muscle was not documented in 35% of cases. This could be due to the fact that the type of procedure documented in the histology request form was not always clear.

Conclusion: The management of patients with bladder cancer is dependent on accurate staging at the time of the primary diagnostic cystoscopic resection. This can be achieved by ensuring that patients with bladder cancer have adequate muscle sampling, that the specimen type is clearly printed in the histology request form, and that the histology reports are standardised to ensure that the presence or absence of detrusor muscle is documented.

P.004

A case of Dragged Optic Disc and Macula

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Introduction: A 39-year-ol man presented with a 6-week history of occipital headache associated with one episode of diplopia on downgaze. His right eye was allegedly amblyopic.

Methods: This patient's personal and family history is unknown. His general condition was good. Pinhole Snellen visual acuity was 6/12 in the right eye and 6/6 in the left. His eyes were straight in primary position with normal pupil reactions, normal eye movements, and no deviation was detected on cover testing. However, he reported right monocular diplopia on looking down. Slit lamp examination of his right eye showed mild cortical lens opacification with an otherwise normal anterior segment. Fundoscopy revealed nasal dragging of the optic disc and retinal vessels with a 90° counter-clockwise rotation of the macula to a position inferior to the disc. He was managed conservatively with an explanation about this condition.

Results: No further diplopia was reported. Amblyopia was refuted since an underlying organic pathology was found. The patient was lost to follow-up.

Conclusion: A heterotopic macula can cause strabismus and visual impairment, which were absent in this case. The differential diagnosis includes: peripheral Toxocara granuloma, moderate familial exudative vitreoretinopathy (FEVR), and retinopathy of prematurity. Family history, past ophthalmic history, especially of uveitis, and birth history would thus provide important information. If FEVR is a likely diagnosis, genetic testing and assessment of bone mineral density would be indicated.

P.005

Sclerotic Bone Lesions: are they metastatic?

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Introduction: The presence of sclerotic bone lesions on a radiograph is often a worrying finding and a diagnosis of osteoblastic metastases comes to mind. However, not all sclerotic lesions are metastases. One differential worth keeping in mind is osteopoikilosis (OPK).

Conclusion: We report a case of OPK found incidentally in a healthy sixty-five year old gentleman whilst being investigated for an acute inflammatory arthritis of both knees.

P.006

Epidemiological preliminary analysis of vaccination compliance's decrease in Italy

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Introduction: A social trend in portraying vaccines as disease-causing is spreading out: public opinion is pointing at vaccination process as trigger of various diseases - autism above all. Some moral bans results from this unfitting feeling, so more and more parents decide to not vaccinate their children. The prospective coming from this scenario is not comforting. Furthermore, for years, doctors have taken for granted the patients' acceptance to vaccination schedules and at the moment doctors themselves aren't ready to face a similar growing idiosyncrasy and its clinical consequences. On the basis of Italian facts, the authors' purpose is to call attention to this seriousness situation, in order to alert physicians to their upcoming responsibilities: in few years, there'll be a fresh outbreak of vaccine-prevented diseases in outpatient clinics, as well as a new educational campaign will be necessary to make people aware of the meaning of Prevention.

Conclusion: The Italian Society of Public Health (S.It.I.) warned against this serious problem and informed that vaccinations in Italy have decreased in size of 25 percent, in particular with referring to MMRV vaccine. This data will appear as the litmus test of a serious prospective, that provides consequences on individual and public health. Due this perspective, all health-workers can do is to engage in a re-educational role. Physicians have to put into clear words what vaccines are and how vaccination protects health itself. Patients deserve to realize and agree on medical practices: tougher stances seem to be counter-productive.

P.007

Ectopic pregnancy secondary to a left fallopian tube teratoma

Michelle Ann Ceci, Isabelle Saliba, James Degaetano

Introduction: Mature benign cystic teratoma is the most common type of germ cell tumour of the ovary, however it may rarely also occur within the fallopian tube. We present a case of fallopian tube teratoma associated with an ipsilateral ectopic pregnancy. There have been six reported cases of fallopian tube teratoma associated with an ectopic pregnancy in the medical literature since 1865.

Conclusion: We present a case of fallopian tube teratoma associated with an ipsilateral ectopic pregnancy.

P.008

Severe Immune Thrombocytopenia and Antiphospholipid Syndrome - a Therapeutic Conundrum.

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Introduction: Here we describe two cases diagnosed with secondary immune thrombocytopenia (ITP) and antiphospholipid syndrome (APS) and the therapeutic dilemma in managing their high risk of both bleeding and thrombosis and the novel use of Rituximab in this scenario. Rituximab seems to be the ideal class of drugs in these cases since it tackles the condition at its roots by affecting the antibody producing cells which are causing the APS and ITP. In fact in our cases, Rituximab achieved an immediate and persistent response, both clinically as well as biochemically. B lymphocytes were depleted from peripheral blood as was confirmed by flow cytometry. Both our patients remain well, more than a year later, with a platelet count above 150 x 10^9 / L.

Conclusion: Up to now, Rituximab has been reserved to the more severe variant of Antiphospholipid syndrome i.e. catastrophic APS (CAPS) with good effect. Even though ours is just a clinical observation and preliminary data, we feel that the role of Rituximab in APS and severe thrombocytopenia is a viable one and merits further study.

P.009

Abernethy malformation type 1A: a case report

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Introduction: Porto-hepatic anomalies including Abernethy malformations (AM) are extremely rare and may result in hepatocellular carcinoma,

Methods: An asymptomatic 14 year old girl on treatment for acne was normotensive, obese (BMI 31) with flank striae, but without hepatosplenomegaly. 'Routine' ultrasound showed markedly abnormal liver echotexture with diffuse increased reflectivity throughout. ALT and GGT were marginally raised. MRI confirmed absence of intrahepatic portal veins with both the superior mesenteric and splenic veins draining separately into the IVC. Multiple arterial enhancing lesions were seen in the portal and hepatic venous phases in both liver lobes, with almost no normal parenchyma. Some exhibited central scarring that enhanced on the delayed venous phase. Diffusion was not restricted. The MR confirmed regenerative nodular hyperplasia secondary to an intra-hepatic Park Type I Abernethy malformation, with an end-to-side shunt between an abnormal portal vein and the intrahepatic IVC. A hypoplastic rudimentary left portal vein arose from this abnormal vein, whilst the right portal vein was absent. Doppler confirmed static/reversed flow in a hypoplastic left portal vein and multiple hepatic veno-venous shunts.

Conclusion: 40 cases of AM have been reported and, unlike this case, most experience vomiting, jaundice, dyspnoea and coma at presentation.T In AM, poor portal perfusion causes compensatory hepatic arterial flow leading to malfunction, maldevelopment and regeneration with cirrhosis (6%), nodular hyperplasia (16%), hepatoblastoma (4%), adenoma (10%) and hepatocellular carcinoma (27%). Most need correction of the shunt to improve hepatic perfusion, and some may require liver transplantation. This patient was referred to King's College Hospital for further management.

P.010

Suboptimal provision of medications and dietary products for phenylketonuric patients in Malta

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Introduction: In Malta, phenylketonuria (PKU) due to dihydropteridine-reductase (DHPR) deficiency rather than classical PKU, is not screened for at birth. Late presentation with neurodisability ensures a disproportionate demand on health services, compounded by non-adherence to PKU diets and irregular provision of neurotransmitter and cofactor supplementation, highlighted in this study.

Methods: PKU-related prescriptions were analysed for quantity dispensed, where a two month supply was the standard prescription. If a two month supply was dispensed, this represented 100% for that item. Anything less was calculated as a percentage of the two month amount, and this exercise was

performed for all PKU prescriptions over 2009-2015.

Results: Over 18 years, 5 patients with PKU due to DHPR were diagnosed. Of these, 3 siblings emigrated and prescriptions were analysed for the remaining two. All medications were frequently supplied in <2month aliquots: L-Dopa was insufficiently prescribed in 32%, 5-hydroxytryptophan 33% and folinic acid 39% of prescriptions. Low protein food was dispensed for <2 month aliquots in 37% and PKU cooler provisions were insufficient in 70% of prescriptions.

Conclusion: Cumbersome dispensing with frequent procurement and 'out of stock' situations result in incomplete prescriptions, with patients missing doses whilst stocks are replenished, often urgently and at much greater cost. Chronic under-provision results in frequent hospital attendances to stock up, increased patient symptomatology as doses are missed and lower compliance with PKU diets. The introduction of new born screening, together with a comprehensive overhaul of the pharmaceutical provision for children with PKU, with effective dietary and medicinal provision at all times is essential.

P.011

Illicit Substance Misuse in Older Adults: The Biopsychosocial Implications

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Introduction: Substance misuse among older adults is a novel phenomenon, attributable to aging of the baby boom population and improved survival of drug users. It will present clinicians with a new treatment population that is more likely to present with physical and psychiatric comorbidities and problematic social backgrounds consequent on a lifetime of substance abuse. This research aims to provide a literature overview of the topic and present findings from qualitative research looking into the social support networks of a cohort of older drug users.

Methods: The research is of a qualitative nature. Ethical approval was obtained from the Foundation for Social Welfare Services and written informed consent from participants. Eight participants recruited from Sedqa Detox Centre participated in a face to face semi-structured interview with the researcher. Topics explored were social support networks over different stages of their life course, physical and mental health problems. Social support networks represent both formal and informal sources. Interviews were recorded, transcribed, coded and themes identified. NVivo9 was employed.

Results: Findings from literature overview confirm this topic remains under researched with a paucity of published data available. Qualitative research highlights the vulnerable nature of social support networks within this population. It also shows the presence of comorbid physical and mental health problems.

Conclusion: This research highlights that policies, both with respect to social services and treatment services, do not identify and cater for the specific needs of this population. Suggestions are made as to how policies may better cater for this population.

P.012

Cystic Lymphangioma of the Transverse Colon in a previously healthy 62 year old male

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Introduction: A 62 years old male presented with a history of altered bowel habit tending to constipation with occasional diarrhoea and episodic abdominal pain.

Methods: Colonoscopy showed a submucosal cystic lesion in the transverse colon which was biopsied. Histology revealed hyperplastic epithelial architecture. PET-CT imaging was unremarkable except for tiny pulmonary lesions. As the clinical differential diagnosis included a mucinous malignancy, the patient was offered an extended right hemi-colectomy. Histology of the operative specimen confirmed a cystic lymphangioma of the transverse colon.

Conclusion: Endoscopic polypectomy or endoscopic mucosal resection may be recommended for pedunculated or semipedunculated colonic lymphangiomas which are less than 2cm in size. Larger and/or symptomatic colonic lymphangiomas should be treated with a limited bowel resection or tumour resection. A high percentage of patients with lymphatic cysts showed co-existent lesions with colorectal carcinomas present in 7% of patients and colonic adenomas found in 16% of patients.

P.013

Cystic Fibrosis due to ΔF508/G1349D mutation associated with a mild phenotype that supports gating kinetics of the CFTR channel

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Introduction: Cystic Fibrosis (CF) results from a genetic frameshift mutation in the Cystic Fibrosis Transmembrane Regulator gene. Many culprit gene mutations have been identified in CF, and the natural history, severity and clinical phenotype of this disease is dependent on what particular gene mutation(s) is involved.

Results: An 8 month old Caucasian boy developed clinical signs suggestive of cystic fibrosis, an abnormal sweat test and was found to be heterozygous for the ΔF508/G1349D state. He initially presented with poor weight gain and loose stools but no respiratory symptoms. Once CF was confirmed, he was commenced on the standard UK treatment protocol including pancreatic enzyme replacement, dietary supplements, antibiotic prophylaxis and physiotherapy. He displayed a mild clinical course with few complications including one episode with H.influenzae infection requiring antibiotics, an orbital mucocoele and ethmoid polyps aged two years. He manifested steady weight gain along P25 and remained well with minimal manifestations of his disease at the age of 7 years.

Conclusion: The gating kinetics hypothesis supports the notion of improved Cystic Fibrosis Transmembrane Regulator function that, potentially, could result in CF with fewer complications. Using a patch-clamp technique to isolate the CFTR channel from frog oocytes, the heterozgous ΔF508/G1349D mutation was associated with a ~10-fold decreased channel response to ATP, compared with 100-fold with other mutations, and fewer sequelae. To-date, 4 children with this mutation in the UK CF database had an improved phenotype, and this raises the dilemma whether to initiate effective but very costly ivacaftor therapy in this mildly affected patient.

P.014

Spontaneous Knotting of a Urethral Catheter in a Neonate

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Introduction: Urethral catheterisation is frequently performed in the younger paediatric population and is generally considered a safe procedure. Intravesical knotting is a rare complication occurring in approximately 0.2 per 100,000 catheterisations.

Conclusion: Infant feeding tubes used as urethral catheters pose an increased risk of intravesical knotting. An excessive length of tubing may cause it to coil on itself and form a knot. Guidelines on insertion lengths of catheters can help healthcare professionals reduce the risk of this

complication. Moreover, one should ensure that indwelling catheters are well secured to prevent further accidental insertion. Resistance during attempts at removal is a sign that should raise suspicion of a knot and further radiological imaging and a surgical opinion should be considered. One should not apply excessive force to avoid urethral injury.

P.015

Atypical Kawasaki Disease with Giant Coronary Aneurysms

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Introduction: Kawasaki disease (KD) may be complicated by coronary aneurysms especially with delayed treatment and atypical cases.

Conclusion: Aneurysms complicate 15-25% of untreated children with KD and in just 5% with IVIg given within 10 days. Aneurysms arise within 4 days of fever peaking at 4 weeks, so may have already developed in this late presenting patient. Earlier diagnosis and IVIg may have limited this complication. Hence, KD (and ECHO) should be considered with unresolved fever-irritability even if strict diagnostic criteria for KD are not met.

P.016

Mitochondrial dysfunction and autism spectrum disorders

Alexia Grech

Introduction: Autism Spectrum Disorder (ASD) represents a group of neurodevelopmental disorders characterized by a variable degree of impairments in verbal and non-verbal communication, social interaction, and restricted, repetitive interests and behaviours. The aetiology of ASD is still unclear, however, research indicates that ASDs involve complex interactions between genetic and environmental factors. ASDs may be associated with mitochondrial energy metabolism dysfunction. Several structural and genetic abnormalities and/or exposure to environmental toxins could result in mitochondrial dysfunction (MD). The presence of specific mutations in the mitochondrial or nuclear genome may result in decreased activity of electron transport chain (ETC) and tricarboxylic acid (TCA) cycle enzymes. This was shown by the presence of increased biomarker values such as elevated lactate levels, in individuals with ASD.

Conclusion: Advances in research are being made to determine whether MD is implicated in pathogenesis of ASD or if it is an epiphenomenon. This will enable us to understand better the cause, course and treatment of ASD individuals with MD. Apart from this, a better understanding of the behavioural phenotypes of ASDs would enable an earlier detection and clinical intervention. In addition, the well-being and the quality of life of an individual with ASD depend on the support of the relatives. Therefore the plan for intervention should have a priority for the education of ASD families.

P.017

Systematic review and meta-analysis of mental health risk factors for admission into a nursing home setting

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Introduction: Nursing home use is expected to increase significantly due to demographic changes over the next thirty years, and many systems have been and are being developed so as to provide further care in the community. Given that mental health problems are significantly prevalent in older persons, this review aims to examine the association and predictive power of mental health problems on nursing home placement.

Methods: The literature addressing the risk of nursing home placement in older persons has been systematically collected, with specific consideration given to mental health disorders which are primarily not cognitive. A total of 2,837 abstracts were reviewed, with 22 articles meeting the inclusion criteria. The range of variables used in the literature were organized according to the mental health diagnosis, and grouped according to ICD-10 categories.

Results: The review shows a significant positive association between psychotic disorders, bipolar disorder and substance misuse and the risk of earlier nursing home placement. A decreased risk of nursing home placement is found in anxiety disorders. A meta-analysis of the five studies examining the hazard ratio of nursing home placement in mood disorder shows a statistically significant increased risk of nursing home placement, whilst the severity of depression is a reliable predictor.

Conclusion: Mental health conditions have a direct and statistically significant impact on the risk of nursing home placement in older adults. Further research would be useful to determine whether the active management of these conditions would lead to a delay or change in the current pattern of admissions.

P.018

Case report: primary hepatosplenic sarcoidosis

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Introduction: A 78 year old female presented with a 10 month history of decreased appetite, lethargy and pallor. This was associated with diarrhea after meals and weight loss of around 9 kg. A smooth liver edge was palpable 2cm beneath costal margin and a tip of spleen was felt on abdominal examination. Her hemoglobin level was less than 7.8g/dL (11.5-16.5g/dL). A chest radiography was unremarkable while an abdominal CT showed multiple splenic lesions. A serum corrected calcium was 2.90 mmol/L (2.05-2.60mmol/L) while serum ACE levels were raised: 85 U/L (20-70U/L). A splenic MRI showed bridging fibrosis of the liver. Ultrasound-guided biopsy of the lesions revealed non-caseating epithelioid granulomata suggestive of sarcoidosis. The patient was transfused two units of packed red cells and prednisolone 20mg daily was prescribed. Her symptoms resolved within 4 weeks while her serum corrected calcium was within reference range on follow-up 12 weeks later.

Conclusion: Pulmonary hilar involvement is present in greater than 90% of sarcoidosis patients. It is essential to consider sarcoidosis as a differential diagnosis of hepatosplenic lesions despite having no abnormalities on chest radiography. Other case reports mention splenectomy as one of the treatments in hepatosplenic sarcoidosis however this patient had a clinical and biochemical remission on a course of oral prednisolone.

P.019

Neonatal threat from maternal leptospirosis: a case report and literature review

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Introduction: Leptospirosis is a globally prevalent zoonotic infection, caused by spirochaetes of the genus *Leptospira*, that can be transmitted vertically. Congenital leptospirosis is challenging to diagnose.

Methods: We describe the challenges in the diagnosis of leptospirosis in a neonate born to an infected Nigerian woman and review all published cases of leptospirosis in pregnancy.

Results: A 32 year old woman with with 34+6 weeks

of gestation presented with a 5 day history of fever, nausea, vomiting and jaundice. Blood results revealed deranged liver function tests, high uric acid, impaired renal function and abnormal clotting. An infectious work up was only positive for Leptospiral IgM antibodies. In view of rapid deterioration in the patient's hepatorenal function an emergency Caesarean section was carried out. The neonate was treated with 7 days of benzylpenicillin since the currently available tests cannot definitely exclude congenital leptospirosis. No *Leptospira* DNA was amplified through PCR. A literature review of leptospirosis in pregnancy showed only 35 published cases with foetal loss in more than 50% of women.

Conclusion: Interpreting leptospiral serology in neonates is challenging in view of difficulty in distinguishing neonatal from transplacentally acquired maternal *Leptospira* IgG and the potential for neonates not to mount an IgM response. The performance of the currently available PCR methods in neonates has not been studied. There is the need for the development of guidelines directing the investigations and management of neonates born to mothers with leptospirosis.

P.020

Allopurinol induced DRESS syndrome - a case presentation in a 91 year old

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Introduction: We report the case of allopurinol induced DRESS (Drug Reaction with Eosinophilia and Systemic Symptoms) syndrome in a 91 year old patient who was admitted with high grade fever and a widespread rash. Laboratory investigations revealed eosinophilia, raised inflammatory markers and deranged liver function tests; including coagulation derangements. On further questioning, it was noted that she had been started on Allopurinol by her general practitioner for raised uric acid 32 days prior to admission. Allopurinol was immediately discontinued and systemic steroid therapy initiated. An immediate improvement in leukocytosis, eosinophilia and liver function was noted, however coagulation derangements took longer to normalise. The rash progressed initially to an erythroderma-like picture, with complete resolution within weeks. In this case study we report the differentials, challenges with diagnosing DRESS syndrome and possible complications of late diagnosis and treatment.

Conclusion: Diagnosing DRESS syndrome can be a challenge given the non specific signs and symptoms. Nevertheless, recognising it in its early stages is essential, given the significant morbidity and mortality if untreated. For this reason, we deemed it necessary to report this case which is not as commonly reported in literature. In the vast majority of cases, allopurinol is considered a safe drug with few reported serious side effects. Minor drug rashes occur in less than 2% of patients. On the other hand, allopurinol is also a known cause of DRESS syndrome. Its use depends on clinical symptoms rather than solely biochemical data. Paying special attention to the drug history of patients is advised.

P.021

Fatigue in rheumatoid arthritis: what is known?

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Introduction: Fatigue is a common symptom in patients with rheumatoid arthritis (RA), and is often unrecognised by health professionals. The estimated prevalence in RA is 40-80%. The aim of this study was to summarise the available literature on fatigue in RA patients and identify areas that require further study.

Methods: A search was made on PubMed and Cochrane Library using the MESH terms "rheumatoid arthritis" and "fatigue". 326 papers were identified on PubMed; 119 papers on Cochrane. From these, papers that were not in English, letters, case reports and comments were excluded. The abstracts of the remaining papers were reviewed and non-relevant papers were excluded. 49 papers were reviewed in detail.

Results: Fatigue has a multi-factorial aetiology and has been associated with pain, disease activity, physical functioning, anxiety and depression. Conflicting and insufficient evidence is present on the effect of other factors (including inflammation, auto-antibodies, disease duration, co-morbidities, social support and gender). The evidence shows that physical activity, psychosocial interventions and biologic drugs provide some benefit on the level of fatigue in RA. The 20-item Bristol RA Fatigue Multi-Dimensional Questionnaire has been designed specifically to assess level of fatigue in studies on RA and captures the multi-dimensional aspect of fatigue.

Conclusion: Fatigue has a significant impact on RA patients. Multiple factors have been identified as being possible causes and thus potential targets for treatment of fatigue. Further studies on its aetiology and testing of other interventions, such as advice on sleeping patterns, balancing activity and rest, and social support are required.

P.022

An unusual neck lump - a trap for the unwary

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Introduction: Carotid body tumours (CBTs) are rare neoplasms of neural crest origin at the carotid bifurcation. Presentation can vary from a painless mass to cranial nerve compression and is often misdiagnosed as a result of these non-specific symptoms. Though generally benign, morbidity can be significant. The management of two patients with CBTs in Malta were reviewed to highlight disguising symptomatology which may hinder early diagnosis.

Methods: Data was obtained from the patients' files. Real time images of the surgery were captured.

Results: Homonymous hemianopia and a lump in the anterior triangle of the neck were the presenting features of a 56 and a 53 year old female respectively. Diagnosis and pre-operative assessment of Shamblin grade II CBTs was performed using carotid duplex scanning, computed tomography (CT) of the neck and CT angiography. The 53 year old female had unnecessary fine needle aspiration prior to referral. Typical features on imaging diagnostic of a CBT should alert the clinician not to needle this mass due to its vascularity. Intra-operative imaging of CBT excision highlighted the anatomy and surgical technique used. Though this is regarded as a rare, high risk surgery, the procedure was successful with no complications, early discharge and uneventful follow-up.

Conclusion: This case series shows that early surgical management can prevent multiple morbidities due to compression on adjacent structures by the tumour. Additionally, research shows that small tumours have a better surgical outcome.

P.023

Anaesthetic management of a patient with Eisenmenger syndrome for non-cardiac surgery

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Introduction: Eisenmenger syndrome is a severe form of pulmonary arterial hypertension. It is the result of untreated congenital cardiac disease with a systemic-to-pulmonary shunt, leading to multisystem involvement due to progressive hypoxaemia and central cyanosis. We describe the anaesthetic management of a 67-year-old patient with type II diabetes and Eisenmenger syndrome undergoing an elective abdominoperineal resection, total abdominal hysterectomy with bilateral salpingo oophorectomy and bilateral ureteric

stent insertion in view of a rectal carcinoma. On examination she was found to have a loud pansystolic murmur (PSM) radiating throughout the precordium with finger clubbing. A cardiac magnetic resonance imaging (MRI) showed a large (non-restrictive) perimembranous ventricular septal defect (VSD) with bidirectional flow; low velocity systolic left-to-right shunt with Eisenmenger physiology. In view of these findings she was categorised as high risk. However, the patient was independent in her ADLS and had relatively good exercise tolerance. Intra-operatively she was successfully managed with general anaesthesia, invasive monitoring including, Swan-Ganz pulmonary artery catheterisation and transoesophageal echocardiography (TOE), inotropic support and neuraxial blockade for pain relief. Post-operatively the patient was transferred, intubated and ventilated, to the intensive therapy unit (ITU) with a running epidural infusion. She was successfully extubated the same day and transferred to a surgical ward 3 days later. She had no complications and was eventually discharged home.

Conclusion: Anaesthetic perioperative management of adult patients with Eisenmenger syndrome represents a challenge. A multidisciplinary approach is essential and should be directed towards optimizing patients' preoperative status and minimizing haemodynamic and hypoxic intra-operative effects of this syndrome.

P.024
A five year review of exercise-based cardiac rehabilitation

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Introduction: Cardiac Rehabilitation aims to minimise the negative impact of cardiac disease on the physical and psychological capacities of affected patients; in turn improving the quality of life and survival of the patients. Participation in exercise-based cardiac rehabilitation programmes (CRPs) is associated with exercise tolerance improvement, increased ischemic threshold, and improved control of cardiovascular risk factors.

Methods: A literature search of exercise-based cardiac rehabilitation over a five-year period was conducted. All included research covered specific areas including; knowledge & understanding of cardiac rehabilitation; benefits of cardiac rehabilitation; age-related response to CR; cardiac effects and the effect on coronary stents; mortality and morbidity effects; sexual dysfunction and mobility issues; technology benefits; and economics.

Results: Participation in a cardiac rehabilitation programme results in significant improvements in cardiovascular risk profile, functional capacity and quality of life, regardless of age. Despite its efficacy and cost-effectiveness, exercise-based cardiac rehabilitation is undertaken by less than one-third of eligible patients.

Conclusion: Programmes should contain individualised programs designed to optimise physical, psychological, social and emotional status. Comprehensive cardiac rehabilitation should be initiated as early as possible, individualised depending on clinical status of the patients.

P.025
ROHHADNET syndrome

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Introduction: A 6-year old Maltese boy presented with a 6-month history of rapid significant weight gain (10kg), despite substantial dietary measures and physical activity. There were no other symptoms and physical examination was unremarkable. At first consultation, the weight was 36.6kg and BMI 30kg/m^2, worsening at an alarming rate over subsequent months. Initial baseline investigations only revealed hyperprolactinaemia (2120mU/L) on several occasions. Two magnetic resonance imaging scans (MRI) of the brain and pituitary (6 months apart) showed no lesions. There was no clinical or biochemical evidence of Cushing syndrome. After a few months, he developed polyuria, polydipsia, and showed slowing in linear growth. Although he was able to adequately concentrate his urine during a water deprivation test, he still developed significant hypernatraemia. A glucagon stimulation test showed a flat growth hormone response (peak concentration 0.54µg/L)

Conclusion: The combination of rapid-onset obesity, hyperprolactinaemia, hypernatraemia and growth hormone insufficiency in the absence of any radiological intracranial abnormality strongly suggested a possible diagnosis of ROHHAD syndrome. As about 40% of affected patients may develop neural crest tumours (ROHHADNET syndrome), he underwent MRI of the thorax and abdomen. This revealed a solitary mass in the right paravertebral gutter, suggestive of ganglioneuroma. ROHHADNET syndrome is an exceedingly rare condition characterised by rapid-onset and inexorable obesity starting in childhood, hypothalamic dysfunction, hypoventilation and autonomic dysfuntion with or without neural crest tumours. Diagnosis is based on clinical criteria. Management is supportive and multidisciplinary. To the best of our knowledge, this is the first documented Maltese patient with ROHHADNET syndrome.

P.026
Epigenetics in cancer

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Introduction: The relevance of epigenetic changes in the pathogenesis and progression of cancer remains poorly understood, making this association an extremely active area of research. DNA methylation, histone modification and disturbance of the non-coding RNA are the three primary mechanisms by which epigenetic control operates. Initiation and progression of cancer has been closely linked to the presence of cancer stem cells, believed to be the product of epigenetic deregulation. Moreover, silencing of tumour suppressor genes instigates metastasis allowing for malignancy dissemination. Presently, research is focusing on constructing tailor-made therapy, and epigenetic biomarkers are pivotal in this regard. The authorisation of DNA methyltransferase inhibitors (DNMTi) and histone deacetylase inhibitors (HDACi) in the treatment of specific leukaemias is proof that targeting epigenetic mechanisms is a very promising field in the treatment of specific cancers.

Conclusion: Recent findings are reforming previous solid ground hypothesis such as the case of the emerging theory of obligate haploinsufficiency developed amongst other authors by Knudson. This theory is revising the original two-hit hypothesis proposed by the same Knudson, 40 years before by reporting that silencing of just one TSG via methylation of its promoter region may be even more tumorigenic then a two hit modification. Epigenetics is gradually revolutionizing our approach to cancer management. Treatment regimens are already incorporating HDACi and DNMTi and epigenetic biomarkers are gaining popularity. The examples mentioned in this review are believed to be just the tip of a huge body of knowledge still left to be discovered.

P.027
Rating the satisfaction and importance of the Hospital Blood Bank at Mater Dei Hospital by nursing officers.

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Introduction: Customer orientation has got increasing attention in healthcare for the past years. The customer perspective has been further emphasised by clinical laboratories as an important tool for the services they provide. A customer

satisfaction survey is one way to recognise areas and topics that benefit or require quality improvements.

Methods: A total of 70 Nursing Officers (NOs), working in various wards at Mater Dei Hospital, that make frequent use of the services of the blood bank were contacted in December 2012 to participate in this survey. In the end 52 (74.3%) participated. The survey was set online using the Survey Monkey engine (www.surveymonkey.com) with a paper based option. The first four questions asked the participant background information: grade, age group, gender and medical speciality. The questions on satisfaction and importance were set using a Likert scale (1: very dissatisfied; 5: very satisfied). A Not Applicable (NA) option was provided for all the questions. A time frame of one month was set and all potential participants were reminded by two emails sent on alternate weeks.

Results: On average the NOs showed a positive response to the services provided (very satisfied 27.5%; satisfied 60.4%). A total of 27.7% replied that the services by telephone could improve. On the importance of the services provided, on average, there was also a very positive response (very important 63.9%; very important 28.1%).

Conclusion: This survey showed that the services provided by the Hospital Blood Bank are satisfactory and that its role, as envisaged, is recognised by healthcare professionals.

P.028
The history of nursing

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Introduction: The nursing profession originated in the mid – nineteenth century, and has begun with Florence Nightingale. Nightingale believed that using scientific principles and informed education about medical conditions, could dramatically improve the care of sick patients. In 1854, Nightingale had the opportunity to test her beliefs during Britain's Crimean War. Nursing has seen profound changes since then. The unreliability of hospital based nursing care became particular problematic in the late 19th century. The convergence of hospitals' needs and women's desire for meaningful work led to a new health care professional: the trained nurse. The two World Wars also brought about significant changes to the nursing profession. For example, the military nurse emerged during World War 1. However, military nursing during the First World War was not without its challenges. Added to the hardships of caring for severely injured soldiers, nurses had to contend with the untrained Voluntary Aid Detachment (VAD) nurses who threatened to usurp the role of the professional nurse. Between the World Wars, Great Britain had no National Health Service. While nurses in the UK strove to acquire a Nursing Register, different hospitals employed different categories in an ad hoc fashion. The Second World War also brought new demands. For both patients and staff alike, this was a test of tolerance and ingenuity.

Conclusion: This paper thus seeks to explore the emergence of the nursing profession during the past century. Biographies and documentation in diaries of nurses who made an impact to the nursing profession will be explored.

P.029
Spontaneous gastric rupture in a neonate

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Introduction: Gastric perforation is a rare, yet serious problem in neonates associated with a high mortality rate. The exact aetiology is unknown but proposed mechanisms for its pathogenesis include traumatic, ischaemic and spontaneous causes. We describe a case of spontaneous rupture of the stomach in a neonate.

Conclusion: Acute abdominal distension in a neonate requires prompt assessment and investigation. A ruptured stomach is an unusual surgical emergency in neonates and urgent repair after diagnosis decreases the risk of mortality.

P.030
Methotrexate – the dark side of a vital drug in oncology

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Introduction: Methotrexate (MTX) encephalopathy is a recognised but relatively rare toxic effect of treatment with MTX. It may occur following both intrathecal and systemic administration of MTX. We describe two cases of MTX encephalopathy that occurred within a year in our local paediatric oncology unit.

Methods: We observed the signs and symptoms that two children developed a few days after receiving intrathecal MTX as part of the treatment for acute lymphoblastic leukaemia (ALL). These included motor problems, coordination difficulties, cranial nerve palsies, parasthesiae, aphasia and emotional lability. We describe the rapid evolution and changing nature of the signs and symptoms, as well as their complete resolution, both clinically and radiologically. Diffusion weighted imaging (DWI) magnetic resonance imaging (MRI) typically shows areas of restricted diffusion of water, which is thought to represent the reduction of motion of water along axons as a result of cytotoxic oedema.

Conclusion: MTX is an integral part of the treatment regimen for ALL. Although rare, our case report shows that one must consider the diagnosis of MTX encephalopathy if neurological signs and symptoms develop following MTX administration. Diagnosis may not be straightforward as symptoms are usually transient and tend to resolve spontaneously, while initial investigations are usually normal. The gold standard imaging modality is DWI MRI. The risks versus benefits of continuing treatment with MTX need to be considered.

P.031
The clinical course of a young female diagnosed with TINU syndrome

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Introduction: Tubulointerstitial nephritis with uveitis presents in healthy individuals, with minimal symptoms, yet unless well managed may progress to end-stage renal disease requiring dialysis or transplantation. This case describes the clinical course and management of a 21 year old female, previously healthy, who presented to casualty with generalised symptoms of painful red eyes, abdominal pain and frothy urine. Investigation findings included a creatinine of 666 mmol/L, an eGFR of <7 mls/min/1.73m2 and a haemoglobin of 8.1 g/dL. An ultrasound was done, which showed symmetrically large kidneys with no signs of obstruction. A renal biopsy reported the presence of acute tubulo-interstitial nephritis with predominant eosinophilia. No definite cause for the nephritis was identified. Ophthalmic review diagnosed bilateral uveitis requiring NSAID (non-steroidal anti-inflammatory drug) eye drops. The combination of uveitis with tubulointerstitial nephritis suggests the diagnosis of TINU syndrome. She was started on intravenous methylprednisolone and then was switched to tailing down doses of oral prednisolone. Marked improvement of renal function and ocular manifestations was noted.

Conclusion: The underlying cause of TINU syndrome is still unknown. Frequently used medications such as NSAIDs and antibiotics, viral infections and autoimmune disease have been associated. The case outlines the importance of organising a renal biopsy when presented with deteriorating renal function from an unexplained cause with inconclusive imaging findings. Optimal and timely treatment with steroids can prevent long-term complications. Knowledge about TINU syndrome is key to early recognition and successful management of affected individuals.

P.032

A case of endometriosis in a Cesarean section scar

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Introduction: Endometriosis results from the deposition of endometrial tissue outside the uterus. The estimated prevalence ranges from 2-10% in the general population but may be up to 50% in infertile women. Subcutaneous endometriosis is however rare, and often remains overlooked in view of the patient presenting with a history of chronic lower abdominal pain. A 35 year old female, Gravida 4 Para 2, presented with a fourteen year history of chronic lower abdominal pain. The pain was cyclical and severe in nature, not resolving with analgesia. On clinical examination, a palpable, tender mass was noted above the pfannenstiel incision done for a Cesarean section in the year 2000. A pelvic MRI reported an endometriotic mass on the left side of the pfannenstiel scar. An exploration of the abdominal scar was done; a 6x3cm irregular hard tissue was excised from the subcutaneous region. Histology reported the specimens to be composed of connective tissue fibres and adipose tissue, with foci of endometriosis. Post-operatively, the patient reported an improvement in her symptoms and a fair reduction in the pain score associated with her menses. The patient was then prescribed the oral contraceptive pill for long-term management of residual endometriosis.

Conclusion: Clinicians should have a high index of suspicion of subcutaneous endometriosis in patients presenting with cyclical chronic abdominal pain, associated with previous abdominal surgery. It is curable, and surgery remains the mainstay of treatment in such a condition.

P.033

The middle ear: a pictorial review of CT and MR imaging anatomy and pathology

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Introduction: The aims of this pictorial review were the following: 1) To review in detail the radiological anatomy of the middle ear. 2) To illustrate the spectrum of soft tissue and bony lesions involving the middle ear and demonstrate the typical CT and MR findings in these patients

Methods: The relevant imaging of all the patients who were evaluated for any inner ear pathology in recent years was obtained from the local radiology information system, anonymised and reviewed.

Results: A spectrum of pathologies involving the medial ear was identified including inflammatory disorders, post-traumatic conditions, various benign and malignant tumours as well as congenital and vascular anomalies. A wide variety of conditions was reviewed including but not limited to malignant otitis externa, cholesteatoma complicated by chronic otomastoiditis and ossicular disruption following a longitudinal type temporal bone fracture.

Conclusion: There is a vast spectrum of lesions involving the middle ear. This pictorial review gives an in depth review of the radiological anatomy of the middle ear thus providing a road map which will enable accurate identification of the radiological abnormality and more precise treatment planning.

P.034

Inner ear imaging: a pictorial review

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Introduction: The aim of our pictorial review was to identify the various pathologies involving the inner ear, internal acoustic canal, cerebellopontine angle, and vestibulocochlear nerve whilst demonstrating the typical CT and MRI findings in patients with such lesions.

Methods: The relevant imaging of all the patients who were evaluated for any inner ear pathology in recent years was obtained from the local radiology information system, anonymised and reviewed.

Results: A wide spectrum of inflammatory lesions, post-traumatic conditions, benign and malignant lesions, congenital and acquired abnormalities and much more can be identified thanks to today's sophisticated cross-sectional imaging. Particular focus is made on the commonest conditions such as labyrinthitis, temporal bone injuries, otosclerosis, vestibular schwannoma and vestibular aqueduct syndrome but rare and unusual conditions seen locally are also reviewed.

Conclusion: There is a vast spectrum of lesions involving the inner ear. Anatomy is the key to determining the aetiology of the lesion in question. This pictorial review gives an in depth review of the radiological anatomy of the inner ear thus providing a road map which will then enable accurate identification of the radiological abnormality and more precise treatment planning.

P.035

Pyrexia of unkown origin: never rest on your laurals

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Introduction: We present the case of a 67 year old gentleman known to suffer from Parkinsons disease, Lumbar disc prolapse, Pagets disease and Benign prostatic hypertrophy who presented with a history of weight loss, chills, pyrexia and dysphagia. The patient was investigated extensively and urinalysis demonstrated the presence of bacteria. ESR, CRP and Ferritin levels were all elevated. A diagnosis of urinary tract infection (UTI) was made and the patient was given a course of co-amoxiclav. The patient's pyrexia however persisted and a few weeks late was re-admitted with a right wrist drop. Investigations revealed a strongly positive c-ANCA (>2000) and antiproteinase 3 (>200). The patient also developed a left foot drop associated with a palpable petechial rash of his lower limbs. A skin biopsy taken from the rash showed a leukocytoclastic vasculitis. A sural nerve biopsy also showed florid vasculitis affecting blood vessels of all sizes. A diagnosis of c-ANCA-positive vasculitis was made. The patient was started on steroids and Cyclophosphamide. Treatment with Cyclophophamide was continued monthly for a total of six months with significant clinical improvement.

Conclusion: We have presented an unusual cause of pyrexia of unknown origin, the aetiology of which was masked by a co existent UTI. This case highlights the need to monitor and follow up closely patients with PUO whose symptoms persist despite treatment of a potential cause of the pyrexia.

P.036

Gastrointestinal metastasis of infiltrating lobular carcinoma of the breast: three case reports and literature review

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Introduction: Metastasis of primary lobular breast carcinoma to gastrointestinal tract is a well-known yet rare occurrence with reported incidence ranging from 2% to 18%. Moreover, presentation of metastatic breast cancer with gastrointestinal symptoms is unusual.

Methods: A 67-year-old female presented with severe weight loss and loss of appetite. On further investigation the patient was diagnosed with infiltrative lobular breast carcinoma with gastric metastasis, presenting as linitis plastica. A 56-year-old female with the history of invasive lobular breast cancer 9 years prior, presented with a five-day history of constipation, colicky abdominal pain, nausea and vomiting. The patient was subsequently diagnosed with a metastatic

lobular breast carcinoma to distal ileum, causing small bowel obstruction. An 88-year-old female, with a history of metastatic carcinoma of the breast 11 years prior, later presented with persistent nausea and vomiting. The patient was diagnosed with small bowel obstruction secondary to metastatic invasive lobular carcinoma to duodeno-jejunal flexure.

Conclusion: When a patient with a history of breast cancer presents with gastrointestinal symptoms, a high index of suspicion for a potential breast cancer metastasis has to be maintained. Increased awareness of the possibility of breast cancer metastasis should be observed in females without history of breast cancer who are diagnosed with diffuse-type gastric cancer or gastrointestinal carcinoma of unknown origin. As it was the case in one of our patients, this may be the first presenting symptom of metastatic breast cancer.

P.037

A case of post-intervention acute opsoclonus myoclonus syndrome

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Introduction: Opsoclonus Myoclonus Syndrome (OMS) is a rare, neurological condition affecting 1 in 10,000,000 people annually. Opsoclonus, defined as involuntary rapid, multivectorial oscillations of the eyes, and myoclonus are usually present. OMS may be paraneoplastic but other aetiologies include viral or toxic agents. The pathogenesis is thought to be immune mediated. To our knowledge, this is the first reported case of OMS occurring acutely after an intervention under anaesthesia.

Methods: Case Presentation: A 37 year old woman with recurrent steroid responsive facial palsies and optic neuritis underwent elective Dilatation and Curettage (D&C) with Fentanyl and Propofol anaesthesia. Previous surgeries with anaesthesia were uncomplicated. Immediately after the procedure she became disoriented, with incoherent speech and inability to obey commands. Examination revealed rapid jerky multidirectional eye movements and myoclonic jerks. Breast examination with ultrosonography was normal. Investigations including onconeuronal antibodies, CSF analysis, and imaging were also normal. She was treated with intravenous Methylprednisolone with rapid improvement.

Conclusion: This case illustrates the occurrence of acute OMS after a minor surgical intervention. A possible predisposition may be auto-immune in view of previous multiple steroid responsive cranial mononeuropathies. There was no evidence of a paraneoplastic neurological syndrome. The acute occurrence of OMS after D&C is unexplained and may have been triggered by the intervention or the anaesthesia. OMS and its relationship with anaesthesia has not been studied in detail. Fentanyl and Propofol have been reported to be safe with established OMS while other anaesthetic agents such as ketamine and etomidate, aggravate the opsoclonus and myoclonus.

P.038

Colouterine fistula as a complication of diverticulitis: a case report and literature review

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Introduction: Colouterine fistula is a rare complication of diverticulitis.

Methods: An 81-year-old lady presented with colouterine fistula secondary to sigmoid diverticulitis. A 3-stage procedure was carried out. A transverse loop colostomy was first fashioned. After 8 weeks, hysterectomy, bilateral salpingo-oophorectomy and colonic resection was performed. After a further 7 weeks, reversal of the loop colostomy and end-to-end anastamosis was performed.

Conclusion: A single stage en-bloc resection of the uterus and colon has been described as the procedure of choice for colouterine fistulae where malignancy cannot be excluded. In the presence of acute obstruction or severe local inflammation requiring urgent operation, resection and end colostomy followed by re-anastamosis at a later date has been described as the safest procedure. Our case demonstrates an alternative surgical plan for patients with signs of acute inflammation in whom malignancy cannot be excluded.

P.039

A case of McArdle's disease in an elderly gentleman: a multidisciplinary team approach

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Introduction: A 70 year old gentleman presented to Karen Grech Day Hospital with a one year history of progressively worsening weakness and wasting in both upper limbs that was impairing his activities of daily living (ADLs) including his daily duties and consequently his quality of life. Investigations showed an elevated creatinine kinase and erythrocyte sedimentation rate; spinal magnetic resonance imaging was normal. Electromyography showed short duration small amplitude waves. Muscle biopsy suggested a myopathy, possibly McArdle's disease, an autosomal recessive condition leading to a deficiency of myelophosphorylase, resulting in an inability to utilize muscle glycogen stores. It is the commonest glycogenosis affecting skeletal muscle, with a prevalence of 1:100,000. It usually presents in childhood or adolescence; presentation in the elderly is highly atypical. The patient benefited from an interdisciplinary team approach to his management. He was assessed by the team physiotherapist and occupational therapist who follow him up regularly. A home visit was organised to improve the patient's functional ability in ADLs. Attention was given to falls prevention. He has a dedicated named nurse assigned to him who acts as his link to the interdisciplinary team and who co-ordinates his care. His general practitioner is also an essential team member and is kept informed on this patient's management.

Conclusion: From a patient's perspective, a diagnosis is of benefit only if it will contribute to a better quality of life. In neuromuscular conditions that affect ADLs, this can only be achieved through a co-ordinated interdisciplinary approach and a comprehensive care package.

P.040

Out-of-stock medicines in Malta – harnessing a white elephant

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Introduction: Medicines within the governmental health services are procured by the Central Procurement and Supplies Unit (CPSU). The cheapest medicine which is technically compliant to the published specifications and which is certified to be safe, efficacious and of good quality is procured. In previous years the procurement system has been plagued by a longstanding out-of-stock (OOS) scenario. In fact, in 2012, the National Audit Office has designated the then system as unsustainable. Raw material shortages, medicine recalls, delivery problems, discontinued drugs, erratic consumptions and increase in demand are all ramifications to an OOS scenario. The local low demand of specific medicines may also discourage pharmaceutical companies from supplying such medicines. Notwithstanding these relatively constant variables, in 2015, the OOS situation has been reversed and effectively maintained as such by CPSU through the successful implementation of specific

policies. Mid-year reviews carried in 2013 and 2015 reveal that the average monthly number of OOS POYC medicines decreased from 56 to 5. Most importantly, horizontal and vertical integration of information has been spearheaded with a view to implement total quality management. Mitigation measures include better inventory management, customer demand modelling, adoption of time-based agreements and streamlining of procurement processes. Furthermore, a dedicated team has been established to tackle shortages in a timely manner without compromising the quality and efficacy of medicines.

Conclusion: Minimising the OOS situation is the cornerstone to effectively provide a constant armamentarium of medicines to stakeholders in order to implement cost-effective protocols based on both empirical evidence and patient expectations.

P.041

Anaesthetic management of a patient with fascioscapularhumeral muscular dystrophy undergoing a total abdominal hysterectomy

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Introduction: The anaesthetic management of patients with muscular dystrophy may present a challenge. These patients are sensitive to anaesthetic medications with respiratory depressant effects, may have an unpredicatble response to medications such as suxamethonium and muscle relaxants. A 48-year-old female, diagnsed with fascioscapularhumeral (FSH) muscular dystrophy, underwent an elective total abdominal hysterectomy with bilateral salpingo-oophorectomy. A pre-operative multidisciplinary meeting was held. The patient was independant in her activities of daily living, denied recurrent chest infections and required very minimal medical support. It was decided to proceed with surgery under an inhalation agent-free general anaesthetic with propofol target controlled infusion (TCI) and avoiding the use of suxamethonium. In theatre, intravenous induction was performed using propofol TCI, fentanyl and atracurium. Intubation was relatively easy. Anaesthesia was maintained with propofol and no further doses of non-depolarising muscle relaxant were given intra-operatively. The surgery lasted one hour and forty five minutes. Intra-operative pain relief was provided with fentanyl, paracetamol, diclofenac and local bupivicaine infiltration. The non-depolarising muscle relaxant was allowed to wear off and post-operatively she was successfully extubated. In view of the increased sensitivity of these patients for the potential respiratory depressant effects of opiods required for pain relief, she was transferred to a high dependancy unit. The patient was discharged to a surgical ward twenty four hours post-operatively with no reported complications.

Conclusion: The careful pre-operative assessment and knowledge of anaesthetic medications likely to cause an adverse response in this condition, is essential, to ensure a successful anaesthetic outcome.

P.042

Linchpin matters – procurement of medicines for the Maltese National Health Service

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Central Procurement & Supplies Unit, Ministry for Energy & Health

Introduction: Medicines procured within the governmental health services are distributed through the Pharmacy of Your Choice scheme to community pharmacies and the various public hospitals. Procurement is done by the Central Procurement and Supplies Unit (CPSU), which has been established through the Public Procurement Regulations (SL174.04). Call for quotations (CfQ) for specifications of medicines, as agreed with the Directorate for Pharmaceutical Affairs, are published on the Electronic Public Procurement System (e-PPS) portal. Pharmaceutical companies, their representatives and wholesale dealers can bid for any CfQ following registration with e-PPS. Bidders need to upload details on three separate areas, i.e. administrative, technical and financial sections within a stipulated published timeframe; after which bidders personally lock the bid electronically. At this stage the bid cannot be modified. Designated CPSU staff can see the offers, including the prices, only after the CfQ is unlocked for evaluation. During the evaluation, the cheapest medicine which is technically compliant to the specifications, terms and conditions of the bid and certified to be safe, efficacious and of good quality is ultimately recommended for procurement. Evaluation includes an EU transnational comparison to ascertain that the unit price is fair and reasonable. Important considerations include delivery period, shelf-life on delivery and language of the product literature.

Conclusion: The procurement process is entirely electronic. It involves multi-point quality checks which are implemented to ascertain transparency, efficiency mapping, fairness and good judgement with a view to acquire the most cost-effective medicines to address the needs of a holistic patient-centric approach.

P.043

An atypical presentation of genital lichen sclerosus

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Introduction: A 40 year old gentleman who is a known case of myotonic dystrophy type 2 and hypogonadism presented to the Genitourinary Clinic with a 7 year history of hyperpigmented patches on the prepuce and the skin of the penile shaft. These patches were non-pruritic and had gradually become hypopigmented. Over the 7 months prior to presentation he had also developed a superficial ulcer on the glans. Examination showed no skin infiltration, tenderness or groin lymphadenopathy. Treponemal and herpes simplex infection were excluded. Punch biopsies from the glans penis and the hyperpigmented preputial skin were consistent with mild lichen sclerosus and lentigo simplex. The patient is under treatment with topical clobetasole proprionate ointment.

Conclusion: Male genital lichen sclerosus (LS) is an inflammatory dermatosis characterised by foreskin tightening resulting in phimosis and white discoloration of the skin, often with a shiny porcelain appearance. We report this case for its atypical clinical presentation with skin hypopigmentation and surrounding brown to black pigmented patches, mimicking, in first instance, malignant melanoma. Atypical genital melanocytic naevi and isolated cases of melanoma have been reported to occur concomitantly in patients with LS. The immune response triggered by melanocytic lesions may be a causative factor for LS. Conversely the inflammatory microenvironmental present in LS may provide a niche that promotes melanocytic neoplasia. Since new areas of genital pigmentation can herald the presence of early melanoma, such pigmented areas are both a cause of concern for patients and also pose a diagnostic dilemma for physicians.

P.044

Candida albicans osteomyelitis in a five month old infant with mitochondrial depletion syndrome

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Introduction: Osteomyelitis in infants is usually caused by bacteria (most commonly *Staphylococcus aureus*) of haematogenous origin. We report an unusual case of *Candida albicans* osteomyelitis in a girl with a rare inborn error of metabolism.

Methods: A five month old female, diagnosed at three months of age with mitochondrial depletion syndrome, presented with pseudoparalysis of her right lower limb associated with swelling of the knee. MR (magnetic resonance) imaging revealed chronic osteomyelitis of the right femoral condyle involving the metaphysis and distal epiphysis, together with septic arthritis.

Results: *Candida albicans* was cultivated from a bone biopsy and synovial fluid aspirate following debridement of the infected area. She was subsequently treated with liposomal amphotericin B for six weeks with resulting improvement after which she was switched to a one year course of oral fluconazole. There was no growth from blood cultures and no evidence of renal fungal balls, retinitis or of vegetations on echocardiography. Immunological investigations did not show any immune defects. However, she had evidence of candidaemia a few weeks prior to presentation caused by an infected intravenous cannula.

Conclusion: Line-associated candidaemia is a serious infection that may present as chronic osteomyelitis in infants. Surgical debridement and prolonged antifungals are necessary to cure the infection and prevent relapse.

P.045

Cutaneous stigmata of spinal dysraphism

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Introduction: Congenital lumbosacral midline cutaneous stigmata including sacral dimples, birthmarks and localised hypertrichosis are known to be associated with underlying spina bifida occulta that includes split cord malformation, dermal sinus tract, tethered spinal cord, and intraspinal lipoma. The aim of this report is to highlight that such stigmata should be investigated early on with an ultrasound scan of the spine.

Methods: We report a case of a 5 year 11 month old girl who presented with recurrent urinary tract infections. On examination she had a palpable bladder which persisted even after voiding. Examination of the back revealed a large sacral haemangioma which had been noted at birth but was not investigated further. Neurological examination of her lower limbs was normal.

Results: A renal ultrasound revealed a dilated smooth-walled urinary bladder with a significant post-void residual suggesting poor bladder emptying. An MRI spine showed covered sacral dysraphism associated with lipomyelomeningocoele and spinal cord tethering. There was also a right hydronephrosis and hydroureter and a markedly distended bladder with evidence of trabeculation. The patient commenced three- hourly clean intermittent catheterisation with overnight drainage. At operation the spinal cord was untethered successfully.

Conclusion: We present a 5 year 11 month old girl with bladder dysfunction secondary to spina bifida occulta and tethered cord and with a sacral haemangioma. We suggest that all new-borns with sacral stigmata should undergo a spinal ultrasound in the first few weeks of life to exclude underlying spinal abnormalities.

P.046

The co-parenting experience of stressed mothers and their husbands who have infants with a reactive temperament

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Introduction: This study explored the co-parenting experience of stressed mothers and their husbands who perceive their infants to have a reactive temperament. More studies exploring the co-parental relationship and the interactive dynamics between the parents and infants are needed (Rothbart, 2012).

Methods: The seven participants (recruited from the Well Baby Clinic) consisted of mothers who scored significantly high on the Parental Distress Index- 4 (Abidin, 2012) and who perceived their infants as high on Negative Affectivity (IBQ-R Very Short Form; Garstein & Rothbart, 2008). Conjoint in-depth semi-structued interviews were carried out and analysed through Interpretative Phenomenological Analysis.

Results: The main themes that emerged included feelings of joy and luck, considerable parental challenges, high exhaustion levels, lifestyle changes, giving utmost priority to infants and also difficulties in sustaining a close marital relationship. The family of origin played an important role in offering support to parents. An interactive relationship between the infants' temperament, the co-parenting dyad, the marital system, the family of origin and the influence of the Maltese socio-cultural context was highlighted.

Conclusion: This was the first local study which explored this topic. Through this study, health professionals gain a closer understanding of what these families go through and how much more holistic support would be beneficial. This study shed light on the importance of devising a more parent-friendly policy and expansion of services.

P.047

Primary bilateral non-Hodgkin's lymphoma of the adrenal gland presenting as incidental adrenal masses

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Introduction: Primary adrenal lymphoma is a rare condition and may present as unilateral or bilateral adrenal masses which may be rapidly growing. Patients do not usually have disease elsewhere. and this makes the diagnosis more difficult.

Methods: Case report: A 62-year old lady with a history of hereditary spherocytosis, was referred to hospital with progressively worsening symptomatic anaemia (Hb 7.7g/dl). She was found to have splenomegaly and CT of the neck and trunk showed bilateral, marked, homogenous adrenal gland enlargement and confirmed splenomegaly. Serum and 24 hour urinary catecholamines and metanephrines and urine cortisol levels were within normal limits. Axillary lymph node and adrenal biopsies were later performed and revealed diffuse large B-cell lymphoma (activated B-cell phenotype). Despite chemotherapy, disease progression was aggressive and the patient passed away 1-year after initial diagnosis.

Conclusion: Primary adrenal lymphoma is an aggressive type of diffuse large B-cell lymphoma and has to be considered in the differential diagnosis of endocrinologically silent adrenal

masses. Diagnosis is essentially histological and prognosis is usually poor.

P.048

Dermatitis herpetiformis in a patient with insulin-dependent diabetes mellitus - diagnosed with 16 years delay

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Introduction: A forty-two year old male with insulin-dependent diabetes mellitus since early childhood had a year-long history of recurrent pruritic vesicular-papular eruptions. Initial clinical and histological findings at the Dermatology of Dermatology suggested lichen simplex chronicus. In a 16 year course at the Department of Dermatology, the patient was treated with topical steroids. After 16 years the patient was consulted with fresh blisters and new biopsies were performed. The diagnosis dermatitis herpetiformis was finally made. A biopsy from the duodenum showed coeliac disease. Within two days the patient cleared on treatment with systemic dapsone.

Conclusion: This report reminds the practitioner of the association between dermatitis herpetifomis and other autoimmune diseases. When a patient with insulin-dependent diabetes mellitus presents with recurrent pruritic vesicular-papular eruptions, the clinician should consider the diagnosis dermatitis herpetiformis and coeliac disease. We stress the importance of performing a perilesional skin punch biopsy for immunofluorescence when acute skin blisters are present. In the poster we present a Table illustrating the association between autoimmune diseases and skin rashes.

P.049

Contrast-induced acute kidney injury - prevention and management

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Introduction: Contrast-induced acute kidney injury (CI-AKI) accounts for a significant number of cases of hospital-acquired kidney failure, with its consequent morbidity, mortality and high healthcare burden. There is substantial literature and a number of international guidelines on CI-AKI. Mater Dei Hospital still lacks a formal guideline on this subject.

Methods: The aim of this study is to present the latest literature review on CI-AKI, including the latest international guidelines and systematic reviews on various pharmacological and non-pharmacological therapies. This would be the rationale for a local guideline on prevention and management of CI-AKI.

Results: The local guideline would include definition of CI-AKI, pathophysiology, risk assessment and stratification, as well as prevention strategies for both outpatients and inpatients. Preventive measures include considering alternative imaging not requiring contrast medium (CM). The single most important protective measure is fluid volume loading. Nephrotoxic medications should be discontinued 48 hours prior to the study. CM volume and frequency of administration should be minimized while still maintaining satisfactory image quality. The use of iso-osmolar/low-osmolar CM in patients with GFR below 60 mL/min. N-acetylcysteine has been advocated to reduce the incidence of CI-AKI. However reported meta-analyses show disparate conclusions. Its use may be considered in high risk patients, but is not considered mandatory.

Conclusion: This evidence review combined with appraisal of present standard practice would aid the formulation of a necessary guideline, helping to standardise care and limiting the adverse effects of contrast administered in both radiological imaging and interventional procedures.

P.050

Crohn's disease and Takayasu's arteritis – same pathology?

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Introduction: Crohn's disease (CD) and Takayasu's artritis (TA) are both granulomatous inflammatory conditions that can co-exist.

Conclusion: Both TA and CD share common features including granulomatous infiltration of the bowel and large vessel walls. Currently no consensus in the treatment of patients with dual pathologies exists. We believe that a detailed multicentre analysis should enable us to define the treatment strategy for such patients. The reported case is unique as it is the first reported with involvement of the upper gastrointestinal tract.

P.051

Does the 10-15% Caesarean section rate threshold established by the WHO in 1985 still apply to modern-day obstetrics in developed countries?

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Introduction: In 1985 the W.H.O. (World Health Organization) stated "there is no justification for Caesarean Section Rates (CSR) in any region to be higher than 10 – 15%". The economic imperative was cited as the driver for the rise in CSR in 69 developed countries which had CSR higher than 15%.

Methods: Recent publications from the W.H.O. did state that "it is impossible from the studies undertaken to correct for increasing maternal age, obesity and the occurrence of medical conditions during pregnancy". Adolescent birth rate significantly reduces the CSR. Average maternal age having a live birth has consistently increased and in 2014 reached 31years. 45% of the Maltese pregnant population have a B.M.I. (body mass index) of over kg/m2. Gestational Diabetes rates have reached 16.4% and hypertensive disorders account for 6.7% of the pregnant population.

Results: From the data from the W.H.O. stillbirth rates (SBR) indicate a trimodal pattern correlating to CSR. 1. SBR of 2-4/1000 live births (LB), 2. SBR 4.1- 12/100 LB and 3. SBR 12.1 – over 30/1000, the highest being 46.7/1000 in Pakistan. None of the countries with a SBR of 2- 4 /1000 have a SBR between the W.H.O recommended 10-15% CSR.

Conclusion: Both caesarean section and induction of labour when indicated reduce the SBR especially in growth restricted babies which account for 50% of stillbirths. All relevant variables should be given due consideration when determining "ideal" Caesarean Section rates" especially in the context of the changing maternal demography and health characteristics in developed countries.

P.052

Diffuse large B cell lymphoma of the duodenum presenting with melena – a case report

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Introduction: Primary malignancy is rare in small bowel. Diagnosis is difficult in view of nonspecific signs and symptoms. Patients with small bowel lymphoma very rarely present with gastrointestinal bleeding. We present a case report of a patient who presented with a short history of dark stools and was diagnosed with duodenal NHL. A 58-year-old gentleman,

presented with a few days of melena. There were no B symptoms. There was no palpable abdominal mass or lymphadenopathy. Haemoglobin was 13.4g/dL. An oesophagogastroduodenoscopy (OGD) revealed a smooth friable mass at the junction between the second and third part of the duodenum. Biopsies showed diffuse large B-cell lymphoma. A staging PET-CT scan showed Stage 1AE disease according to the Ann Arbor classification, with isolated involvement of duodenum. Bone marrow aspirate and trephine biopsy showed no involvement by lymphoma. Four cycles of combination chemo-immunotherapy with R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, prednisolone) were given. He was in PET-negative complete remission. After two years of follow-up, he remains disease-free with a normal repeat OGD.

Conclusion: This case report highlights the importance of considering lymphoma in the differential diagnosis of a patient presenting with unexplained gastrointestinal symptoms. This approach allows earlier diagnosis of disease and improves patient survival. In view of limited data and lack of recommendations on optimal treatment strategies for primary gastrointestinal NHL, this case report demonstrates the role of chemo-immunotherapy in early stage small bowel NHL, with excellent clinical outcome.

P.053

Vasospastic angina complicating Graves thyrotoxicosis – a case report

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Introduction: A 45 year old gentleman presented with a 2 month history of recurrent exertional and nocturnal chest discomfort. He also complained of occasional palpitations, increasing irritability, a fine tremor and heat intolerance. He suffered from dyslipidaemia and was a heavy smoker. Physical examination revealed a smooth diffuse goitre as well as bilateral thyroid bruits. He was clinically thyrotoxic. We requested a full blood count, renal, liver and lipid profiles, plasma glucose, cardiac enzymes, thyroid function tests (TFTs) and thyroid stimulating hormone (TSH) receptor antibody measurement. An electrocardiogram (ECG), a chest X-ray and an ultrasound of the thyroid were also organized.

Conclusion: This gentleman's cardiac presentation is likely to have occurred as a result of coronary artery vasospasm complicating his thyrotoxic state. Having been rendered euthyroid, he was referred for a total thyroidectomy.

P.054

Nocturnal seizures complicating endogenous hyperinsulinaemic hypoglycaemia – a case report.

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Introduction: A 53 year old lady, who suffered from an 8 month history of nocturnal seizures, was referred by the neurologists after being noted to have a random plasma glucose (RPG) of 2.42mmol/L (3.9-9.0mmol/L). She had been prescribed phenytoin for her seizures and denied other symptoms of hypoglycaemia. Examination was unremarkable. Blood investigations included a full blood count, renal and liver profiles, thyroid function tests, serum calcium, erythrocyte sedimentation rate, 9am cortisol, adrenocorticotropic hormone, glycosylated haemoglobin (HBA1c) and a prolonged 72 hour fast. Computed tomography (CT) of the trunk, magnetic resonance imaging (MR) of the pancreas, an octreotide scan and a CT of the pancreas were also performed.

Conclusion: Approximately 90-95% of insulinomas are benign and surgical resection is curative. However, recurrence has been reported in a small proportion of patients.

P.055

A case of intrahepatic portosystemic venous shunt with portal vein thrombosis

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Introduction: Congenital intrahepatic portosystemic venous shunts (CIPVS) are rare occurrences in patients who can be asymptomatic or present with neurological disturbances. They occur between a portal venous branch and a hepatic vein or the inferior vena cava. They are either spontaneous / congenital or the result of trauma. We present a case of a patient who was diagnosed with CIPVS as part of the work up for deranged liver function tests (LFTs).

Conclusion: Abdominal imaging is important in someone who presents with deranged LFTs and epigastric pain. Patients with incidental findings of CIPVS need long term follow up as repeated presentations of hepatic encephalopathy and a shunt ratio that exceeds 60% will necessitate treatment. Repeat imaging every few months should also be done to rule out potential complications like PVT similar to the unique case we present in this abstract.

P.056

Polyoma virus infection in a renal transplant patient: a first description in the Maltese population

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Introduction: BK-virus associated nephropathy is an increasingly recognised cause of graft failure. The pathogenesis remains unclear. We present the first patient in the Maltese Islands to be diagnosed and treated for this condition. A 51 year old gentleman with end-stage renal failure who received a cadaveric renal transplant in 2011, presented a year later with sudden rise in serum creatinine. He was admitted for investigation. An ultrasound doppler of the kidney was normal. Cyclosporin levels were within therapeutic range.

Conclusion: BK-virus associated nephropathy has important implications in renal transplant survival and quality of life. It is an important cause of graft failure which can be easily overlooked if not actively sought. The success of treatment intervention is increased with earlier diagnosis. It is recommended that all renal transplant recipients be screened for BK-Virus in the urine every three months during the first two years post-transplant or when allograft dysfunction is noted.

P.057

Spontaneous bacterial peritonitis in a systemic lupus erythematosus patient - a case report

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Introduction: Spontaneous bacterial peritonitis is a rare serious condition , carrying a mortality rate of 15%. It is most commonly seen as a complication of liver cirrhosis, although it has also been documented in transplant recipients. Its association with Systemic Lupus Erythematoses (SLE) has been reported however its incidence in this context is very rare.

Methods: A 42 year old lady, known to suffer from SLE

on Azathioprine, presented to Accident and Emergency complaining of sudden onset of severe generalised abdominal pain , a two day history of low grade fever, and a four day history of diarrhoea. She had a previous laparatomy for endometriosis and 2 previous myomectomies. An abdominal ultrasound showed an ovarian cyst and she was referred for gynaecological review. On arrival to the gynaecology emergency room, her condition rapidly deteriorated and a diagnosis of septic shock was made and a decision for urgent laparatomy.

Results: At laparotomy, a small amount of frank pus was found in the abdominal cavity. Only a very small amount of free fluid was noted. Thorough examination of the small and large bowel did not reveal any visceral perforation. Examination of the pelvic organs was limited due to multiple dense adhesions, however no visceral damage was noted. Both blood cultures and abdominal pus swabs cultured *E. Coli.* The patient was treated on the Intensive Therapy Unit with gentamycin and teicoplanin.

Conclusion: She recovered well and was discharged home on the tenth postoperative day. Her azathioprine treatment was discontinued by the rheumatologist.

P.058

Pseudohyperkalaemia in essential thrombocythaemia

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Introduction: Pseudohyperkalaemia is defined as a serum potassium concentration 0.4mmol/l greater than the plasma concentration. Patients with elevated platelet counts can have pseudohyperkalaemia and this can be diagnosed by measuring concurrent plasma and serum potassium concentrations.

Methods: Case report: An 82 year-old lady was admitted to hospital with an 8-week history of progressive lower limb weakness. Past medical history was significant for atrial fibrillation and essential thrombocythaemia. Initial laboratory investigations revealed serum sodium 135mmol/l, potassium 5.06mmol/l, creatinine 58umol/l, WCC 3.90x109/l, haemoglobin 11.5g/dl, platelet count 532 x109/l.
Despite normal renal function and no potassium supplementation, repeated hyperkalaemia up to 6.5mmol/l was noted. ECGs remained normal. Following an endocrinology team review, a plasma potassium level was requested (lithium heparin tube), recorded as 3.70mmol/l as opposed to a serum level of 5.25mmol/l. Repeat plasma potassium levels were also normal. The patient was diagnosed with pseudohyperkalaemia secondary to primary thrombocythaemia.

Results: Pseudohyperkalaemia can be defined as a serum potassium concentration 0.4 mmol/l greater than plasma concentration. In thrombocytosis this is due to the degranulation of platelets when clotting in vitro, releasing potassium into the serum and giving falsely elevated serum potassium levels. Once diagnosed it requires no further treatment.

Conclusion: Spurious hyperkalaemia due to essential thrombocythaemia is well-documented but poorly recognised among clinicians. When serum potassium levels are not concordant with the clinical picture, a high-index of suspicion is needed and the appropriate plasma potassium samples should be submitted to the laboratory to provide the true potassium levels and avoid iatrogenic hypokalaemia.

P.059

A hair follicle in vivo hypoxic stress model: a promising approach in basic science research

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Introduction: Gene expression profiling is an important tool to understand molecular mechanisms in normal physiology and responses to toxicological or pharmacological exposure. The proposed in vivo human model is an original innovative approach in basic science research providing a unique window of opportunity for the researcher to study gene expression of a mini organ that is safe and effective. We report for the first time a single human subject experiment designed to look at the gene expression profile of in vivo hair follicles subjected to 10 minutes of ischemia.

Methods: A blood pressure cuff applied to the left arm at a pressure of 200mmHg and maintained for 10 minutes was used to achieve hair follicle hypoxia Thirty hair follicles were plucked from the same forearm at 30 minutes post-ischemia. Extracted total RNA [RF1] was quality checked using Agilent Bioanalyser®. cDNA was generated and RNA sequencing was performed using Next Generation Sequencing technlogy. The data generated was analysed analysed using the Ingenuity® Pathway Analysis® software.

Results: The RNA sequencing dataset included expression information on 16,286 genes. At 30 minutes post-ischemia the ribosomal protein genes were up regulated, with the topmost regulated pathways being eIF2, eIF4 and mTOR signalling. This supports an immediate ribosomal stress response 30 minutes after the 10 minute challenge.

Conclusion: The Hair follicle model provides a versatile method to study gene expression at different time points following a challenge. Using this model can provide insights in the use of pre-conditioning to protect cellular damage during surgery.

P.060

Corporate social responsibility: the future of medical research?

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Introduction: Corporate social responsibility (CSR) is generally understood as actions that further social good, beyond the direct interests of the entity and thus has a positive impact on the community. Various similar initiatives are now also been taken in our University through the Research Innovation and Development Trust. This paper will analyse some of the initiatives taken at the Malta Medical School.

Methods: In the Medical School, CSR initiatives have been taken by various Departments. Clinical Pharmacology and Therapeutics works with the Caritas Malta Epilepsy Association; Pathology works with the Dementia Society and Physiology and Biochemistry works with the Coeliac Association. These activities usually involve awareness raising, organisation of conferences and fund raising for research. On a Faculty level, the Presidency-Faculty Working Group (PFWG) has been set up to encourage CSR among Faculty Members and students.

Results: Some activities of PFWG include encouraging Faculty members and students to apply as volunteers and undertake pro bono work with the Malta Community Chest Fund and assist in fund raising initiatives. PFWG also aims to facilitate discussions with relevant stakeholders with respect

to medical issues, in order to bring different sectors around the table in order to come up with solutions to current problems and to lobby for change, where necessary.

Conclusion: CSR is now not only considered a good exercise of democracy but also one of good best practice which will bring added value to the activities of an entity. Moreover it will enhance the academic's direct contribution to society, culture and the economy at large.

P.061

The case for extending visiting hours at Mater Dei Hospital

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Introduction: The current visiting hours at the main General Hospital – Mater Dei Hospital, in the Maltese Islands are 2¾ hours. In most European and North American hospitals visiting hours are significantly higher, ranging from 5 hours to unlimited visiting times.

Methods: Extended visiting hours encourage greater participation of the family members and friends in the care of patients. Scientific evidence indicates that liberal or unlimited visitation policies lead to improved patient safety and better outcomes (lower heart rates and lower blood pressure). Family members may assist in mobilization and nutrition of patients. While in hospital the informal carers may acquire obtain "in-hospital" training as how to continue care at home. This assistance may result in reduction in length of stay and attenuate the risk of long-term institutional care both factors diminishing the pressure on the beset hospital bed-state.

Results: There may be resistance towards the implementation of extending visiting hours at Mater Dei Hospital. There lies an embedded restrictive mentality of nursing and medical personnel towards visitors. With extension of visiting hours patients' privacy may be disturbed. These factors may lead to non-engagement of hospital staff in this initiative. Education of hospital personnel is required to circumvent these possible obstacles.

Conclusion: Extending visiting hours at Mater Dei Hospital will further encourage engagement of patient family members in the hospital care of their loved ones. This will benefit all the stakeholders in particular the patients themselves.

P.062

Addressing Mater Dei Hospital's bed occupancy challenge: the role of improved influenza vaccine uptake

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Introduction: Influenza vaccination of high risk population groups has been reported to reduce hospitalization by 32% to 45%. The World Health Organization (WHO) and European Union (E.U.) have recommended that, by 2010 and 2014 respectively, 75% of high risk groups should be immunized against influenza every year.

Methods: Vaccination of the elderly population in Malta is currently 40%. Only 70,000 individuals are vaccinated in the Maltese Islands giving a overall population vaccination rate of approximately 16%. In addition, this shortfall in vaccination uptake has in the past resulted in a perennial wastage of more than 8,000 vaccinations per year.

Results: In order to address these lacunae, an influenza vaccination initiative was spearheaded by Mater Dei Hospital's Patient Safety and Quality Improvement Team (PaSQIT), focusing on high risk patients attending the hospital environs for outpatient or other appointments. The vaccination station was sited in a strategic position close to the Outpatients' Department so as to increase vaccination uptake. The total number of vaccinations given through this initiative exceeded 8,900.

Conclusion: This year 2015 through the synergism between PaSQIT and the Infection Control Department it is envisaged that this initiative is further entrenched in the services of Mater Dei Hospital.

P.063

Improving bed-occupancy in the Department of Obstetrics and Gynaecology

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Introduction: Obstetrics suffers from fluctuations in workload to the extent that on occasion there may be sudden severe surges in workload straining both the human resources and plant facilities including the departmental bed-state.

Methods: During the migration from St. Luke's Hospital to Mater Dei Hospital the Department of Obstetrics and Gynaecology lost 25% of its bed-state (125 to 94 beds). Bed occupancy averaged 98% leaving little or no reserve to the extent that patients with gynaecological conditions were frequently transferred to Medical and Surgical Wards. In November 2011 following a bed-state crisis which impacted on quality of care two documents were drawn up in an effort to address the bed-state management. It was evident that the bed-state reserve had to be augmented. Two documents were drawn up addressing the length of stay following vaginal deliveries and Caesarean Section. Bed-state vigilance was continually maintained and improved with the employment of a data clerk.

Results: Over a period of one year following November 2011 the bed occupancy improved from 98% to 78%. This allowed sufficient reserve to absorb most surges in the departmental bed-state. A recent development was the twice daily hospital bed-state management report which assists "bed controllers" in planning any contingencies that may need to be applied.

Conclusion: Possibly some measures to improve bed management undertaken in the Department of Obstetrics and Gynaecology may be implemented to assist in the general hospital bed-state.

P.064

E-learning in medical education

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Introduction: E-learning (also referred to as web-based learning or online learning) involves the use of Internet technologies in order to offer users control over the sequence and pace of learning. There are two common e-learning modes: distance-learning and computer-assisted instruction. Technologies such as message boards and teleconferencing enables users to discuss clinical cases by means of images and videos, hence broadening one's views and increasing the level of collaborative learning and team-work. E-learning is considerably more convenient since it allows learners to access materials according to their individual schedule and hence the learning experience is rendered more personalised. This is likely to translate into increased retention of information and enhanced utilisation of resources. Learners are likely to become more actively involved since they have more control over their learning experiences. Educators will help to facilitate the learning process and assess the outcomes, hence contributing towards making the experience more learner-centred. This has shown to increase the level of satisfaction from both learners and educators. E-learning enables doctors working in their home country to follow post-graduate courses organised by foreign universities without the need to travel. This is therefore very cost-effective since it eliminates travel costs and reduces expenses related to institutional infrastructure.

Conclusion: The integration of e-learning into medical

education will undoubtedly enhance the learning experience by means of increased networking and active student involvement.

P.065

Accessory liver lobe in an omphalocoele: case report

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Introduction: The predicted prevalence of omphalocele is 2 in 10,000 births. Neonates with omphalocele present with a high frequency of associated anomalies including chromosomal abnormalities and structural anomalies. Accessory lobe of the liver is a rare congenital anomaly with only a few cases reported in conjucntion with omphalocoele.

Conclusion: We report a case of an accessory lobe of the liver on a stalk herniating through an ompaholocoele diagnosed at birth and review the medical literature.

P.066

The role of taster weeks for foundation programme trainees

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Introduction: Career decision making may be a challenging task for Foundation Programme (FP) doctors. Taster weeks could be a way in helping out trainees in making the right career decision. The aim of this study was that to determine the impact of taster weeks on FP trainees in their career decision making.

Methods: This was a prospective study that was carried out between January 2010 and December 2013. Doctors who attended a taster week had the opportunity to fill in a questionnaire regarding the taster week.

Results: 63 doctors completed the questionnaire after having had a taster week in 15 different specialties. In 71.4% of cases, the taster week further confirmed their interest in applying for that particular specialty in which they had done the taster week. 14.3% of doctors decided that after having spent a week in the specialty, they would not be applying for a post in that specialty. The rest (14.3%) commented that the taster week has given them more speciality options to which to apply for.

Conclusion: This data demonstrates that taster weeks are beneficial to the FP trainees and should be actively encouraged by the careers team. Meanwhile, the FP guidance regarding taster weeks should always be actively followed as to provide a high-quality experience to our doctors.

P.067

Abdominal pain and diarrhoea in a nulliparous female

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Introduction: A 34 year-old female was referred with a 1-year history of recurrent generalised abdominal discomfort and loose stools. History and physical examination were unremarkable. Routine blood and stool investigations were also normal except for elevated inflammatory markers. A colonoscopy was performed. This revealed patchy erythematous mucosa with overlying aphthous ulceration in the proximal sigmoid colon, beyond which an unpassable stricture was present. These findings prompted a working diagnosis of Crohn's disease. However mucosal biopsies were suggestive of ischaemic colitis secondary to small vessel vasculitis. A CT colonography demonstrated a sigmoid colon indentation with narrowing, possibly due to intra-mural thickening. A diagnostic laparoscopy revealed severe endometriosis with significant narrowing of the sigmoid and ascending colon with pre-stenotic dilatation. A right hemicolectomy and sigmoid colectomy were performed. Histology was consistent with endometriosis involving the submucosa and muscularis propria.

Conclusion: The prevalence of intestinal endometriosis is estimated to vary between 3.8% and 37%. Symptoms can mimic a wide variety of intestinal pathologies, and there are no non-invasive investigations that can reliably diagnose the condition. The incidence of intestinal resection for patients undergoing surgical treatment for endometriosis is about 0.7%. Our case demonstrates that gastrointestinal involvement by endometriosis should always be entertained in the differential diagnosis of chronic abdominal pain in young nulliparous females.

P.068

Could cholecysto-duodenal fistula presents simultaneously in two countries? Bouveret's Syndrome, the surgical management and review of literature

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Introduction: Cholecysto-duodenal fistula (Bouveret's syndrome) is a rare complication of gallbladder disease and it accounts for 1-4% of all mechanical obstruction caused by gallstones. Bouveret's syndrome tends to occur more commonly in women (65%) with a median age of 74.1 years at presentation. Since the first publication of two cases by Bouveret in 1896, only 300 cases have been published in the literature up till 2008. Early diagnosis in patients with Bouveret's syndrome is important as the mortality rate in such patients is reported to be between 12% to 33%.

Methods: Two case reports and literature review.

Results: In this review we present two cases treated in two different countries, during the month of June 2014. A 55-year-old man and 88-year-old women were treated in Malta and United Kingdom respectively. Two different surgical approaches were used. Laparoscopic gastrostomy was performed for the 55 year-old gentleman and removal of a 10cm stone was successfully removed. A laparotomy with gastrostomy was performed for the 88year-old gentleman with the stone being successfully removed with this surgical technique. Both patients were discharged with no postoperative complications.

Conclusion: A literature review did not show any standardized emergency surgical management for Bouveret's syndrome. Therefore the emergency surgical approach should be individualised. Endoscopic treatment for stone extraction is usually unsuccessful. These two cases show that the use of gastrostomy (laparoscopic or laparotomy) for stone extraction is a safe surgical technique. Other surgical options include enterolithotomy with or without cholecystectomy. The repair of the cholecysto-duodenal fistula is still controversial.

P.069

Pneumperitoneum post ERCP due to a pre-existing liver abscess

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Introduction: The incidence of post endoscopic retrograde cholangiopancreatography (ERCP) complications is around 5% to 10%. The ERCP – related perforation incidence rate is 0.14% to 1.6%, commonly related to ERCP sphincterotomies, results in a high mortality of 4.2% to 29.6%. We present a unique case of post ERCP pneumoperitoneum due to pre-existing liver abscess prior to the ERCP procedure.

Methods: One case report and literature review.

Results: A 39-year-old gentleman presented to our Surgical Department with epigastric pain and an elevated amylase. A Computer tomograph (CT) showed calculi in the distal common

bile duct causing obstruction and a liver abscess in liver segment 2/3. CT guided drainage of the cyst revealed thick fluid. An ERCP was performed and no stones were present in the CBD and sphincterotomies were performed. The patient unfortunately required a laparotomy due to pneumoperitoneum following the procedure. At laparotomy the CBD and duodenum was noted to be intact however the previous liver collection was noted to be leaking pus. The abscess cavity was drained and following the laparotomy the patient made an uneventful recovery.

Conclusion: The literature search showed that a similar case occurred following ERCP in a patient with liver metastasis. The potential mechanism of this is the increased pressure in the biliary ducts during the ERCP led to rupture of the liver abscess. This may illustrate the need to avoid excessive air insufflation to prevent such a potential rare complication with ERCP in patients with liver abscess and/or following percutaneous drainage of liver abscesses.

P.070

Self-tamponading complete common carotid artery transaction with home-made rifle injury: a unique case

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Introduction: With an increasing incidence in penetrating neck trauma, the acute surgical management of such cases is an evolving and important area of trauma care. The outcome of neck trauma with vascular injury is determined by a rapid and interdisciplinary approach. Such patients normally present with shock and rapid management is required. Up to this submission, a literature search failed to show an accurate incidence rate of such trauma or management guidelines.

Conclusion: These injuries remain challenging due to the large number of vital structures lying in the confined neck area. It is the authors' intention to describe this unusual mechanism of neck penetration and to stress the vital importance of the treatment paradigm that foreign objects should not be removed/manipulated until the patient arrived in the operating room.

P.071

Severe Thrombotic Phenomena in JAK-2 Positive Chronic myelomonocytic leukaemia

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Introduction: Several studies have shown that thrombotic complications may be the initial presentation of myeloproliferative neoplasms. JAK2-V617F mutation may be the only feature suggesting an underlying MPN on presentation with thrombosis. In this report, we present two patients with extensive intra-abdominal thromboses who were later diagnosed with chronic myelomonocytic leukaemia (CMML). Both patients were positive for the JAK2-V617F mutation. The incidence of JAK2-V617F mutation is detected in 95% of Polycythaemia Vera patients, 50-60% of essential thrombocytosis and primary myelofibrosis but only in ~ 7.8% of CMML patients.

Conclusion: The combination of CMML with high circulating tissue factor carrying monocytes and JAK-2 positivity could constitute a special subgroup with a greatly enhanced risk of thrombosis.

P.072

E-portfolio compliance over six years of the Malta Foundation Programme 2010-2015

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Malta Foundation School

Introduction: Standard Foundation Programme (FP) recommendations include minimum requirements for recording of training opportunities as well as supervisor meetings amongst others. This study looks for compliance on e-portfolio with these standards.

Methods: E-portfolio web-based queries were done for the most common uses of eportfolio for FP years 2010 through to 2015 and these were compared to minimum standards.

Results: Multi-source feedback (MSF) gave the most consistent result with each trainee receiving an average of 28.7 responses. The minimum number of Supervised Learning Events (SLE) was reached in all years with averages per trainee above the minimum mandatory numbers: Case Based Discussion (CBD) 6.6, mini clinical evaluation exercise (MINI-CEX) 6.7, directly observed procedural skills (DOPS) 9.2, Developing the Clinical Teacher (DCT) 1.1. By far the most popular SLE was DOPS. Averages in the last year were the best of the past four years. Minimum meetings with supervisors were just below the required with a positive trend. Best results for all meetings were recorded in the final year of the study 2014-15. Averages were slightly pushed down because the number of trainees on e-portfolio was slightly in excess each year as some trainees start and finish out of phase, need extended training, or stop training.

Conclusion: Compliance with the FP recommendations was reached across the board in the SLEs and the MSFs. Meetings with Supervisors is just below the accepted minimum with a positive trend. The Foundation School processes seem to be achieving the desired results.

Disclosure: The Malta Foundation School is funded through the Malta Post-graduate Medical Centre by the Department of Health.

P.073

C1 esterase inhibitor deficiency: a rare cause for coronary artery thrombosis

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Introduction: C1 esterase inhibitor (C1-INH) is a serine protease inhibitor that acts on a number of proteins that play a role in the complement, coagulation and kinin-kallikrein cascades. By adhering to specific factors (C1, Factor XIIa, MASP-1, MASP-2, Kallikrein), it helps maintain a balance between thrombin generation and fibrinolysis. Deficient patients however exhibit an elevated thrombotic risk in response to unregulated complement activation and fibrin formation. The benefits of C1-INH as a therapeutic modality also indirectly demonstrates its physiological role. By partly modulating neutrophil dependant mechanisms, treatment with C1-INH has been shown to reduce the extent of myocardial ischaemia and reperfusion injury in animal and human models. C1-INH deficient patients are thus at a higher cardiovascular risk than the rest of the population for acute coronary thrombosis. We here describe a case of acute myocardial infarction secondary to acute coronary thrombosis as a result of C1-INH deficiency. With otherwise no evidence of coronary artery disease on angiography, a right coronary artery filling defect was consistent with acute thrombosis rather than rupture of an atherosclerotic plaque. As no other explanation was present for this event, C1-INH deficiency (giving rise to higher levels of the aforementioned factors) is thought to be the reason for this presentation, making this case report the first of its kind in the literature.

P.074

Superficial siderosis following posterior fossa exploration

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Introduction: Superficial siderosis is a very rare neurodegenerative disorder characterised by deposition of haemosiderin in several areas of the nervous system. Early identification of this condition will obviate the need for further, extensive investigation of a patient's symptoms. We present the case of a 70 year old lady who presented with deafness and falls. A neurological examination revealed bilateral upper motor neuron and cerebellar signs, as well as right sided sensorineural deafness. Magnetic resonance imaging of the brain revealed linear hypointensities in the brainstem and cerebellum. Features on magnetic resonance imaging were pathognomonic of superficial siderosis. Further questioning elicited a history of posterior fossa exploration half a century prior to her current presentation. No other causative lesions for the superficial siderosis were identified on imaging.

Conclusion: Various sources of recurrent bleeding have been implicated in the literature as a basis for haemosiderin deposition. These include dural defects, neoplasms and arterio-venous malformations. Our patient gave a history of posterior fossa exploration, suggesting the presence of a dural defect as the cause of this disorder.

Disclosure:
None

P.075

A case of etanercept-induced lupus nephritis

Anthea Brincat, Jonathan Gauci, Karen Cassar, Joseph Farrugia Agius, Paul John Cassar

Introduction: Tumour necrosis factor (TNF) inhibitors are used successfully in the treatment of psoriatic arthritis and plaque psoriasis. However they have also been associated with the paradoxical development of other autoimmune diseases. We report the case of a gentleman who developed acute nephritis following treatment with etanercept.

Conclusion: Clinicians need to have a high index of suspicion for autoimmune diseases, including lupus nephritis, in patients undergoing therapy with anti-TNF agents.

P.076

The origins of medical Maltese as a curriculum topic: a descriptive study

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Introduction: The number of International medical students especially from the UK has increased. These students are at a disadvantage because hospital patients may have limited English.

Methods: This descriptive study examines the critical steps taken in the evolution of Medical Maltese as a curriculum topic.

Results: A crash course of Medical Maltese for international medical students was piloted by the Faculty in 2007-08. This evolved in 2009 as a course taught only to Medical Foundation students, all of whom are Arabic speakers. In 2012, the MMSA Medical Education Officer planned Medical Maltese tutorials taught by local students for English-speaking students. This further evolved into a Degree Plus subject taught by MMSA in collaboration with the Department of Maltese. Feedback from the course was excellent, with the majority of students agreeing that course expectations were met. In 2015, Medical Maltese has become a fully fledged entrance requirement for the medical course.

Conclusion: Since 2012, english-speaking international students have been given the opportunity to become conversant with basic medical vocabulary and scientific terminology to enhance Maltese communication skills in realistic situations in a medical setting. The important role of MMSA in this achievement cannot be underestimated.

P.077

The effect of alcohol on the body's physiology: the good and the bad

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Introduction: The consumption of alcohol in food and drink is widespread throughout different populations and cultures. The link between alcohol and the effect on health has been studied extensively. The aim of this literature review was to shed light on the underlying biochemical and physiological mechanisms involved in bringing about such effects in various body systems.

Conclusion: Alcohol has long been associated with liver damage, the major underlying mechanisms being the production of Reactive oxygen species (ROS) and the abortion of biochemical pathways involved in their removal. The effect of alcohol on the mucociliary apparatus of the airways varies according to the amount and the period of alcohol exposure. While chronic alcohol consumption can, in fact, predispose to chest infections by decreasing the beating frequency of cilia, a small and acute dose of alcohol can actually bring the reverse effect, that is, an increased ciliary beating frequency. This is thought to occur via a nitric oxide and protein kinase – dependant biochemical pathway. Alcohol acts as a double-edged sword where cardiovascular health is concerned. Evidence shows that light-to-moderate alcohol consumption is actually associated with better health than no consumption. A variety of biochemical processes are involved - resulting in increased HDL cholesterol production, increased insulin sensitivity as well as other mechanisms involving nitric oxide. Beyond a certain threshold however the cardiovascular benefits associated with alcohol consumption are over-ridden by associated adverse effects.

P.078

Incidence and prevalence of Huntington's disease in Malta: a methodological discussion

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Introduction: Huntington's disease (HD) is an autosomal dominant neurodegenerative condition with an average prevalence of between 4 and 8 per 100,000. Limited research in Malta indicates a higher prevalence. However, no formal epidemiological study has ever been done.

Methods: The primary limitation at present is the lack of an adequate patient database. Various methodologies to determine incidence and prevalence are discussed. Different approaches include: making HD a notifiable condition, the snowball sampling technique and the cross-sectional approach. Prospective molecular genetic analysis of cord blood for the CAG repeat size in the Huntingtin gene may be used to give an estimate of the incidence of HD in Malta. The size of the CAG repeats in the Huntingtin gene may be studied and the mean size compared to that in other European countries in order to identify whether Malta has a higher norm for CAG repeats. This could be combined with haplotyping techniques which could confirm the presence of a founder effect.

Conclusion: Estimation of the frequency of HD in Malta will require the use of multiple epidemiological and molecular genetic techniques. The advantages and limitations of each, together with a synergistic combination of techniques, will be presented in the light of various ethical and humanistic problems that will arise and which have to be overcome for such a study to be successful.

Epidemiological knowlegde of HD would direct public health efforts in supporting and highlighting the plight of HD sufferers.

P.079

A case of aypical Kawasaki disease with giant coronary aneurysms containing thrombus

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Mater Dei Hospital

Introduction: Kawasaki disease (KD) is an acute febrile, systemic vasculitic syndrome of unknown etiology, occurring primarily in children younger than 5 years of age. Administration of IVIG within the first 10 days after onset of fever in combination with high dose aspirin reduces the risk of coronary artery damage in KD. Though rare, giant aneurysms of the coronary arteries may develop in untreated cases and prove extremely challenging to manage.

Methods: A 9-month-old Caucasian boy presented to our paediatric emergency department with a 4-week history of intermittent pyrexia and irritability. Typical mucocutaneous signs of Kawasaki Disease were absent upon presentation. A trans-thoracic echocardiogram identified a giant aneurysm of the left anterior descending artery with thrombus formation in-situ and the child was managed with intravenous immunoglobulin, steroids, high dose aspirin therapy and later warfarinisation.

Results: Keywords: Kawasaki, Arteritis, Coronary, Giant Aneurysm, Thrombus were used in our PubMed review of the literature, generating 70 relevant case reports.

Conclusion: Cardiovascular sequelae of Kawasaki disease include giant coronary artery aneurysms with thrombosis. Enlargement of a coronary aneurysm after the acute phase of Kawasaki disease is an extremely rare phenomenon and the outcome of interventional approaches poorly studied.

P.080

Impalement by a hutton sabre – a rare cause of penetrating chest injury during a historical re-enactment

Stephen Micallef Eynaud
Mater Dei Hospital

Introduction: The course of a sharp blade through the chest wall and thoracic viscera is one of the most ancient causes of death, with accounts from primary sources dating back to well over 3,000 BC. The sabre is a curved thrusting sword that served the heavy cavalry of long-diminished empires – an extremely unlikely weapon of choice in the 21st Century. Injuries inflicted by such weapons during historical re-enactments offer us a glimpse of the surgical morbidity encountered during these times.

Methods: We present the case of an eighteen-year-old Maltese gentleman brought to our acute hospital with a penetrating chest injury sustained during a recreated battle scene with a fellow actor. An initial chest radiograph confirmed surgical emphysema and a right sided pneumothorax. Computerised tomography outlined the track made by the sabre as it slid through our patient's right hemithorax and vertebral column, narrowly missing his spinal cord.

Results: Keywords entered into PubMed Search: Penetrating Chest Injuries; Sword; Re-Enactment; Sabre; Spinal Cord generated 58 cases relevant to our case report.

Conclusion: Weapons that took years of practice to master before stepping onto the battlefield can deliver fatal consequences when handled by a novice. It is the authors' wish to bring this rare incident of chest trauma to the attention of the medical community with the suggestion that harmless properties (props) replace such dangerous items in historical re-enactments.

P.081

The role of surgery in the management of native valve endocarditis – a literature review

Stephen Micallef Eynaud
Mater Dei Hospital

Introduction : Infective endocarditis (IE) carries a mortality rate that approaches 30% at one year. Surgery was first performed in 1961 for fungal vegetations growing from a diseased tricuspid valve and in 1965 an aortic valve replacement was completed in a patient infected with Serratia marcescens. Valvular operations have become more common, and s urgery is required in up to half of acute infections and a significant proportion of those in convalescence. Guidelines provide clear indications for when surgical intervention is indicated. Frequent indications for surgery are congestive cardiac failure (60%), vegetation size (48%), refractory sepsis (40%) and embolic complications (18%). In this review of the literature, we outline the evidence that supports the indications for surgery in the setting of native valve endocarditis. We also attempt to provide recommendations in areas where confusion persists.

Methods: Keywords: Native-Valve; Endocarditis; Surgery were entered in a PubMed-generated search.

Results: 308 studies relevant to our review of the literature were generated.

Conclusion: There is an established role for surgery in IE across a wide range of patients, with early operative intervention already outlining clear benefits in the management of this complex condition. With further international research collaborations becoming established each year, the future may hold more concrete evidence to guide management strategies. However, decision making in individual patients will remain difficult, and the need for full communication between the cardiologist, microbiologist, and cardiac surgeon as part of a multidisciplinary team cannot be over-emphasised.

P.082

An assessment of the quality improvements achieved by foundation doctors' audits

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Introduction: Clinical audit plays an important part in the drive to improve quality of patient care. The audit cycle involves observing practice, setting standards, implementing change and observing new practice, thus improving patient care.

Methods: A total of 82 audits were registered on the Foundation Programme Audit Register from January 2013 to May 2015. An online questionnaire was devised to assessthe stage of the audit cycle reached by each audit, including changes implemented so far andfuture plans for the audit. This questionnaire was sent by email to the authors of each registered audit.

Results: The questionnaire was completed for 40 audits (48.7%). The two main reasons for motivation to participate in an audit were to influence practice (75%) and to improve Curriculum Vitae (60%). 82.5% of audit results were presented, mainly at the foundation programme audit day (57.5%), compared with 20% of audit results which were not presented. No audits reached the final stage of completing the audit cycle. The main reasons for this included: time limitations (54.2%), moving to different departments (54.2%) and administrative difficulties (25%). 75.8% of authors do not intend to handover audit for someone else to complete in the future.

Conclusion: Most departments undertake clinical audits but failure to close the loop undermines their effectiveness and wastes resources. The authors suggest implementation of an 'Audit Handover' system, to ensure important results of clinical

audit do not go to waste, and lead to improvements in patient care.

P.083

Congenital renal and ipsilateral vas agenesis presenting with infertility; a case report

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Introduction: A case of unilateral agenesis of the kidney associated with an absent ipsilateral vas deferens in a 35 year-old male presenting to the Male Urology Infertility Clinic with a history of subfertility is reported. The clinical picture of proximal obstruction was determined through examination and ultrasound imaging, which revealed otherwise normal parameters, including testes of normal size bilaterally and unremarkable serological results. Total sperm count was also normal, being over 20 million spermatozoa/mL on two occasions. No cystic fibrosis-related mutations or polymorphisms were detected in this patient.

Conclusion: Unilateral absence of the vas is considered uncommon, occurring in 0.5 to 1% of men. Association between unilateral absence of the vas and renal agenesis has been reported sporadically. Disruption of the embryological development of the mesonephric duct, which gives rise to these structures, is postulated as a possible cause. Bilateral absence of the vas deferens is more commonplace and is often due to cystic fibrosis. This suggests that congenital bilateral absence of the vas deferens (CBAVD) and congenital unilateral absence of the vas deferens (CUAVD), particularly in association with renal abnormality, may arise from different pathologies, with necessarily different prognostic implications and therapeutic possibilities.

P.084

Killing me softly - imaging features of a retroperitoneal myxoliposarcoma

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Introduction: Myxoid Liposarcoma is the second most common adult soft tissue sarcoma after well-differentiated liposarcomas . As illustrated by the case report presented, diagnosis can be difficult.

Methods: A 56 year old gentleman presented with abdominal distention over a few months. He was otherwise well and routine blood tests were normal. Examination of the abdomen revealed a firm swelling. CT was perfomed for further evaluation. A large cystic, non enhancing mass was observed on CT on the right side of the abdomen. This was closely related to the right psoas muscle with secondary compression of the right ureter and resultant right-sided hydronephrosis. Subsequent MR imaging demonstrated a 19.5 cm x 17 cm x 21 cm high T2 signal intensity lesion in the right retroperitoneum. On T1 fat saturated sequences it appeared hypointense with thin internal nonenhancing septations. Right-sided hydronephrosis was observed together with compression of the distal common bile duct causing mild biliary dilatation. Differential diagnosis included hydatid cyst. The mass was removed surgically . It was gelatinous in nature and histology reported myxoid liposarcoma.

Conclusion: Myxoid liposarcoma is rare but has a high recurrence rate after surgery. It may be difficult to establish the diagnosis with MRI due to the lack of fat signal intensity and without administration of contrast the tumor may mimic cystic pathology, such as a hydatid cyst. Gadolinium-enhanced MRI is therefore an essential tool in diagnosis and should be the standard imaging modality in the investigation of all retrpperitoneal masses which are likely to be sarcomas.

P.085

A case report indicating the effectiveness of TCC- EZ total contact casting

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Introduction: Total contact casting is considered to be the gold standard treatment of diabetic neuropathic ulcers but its' application is difficult and requires special conditions. TCC-EZ is a newly developed system of total contact casting with easy application. We report the result of use of TCC-EZ for the first time in Malta.

Methods: TCC-EZ cast was applied to the left foot of a patient with a deep penetrating neuropathic plantar foot ulcer which had been present for over 18 months. The cast was applied according to the manufacturers' guidelines. It was changed after 3 days to ensure that no skin damage was caused at pressure points by use of the cast. Subsequently the cast was changed weekly.

Results: The ulcer has decreased drastically in size following 7 applications of the TCC- EZ. The ulcer surface area has decreased from 6.25 cm^2 to 0.5 cm^2. The ulcer was more than 1 cm deep at the start of application and at last change the granulation tissue in the residual area is flush with the skin.

Conclusion: Our initial experience with use of TCC-EZ is encouraging. Application is easy and does not require special conditions thus reducing costs. The device is acceptable to the patient. Use of the TCC-EZ has resulted in almost complete resolution of a chronic neuropathic ulcer in a short time. Availability of TCC-EZ is likely to result in improved healing of neuropathic ulcers with implications for limb salvage in this cohort.

Disclosure: The Total contact cast has been provided by Derma Sciences through Cherubino Ltd. Malta.

P.086

Measure of functional improvement after intrathecal baclofen therapy

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Introduction: Intrathecal Baclofen Therapy (IBT) indicated in the management of severe spasticity has been introduced recently in Malta. An implantable infusion system delivers precise amounts of Baclofen injection directly to the intrathecal space via a surgically implanted infusion pump and catheter. This study was carried out on a 53 year old Maltese female with severe spastic parapareses who was not responding to oral spasmolytics in maximum doses and has been on continuous intrathecal Baclofen since December 2014. The aim of this study was to assess functional improvement after administration of continuous IBT.

Methods: The main outcome measures used in this study included a Patient Functional Assessment Questionnaire (PFAQ) and Patient Global Impression of Change (PGIC). The patient was interviewed and scores given for function before and after IBT.

Results: The patient reported a distinct improvement after pump implantation that has lessened activity restrictions, decreased symptoms especially spasms and enhanced her overall quality of life consistent with a decreased total PFAQ score.

Conclusion: The overall improvement observed in this patient has confirmed that IBT was an appropriate treatment for her severe spasticity not responding to oral medication. Careful patient selection is however crucial to the success of IBT. Objective documentation of functional assessment before and after IBT on all patients receiving this therapy could furthermore be analysed in a clinical audit of this new service in Mater Dei Hospital.

P.087

Trainees' perception of workload and quality of training in the Malta Foundation Programme

Kevin Cassar, Tonio Piscopo
Malta Foundation Programme, Mater Dei Hospital

Introduction: The Malta Foundation Programme was set up in 2009 and is affiliated to the United Kingdom foundation programme. It is a two year programme which recruits fresh medical graduates and provides broad based training. This study reports on trainees' perception of workload and quality of training in the programme.

Methods: All foundation trainees receive quarterly electronic end of post questionnaires (EOPQs) asking a series of questions regarding their experience during their assignments. These are strictly anonymous to ensure honest responses. The responses regarding the fourth quarter for each year between 2011 and 2015 were analysed.

Results: The number of trainees in the programme has increased steadily between 2011 and 2015 (2011: 105; 2012: 137; 2013: 154; 2014: 175; 2015: 192). The proportion of trainees claiming to work beyond rostered hours has decreased from 61.8% (2011) to 52.3% (2015). There has been a significant reduction in those feeling short of sleep (69.7% (2011) 58.4% (2015)). There is a very high degree of satisfaction with clinical skills acquired throughout but this has steadily increased (2011: 90%; 2012: 92.7%; 2013: 93.4%; 2014: 93.4%; 2015: 95.4%). Trainee satisfaction with clinical supervisor teaching has also been high and has increased steadily (2011: 86.5%; 2012: 89%; 2013: 91.5%; 2014: 87.6%; 2015: 94.6%)

Conclusion: Less trainees work beyond rostered hours and feel short of sleep as trainee numbers have increased. The vast majority of trainees are satisfied with clinical skills acquired and clinical supervisor teaching. The expansion in numbers has not affected trainees' satisfaction levels.

P.088

An unusual cause of painful heavy period in a 30 year old woman

Helga Consiglio, Camen Portelli

Introduction: A 30 year old nulliparous woman presented twice to the Gynaecology emergency room with a 2 month history of abdominal pain,tenesmus, weight loss and one month of continuous vaginal bleeding.

Methods: The patient presented initially to the GP but then to the Gynaecologist with abdominal pain, constipation and tenesmus coupled with bleeding for a month. The intitial examination suggested a 12 week sized fibroid uterus. However, within 2 weeks this became a 20 week sized pelvic mass with an abnormally hardens cervix. CT scan confirmed that apart from the utero cervical mass there were bone, liver and lung metastases.

Results: Histological examination of the uterine Curettings obtained at Examination under anaesthesia revealed tumour if Neuroendocrine origin.

Conclusion: This unusual aggressive tumour was not amenable to surgery and caused severe abdominal pain require opiate analgesia. The patient underwent radiotherapy with impressive shrinkage of the mass. She was followed by 3 cycles of chemotherapy with further improvement . In conclusion, common symptoms such as heavy bleeding and pain even in a young patient may be caused by serious rare conditions and must nit be underestimated.

P.089

A pictorial review of the different colonic findings at CT colonography

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Department of Medical Imaging

Introduction:
CT Colonography has become the radiological investigation of choice to assess the large bowel in patients with suspected colonic pathology. It has replaced barium enema with a reported sensitivity of up to 93% for polyps >10mm and 71% for polyps between 6mm and 9mm compared to 70% and 41% for polyps of similar sizes on a barium enema. This examination involves obtaining supine and prone CT acquisitions of the abdomen and pelvis following colonic insufflation with gas. This data is then processed by advanced computer software to obtain a 3D reconstruction of the colonic lumen. The aim of this presentation is to demonstrate the 2D and 3D radiological appearance of different colonic pathologies identified on CT colonography performed in our department and correlate them with their histological data.

Methods: We reviewed the CT colonographies performed over a one year period and identified different cases which demonstrate the spectrum of pathological conditions in the large bowel. Correlation with the corresponding histological data was performed where possible.

Results: The different pathological conditions identified include diverticular disease and chronic diverticulitis, sessile and pedunculated colonic polyps, colonic carcinomas and lipomas. We demonstrate the 2D and 3D radiological appearance of these different colonic pathologies and correlate them with their histological data.

Conclusion: CT colonography is capable of demonstrating a wide variety of colonic pathologies. It is the radiological investigation of choice to investigate the large bowel.

P.090

The teaching, training and assessment of medical leadership and professionalism at undergraduate level - a systematic review

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Introduction: The development of the medical doctor is today undergoing marked transformation. It is increasingly identified, and now also required by many regulatory bodies, that doctors need to be not only knowledgeable, skilled, with the right attitudes and holistic, but also seeking to provide best patient experience and best health gain. This is required within the context of a rapidly changing, complex, and challenging healthcare environment, and an increasingly expectant patient and society. Within this setting the development of medical leadership comes to the forefront, where it provides a key and solid base for the doctor in personal development, professionalism, teamwork, quality of care, patient safety, and service development. The development of the doctor starts at undergraduate level.

Methods: The author will undertake a systematic review of the teaching, training and assessing of medical leadership and professionalism in undergraduate medical schools, aiming at a thorough understanding of the awareness of the discipline, its content, methods of delivery and their strengths and limitations. The evidence base will be investigated through an exploration of the literature through Medline, Cochrane Library, Embase, CINAHL and regulatory and teaching bodies.

Results: Results will be described and discussed.

Conclusion: The implications for the Medical School of the University of Malta will be discussed.

P.091

The Malta postgraduate training programme in psychiatry: from competence to excellence

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Introduction: Following completion of the Foundation Programme medical doctors wishing to take up a career in psychiatry find themselves at a crossroads. Do they continue to specialise in their chosen field of speciality or do they fulfil the promise they've made to themselves countless times, to finally take a break from their studies and start enjoying the working-life of a doctor? The basic educational product of foundation training is to create a competent medical doctor with the capacity to provide general care in a speciality. Yet beyond general competence, capability should also be built to allow tomorrow's psychiatrists to adapt to significant developments in the field and to take on board new evolving scientific knowledge and clinical skills so as to excel in their speciality and ensure that they provide consistent, ethical and up-to-date care to their patients.

Conclusion: The Postgraduate Training Programme in Psychiatry, approved by the SAC, is now in its sixth year of operation having had several intakes of trainees. The author, a trained assessor at the Malta Foundation School and a Programme graduate, shall outline the Programme which is divided into two parts: Part 1-BST & Part 2-HST, each of which has a theoretical component and a competence-training component. Its philosophy is grounded in the biopsychosocial model whereby the contribution and interplay of biological, psychological and social factors is acknowledged to play a significant role in the context of mental illness. The 5-year programme is highly structured and administered by Consultant Dr John Mifsud and his specialist committee.

P.092

A case report of co-existent infective and libman sacks endocarditis

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Introduction: Non-bacterial thrombotic endocarditis (NBTE) and infective endocarditis (IE) are two distinct clinical and pathological entities which are often very difficult to distinguish. We present a case of IE in a chronically damaged mitral valve (MV) in a 38 year old with systemic lupus erythematosus (SLE). The patient initially presented with dyspnoea and acute lower limb ischaemia, managed with a femoral endarterectomy. An echocardiogram revealed extensive vegetative material on both mitral valve leaflets, with independently mobile components on the atrial side of the posterior leaflet. Leaflet thickening was also present, extending down to the basal two-thirds of the subvalvular apparatus, not involving the papillary muscles. Severe mitral stenosis and regurgitation in the context of IE and persistent circulatory collapse prompted an urgent multidisciplinary decision in favour for emergency MV replacement. The valve was surgically exposed via a Dubost trans-atrial approach, with intra-operative findings suggestive of a chronically inflamed SLE related marantic valve (libman sacks endocarditis [LSE]). Biopsies of the MV were sent to the lab for histology, later confirming the presence of LSE. Positive blood and mitral valve cultures for Enterococcus faecalis however suggested that a marantic valve had become acutely infected, possibly giving rise to the acute clinical deterioration. Despite the same pathophysiology in both IE and LSE, sterile vegetations in LSE rarely become subsequently infected, making this case report extremely rare in the clinical field.

P.093

Differential diagnosis of pulmonary nodules in a patient with seropositive rheumatoid arthritis

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Introduction: We report a case of a 54 year old lady with seropositive rheumatoid arthritis (RA) on methotrexate presenting with a two day history of fever and a disseminated pustular rash. The patient's son had Varicella Zoster Virus (VZV) infection 3 weeks prior to her admission. A chest radiograph revealed an incidental lesion in the left upper lobe. This was further evaluated by a computed tomography (CT) scan which demonstrated four well-defined lesions with a surrounding halo sign. She had elevated markers of inflammation. The differential diagnosis of the lesions in this clinical context included rheumatoid nodules, staphylococcal pneumonia, varicella pneumonia as well as neoplastic metastatic lesions. The patient was treated with co-amoxiclav and clarithromycin for seven days during which the fever settled and the level of the inflammatory markers improved. A few days later, virology results for VZV revealed positive IgM and IgG implying an acute VZV infection. Acyclovir was not commenced at this stage since the patient had improved. The pustular rash, CT findings, family history and positive VZV IgM pointed towards a diagnosis of VZV pneumonia.

Conclusion: This case identifies the importance to include VZV pneumonia in the differential diagnosis of pulmonary nodules in an immunocompromised patient so that treatment with acyclovir is initiated in the earlier stages before virology results are out so as to avoid the potential devastating complications of VZV infection.

P.094

A case of purely cutaneous Rosai-Dorfman disease

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Introduction: A 53 year old previously healthy lady presented with a 10 month history of two indurated and firm, mildly hyperpigmented, slow-growing nodules on the posterior aspect of her left thigh and calf that appeared following fish bites while swimming. The clinical differentials included dermatofibrosarcoma protuberans or an atypical mycobacterial infection. Punch biopsies from both sites were histologically similar and showed aggregates of large histiocytes, a peripheral dense lymphoid infiltrate and numerous plasma cells. Emperipolesis, the phagocytosis of leukocytes, was also observed. Immunohistochemistry showed expression of CD68 and of S100 protein with lack of CD1a expression. Hence the microscopic appearance excluded the clinical differentials and was consistent with cutaneous Rosai-Dorfman disease (RDD). Due to the absence of any systemic features on examination and investigation, a diagnosis of purely cutaneous RDD was thus made. The patient was prescribed topical clobetasol propionate ointment with significant regression of the lesions on follow-up.

Conclusion: RDD is an uncommon reactive non-malignant histiocytosis presenting with painless bulky lymphadenopathy, constitutional symptoms, and extra-nodal involvement, most commonly in the skin. Cutaneous lesions are clinically nonspecific with variable colour and morphology, but histologically exhibit a characteristic dermal infiltrate of histiocytes and inflammatory cells with prominent emperipolesis. Rarely the skin can be affected even without any accompanying nodal or systemic involvement, as in this case. Such cases typically remain localised and follow a benign course. The polymorphic clinical appearance of RDD in the skin makes

the diagnosis of purely cutaneous RDD quite challenging but nevertheless possible thanks to its distinctive microscopic features.

Disclosure: None.

P.095

Aortic stenting for neonatal coarctation of the aorta

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Introduction: Coarctation of the aorta (CoA) comprises 5-8% of congenital heart disease. This condition has variable severity. We report a 9 day old female baby who presented acutely in the neonatal period with profound acidosis, heart failure, severe metabolic acidosis and disseminated intravascular coagulation. She was ventilated and echocardiography revealed CoA with a hypoplastic arch as well as partial anomalous pulmonary venous drainage and a small ventricular septal defect.

Conclusion: A bare metal coronary artery stent was implanted across the CoA site via a right femoral artery cut-down. Acidosis rapidly reversed and the child was extubated. She was electively transferred to London six days later. The stent was removed and corrective surgery was carried out, with excision of the coarctation site and augmentation of the aorta.

P.096

Multiple anticonvulsant regimes used to control a male term neonate diagnosed with Ohtahara Syndrome: a case report

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Mater Dei Hospital

Introduction: Ohtahara syndrome or Early Infantile Epileptic Encephalopathy, is a rare, progressive, encephalopathy starting early in life. We report a male infant with a prolonged stay at the neonatal unit as management of his seizures was difficult. This neonate is the first child born to Libyan parents with no history of seizures or consanguinity. He was delivered vaginally at term weighing 3.24kg and with Apgar scores of 6 and 9 at 1 and 5 minutes respectively. He sustained cyanotic spells within 13 hours of age after which he was admitted to the NPICU. He developed generalized seizures which continued for days, the time between successive attacks varying between 30 minutes and 2 hours. Symptoms included stiffness, arching of the back, facial twitching, jerking of the upper and lower limbs, and rolling of the eyes. CNS infections, electrolyte abnormalities and inborn error of metabolism were ruled out. MRI Brain was normal; however an EEG showed abnormalities, with relatively attenuated background activity and frequent bursts of non-specific, high altitude short activity, followed by burst suppression, consistent with moderately severe encephalopathy and the probable diagnoses were Early Infantile Epilepsy and other metabolic encephalopathies. Various multiple anticonvulsant drug regimens were used until his condition stabilized.

Conclusion: Infants with Ohtahara syndrome usually have a much shortened life expectancy. Psychomotor impairment is frequent in survivors.

P.097

Bronchopulmonary sequestration

Simon Paul Micallef, Victor Grech, Patrick Sammut, Joe DeGiovanni

Introduction: A 3 year old boy (AG) was referred by the general practitioner to the paediatric outpatients in June, 2014 for recurrent chest infections and coughing while engaging in physical activity.

Methods: At the outpatients' visit AG had a chest x-ray done which showed widened right hilum and blunted right costodiaphragmal sinus. An elective CT scan of the thorax showed a right lung which was smaller than the left with the right basal lung parenchyma receiving a significant arterial supply via an anomalous arterial vessel originating directly from the abdominal aorta at the level of the celiac axis. The affected right lower lobe was draining into the pulmonary veins . Normal right pulmonary fissures could not be identified and the right lower lobe appeared inseparable from the surrounding normal pulmonary parenchyma with a discernible reduction in the number of bronchi to the involved lung. This implied intralobar pulmonary sequestration.

Results: A cardiac catheter showed normal pulmonary arteries and normal pulmonary venous drainage. An anomalous vessel measuring 9mm in diameter arising close to the coeliac axis was located.

Conclusion: This was embolised uneventfully with a 10 by 8 Amplatzer ADO device. Fistulae and anomalous vessels may be large and may require large devices for closure, even up to and including devices that would normally be utilised for the closure of atrial septal defects.

P.098

Appendiceal mucocoele - differential diagnosis for adnexal mass

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Introduction: Mucocoele of the appendix occurs due to abnormal mucus accumulation and distension of the appendiceal lumen, resulting from benign or malignant processes. This rare condition is found in 0.2 to 0.8% of appendiceal pathologies. Mucocoeles may be diagnosed incidentally or can present with symptoms including abdominal pain or a palpable right iliac fossa mass.

Methods: We report a case of a 70 year old lady who presented with post menopausal bleeding. As part of sonographic investigations a 9cm by 4.5cm adnexal cyst was seen and otherwise normal. The patient did not complain of any abdominal pain and was otherwise asymptomatic. She was admitted for an elective laparoscopic ovarian cystectomy. During the procedure the mass was noted to be coming from the appendix rather than the right adnexa. A laparotomy was carried out. The unruptured cyst was removed along with the distal base of the appendix. Further histopathology assessment confirmed the mass to be a low grade adenoma and mucocoele.

Conclusion: Due to their close proximity to the right adnexa, cases of appendiceal mucocoeles in females may lead to a misdiagnosis of ovarian pathology. Therefore it should be considered as a rare differential diagnosis for right adnexal mass. Surgical follow up is required post-op due to a potential concomitant colonic malignancy.

Disclosure: None.

P.099

High levels of vitamin d deficiency and insufficiency in a population attending an IVF clinic

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Introduction: Vitamin D has been shown to improve the quality of oocytes, quality of sperm and improve implantation rates. The aim of this study was to assess the baseline Vitamin D levels in a population of men and women attending ART clinic.

Methods: 248 men and women attending the Mater Dei Hospital unit had their Vitamin D levels assessed at their first visit. An immunoassay test measuring the total 25(OH) Vitamin

D in serum was used. The groups were equally divided between men and women.

Results: The population studied showed that 12.9% had a deficient Vitamin D level, and 58.5% had an insufficient Vitamin D level. Only 28.6% of the population had normal levels of vitamin D. Of the last group only 8.45% of the individuals with a normal vitamin D level (>30ng/ml to 100ng/ml) had a Vitamin D level equal to or greater than 45ng/ml. Of the total population studied only 2.42% had a Vitamin D level equal to or greater than 45ng/ml.

Conclusion: It is our recommendation that the necessary steps are taken at Vitamin D replacement so as to bring the levels back within the normal reference range. Recommended substitution levels are too low. It is our practice that 4000IU of Vitamin D per day are used to replace Vitamin D insufficient states. 8000IU of Vitamin D daily is need in deficiency states. The effect on overall pregnancy rates, improvement of gamete and embryo quality, as well as implantation rates will be the subject of further studies.

P.100

Is foetal haemoglobin re-induced by disorders or drugs?

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Introduction: Foetal haemoglobin (HbF) levels were analysed with the intention of identifying all elevated or persistently high HbF (HPFH) and associating these selected cases therapeutic drugs and disorders diagnosed. The aim of this study was to see whether there is any association between elevated foetal haemoglobin (HbF) levels and therapeutic drugs.

Methods: For this study a total of 2500 samples were collected. Hb F and Hb A2 were determined by high pressure liquid chromatography (HPLC), and Isoelectric Focussing (IEF) used for the detection of any variant haemoglobin. On a number of selected cases (Hb F levels >2.5%) DNA extraction was carried out. The *KLF1* gene was sequenced while the common single nucleotide XmnI was detected by direct enzyme digestion.

Results: It was noted that 18 patients (0.72%) had an increase in HbF levels (>2.5). A number of drugs such as (Vincristine, Cyclophosphamide and Etoposide) were being administered to these respective patients. The data was retrieved from respective medical records after obtaining ethical approval. No mutations were found in the *KLF1* gene.

Conclusion: On correlating the drugs administered *in vivo* and specific disorders with Hb, it was found that HPFH could be caused directly by HbF inducing drugs mentioned. Mutations in genes that are associated with HbF induction were absent in all cases. The γ- to β-globin switch mechanism remains elusive, however further prospective studies involving HPFH patients could help in better understanding of the switch.

Disclosure: This project was part financed by Bio-Rad Laboratories, 4000 Alfred Nobel Drive - Hercules, CA 94547 USA

P.101

Patient experience of primary health care in Malta: a quantitative study

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Introduction: Primary care-based health systems provide clinically and cost effective care. Patient experience is an important factor in needs assessment and reform. The aim of the study was to assess patient experience of the Maltese primary health care (PHC) and compare the public with the private sector.

Methods: 240 participants were randomly and equally selected from each of the 3 primary care department catchment areas. Participants were allocated into two groups: public and private primary care providers. Data was collected via telephone interviews using the Primary Care Assessment Tool (PCAT). PCAT computes a score for each of its 11 domains of health care and 2 total scores: the primary care score (PCS) extended score (PCES).

Results: Overall response rate was 80%: 55.42% were females, mean age was 57.7 years. Extent of affiliation was the highest scoring domain (mean 3.63, maximum=4) followed by access to first contact (3.31) and ongoing care (3.11). Community orientation (mean 2.19) and comprehensiveness of supplied services (2.26) scores lowest overall. Both PCS (72.34%) and PCES (69.4%) registered similar results with no statistically significant intergroup regional differences. However, overall, PCS registered a slight statistical difference (p=0.045) with the public having the higher (23.15 vs 22.99) mean score. No overall statistical difference is registered for the overall PCES.

Conclusion: This study shows that, while intersectorial difference was only slight, both public and private sectors need to address different shortcomings. Coordinated intersectorial reforms are required to ensure effective care and gatekeeping to other specialist and hospital management.

P.102

Amoebic keratitis: a case report

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Mater Dei Hospital

Introduction: We report a case of a 56 year old moderate myope with contact lens related Acanthamoeba keratitis. He presented to eye casualty with a 3 week history of painful red eye, as this did not resolve with antibiotic drops prescribed by his general practitioner. On examination he had a central ulcer overlying a small ring infiltrate and evidence of radial keratoneuritis. A provisional diagnosis of contact lens related Acanthamoeba keratitis was made and thus was started on dual therapy Polyhexamethylene Biguanide and Chlorhexidine drops after a corneal scrape was performed. Acanthamoeba was confirmed on culture after six weeks. After six months of continued anti-acanthamoeba therapy, a topical steroid in the form of dexamethasone was added to the regimen in order to control his inflammation. In the meantime, he also started exhibiting signs of rubeosis iridis and he was injected with intracameral bevazicumab on a six weekly basis. To control his excruciating pain, he required repeated mechanical superficial keratectomy and bandage contact lens fitting.

Conclusion: After 9 months of treatment, his cornea healed with a significant central scar. A penetrating keratoplasty was performed to remove the bulk of infected tissue and restore a clear cornea. Following this procedure, his vision improved to 6/36 from just hand motion detection. He has a significant cataract which will need doing once the transplant settles.

P.103

A rare case of spider poisoning in Malta

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Introduction: Spider poisoning is uncommon in Malta where only two endemic species, *Loxosceles rufescens* (the Mediterranean recluse spider) and *Steatoda paykulliana* are believed to have venom that may be harmful to humans. The recluse spider is more harmful as it can cause both cutaneous

and systemic manifestations referred to as cutaneous and systemic loxoscelism. Loxoscelism may lead to complications including skin necrosis, acute renal failure, haemolysis, pulmonary oedema and rarely death. We report the second known case of spider poisoning in Malta caused by the Mediterranean recluse spider. A 30-year-old lady presented with localised erythema and pain on her left thigh after a witnessed spider bite. Over a few days the area developed features of dermonecrosis suggestive of necrotic arachnidism together with systemic symptoms including a high grade fever, fatigue and a generalised erythematous eruption. The patient was managed by a multidisciplinary team and systemic symptoms resolved over a 6 day period while the skin lesion healed with scarring within 2 months.

Conclusion: Although spider bites in Malta are not common, it is important that they are diagnosed and managed appropriately as they could lead to potentially serious sequelae.

P.104

Not a failing Fontan!

Justine Bugeja, Victor Grech, Joseph DeGiovanni

Introduction: Our male patient presented in infancy with Uhl's anomaly (absent right ventricular myocardium). He initially had a bidirectional Glenn (superior vena cava to pulmonary arteries) which was followed by a non-fenestrated total cavo-pulmonary connection (TCPC) at 6 years of age. This was complicated by recurrent laryngeal nerve damage resulting in right hemidiaphragmatic paralysis. He developed protein-losing enteropathy (PLE) with diarrhoea, lower limb oedema, weight gain, low serum albumin and elevated stool alpha-1-antitrypsin. Plication of the flail diaphragm was carried out, resolving PLE. He represented with PLE two years later. Enteral budesonide ameliorated the symptoms but this had to be stopped due to steroid toxicity.

Conclusion: Cardiac catheterisation showed stenosis of the inferior vena cava, which was stented. Furthermore, the right pulmonary artery was decompressed into the atria with the use of a stent, using a modified trans-septal puncture technique. Symptoms have vanished and biochemical markers have normalised, in effect curing PLE.

P.105

Right ventricular clots and pulmonary hypertension in a neonate

Justine Bugeja, Victor Grech, Raymond Parascandalo, Alexander Gatt, Joseph DeGiovanni

Introduction: Right ventricular (RV) clots are rare and may result in pulmonary embolism or pulmonary hypertension. We present a female patient who presented at 28 days of age with severe respiratory distress. She had been born by elective caesarean section for breech presentation (BW 4.32kg). An initial echocardiogram showed evidence of pulmonary hypertension only. She was started on oral sildenafil. Investigations showed signs of sepsis. A second echocardiogram three days later showed three large RV thrombi which were definitely not present on the previous scan which was reviewed. Intravenous heparin was started, followed by low molecular weight heparin.

Conclusion: Serial studies demonstrated brisk and complete dissolution of the thrombi with gradual improvement in pulmonary hypertension and clinical parameters. A thrombophilia screen was negative, despite a suggestive family history. It is suspected that this rare presentation may have been precipitated by neonatal sepsis.

P.106

Management of Grave's disease in pregnancy - a case report

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Introduction: Grave's Disease is characterized by the production of TSH-receptor stimulating antibodies. This case report aims to discuss some of the management considerations that have to take place in pregnancy.

Methods: A 38 year old was admitted at 21 weeks pregnancy with signs, symptoms and biochemical evidence of thyrotoxicosis. The patient had been diagnosed with Grave's disease a year previously. Propylthiouracil (PTU) was increased cautiously during her pregnancy to a dose of 150mg three times daily. Despite maximum medical treatment, maternal control remained suboptimal. Foetal ultrasounds showed the development of a foetal goitre. At 26 weeks the fetus was persistently tachycardic. A multidisciplinary team (MDT) was set up. At 27+6 gestation the MDT decided that the patient would benefit from an emergency Lower Segment Caesarean Section (LSCS) and thyroidectomy.

Results: The patient was kept on PTU for 24 hours after. Thyroxine was started two days post operation and calcium supplementation was administered accordingly. The neonate required treatment for hyperthyroidism. Subsequently the child was also noted to be suffering from short stature secondary to growth hormone (GH) deficiency.

Conclusion: Treatment with carbimazole is associated with an increased risk of congenital abnormalities. Radioiodine is contraindicated in pregnancy. Both antibodies and anti-thyroid treatment cross the placenta. Key to good management is the attempt to keep the mother euthyroid without causing foetal hypothyroidism. This case highlights the difficulties encountered when first line medical management fails to achieve an adequate response and surgical options become necessary. A multi-displinary team approach, involving endocrinologist, obstetrician, surgeon and paediatrician is necessary.

P.107

The role of Vitamn D in the musculoskeletal system

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Introduction: It is known that circulating Vitamin D predominantly originates from cutaneous synthesis and therefore should be considered as a hormone rather than a vitamin. Vitamin D deficiency (<50nmol/L) is a worldwide epidemic with multiple implications on human health, due to its role in various physiological systems. Various studies have shown that with higher serum 25 hydroxyvitamin D levels, there is a decrease in the incidence of non-vertebral and hip fractures. There is limited research data on the management of vitamin D deficiency using therapeutic doses. The majority of studies focus on lower physiological doses rather than high pharmacological doses. In order to reach serum levels of 75nmol/L from a deficiency state, higher doses than 800 – 1000 IU/day are required.

Conclusion: Future focus should be on the implications of a rise in systemic 25 (OH) D3 levels from a deficiency state to 75nmol/L on bone density and fracture risk, and the use of high doses in cases of vitamin D deficiency. Vitamin D treatment and supplementation need to be re-evaluated in the light of new evidence suggesting that high pharmacological doses need to be used in order to obtain the desired effect in the prevention of osteoporosis and recurrence of osteoporotic fractures.

P.108

Active management of Ovarian Hyperstimulation Syndrome

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Introduction: Ovarian Hyperstimulation Syndrome (OHSS) is a known complication of assisted reproduction, particularly in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI). It is known to be particularly more common in patients with polycystic ovarian syndrome (PCOS) and those with a positive pregnancy test.

Methods: 200 patients undergoing IVF both at the public and private hospitals were recruited. The demographic details, treatment and outcome of these patients are analysed, and compared to a subset of patients who had mild, moderate and severe OHSS.

Results: Mild OHSS is a common occurence, while severe OHSS is a very rare. However OHSS cannot be always predicted.

Conclusion: Preventive measures can be taken during patient recruitment, follow-up for follicle tracking, oocyte retrieval, and delayed ferilization and embryo transfer.

P.109

Comparison of outcome using fresh versus frozen oocytes duringassisted reproductive technology (ART) cycles - the Maltese experience

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Introduction: Although the use of fresh oocytes for intracytoplasmic sperm injection (ICSI) is preferable, recently there has been an introduction of the use of thawed oocytes following earlier freezing post oocyte harvesting.

Methods:

Vitrification using Kitazato method was carried out on oocytes collected from over 70 patients. Of these, 30 patients had oocytes thawed for a consequent ICSI. These results have been compared to cycles using fresh oocytes in the same patients, and to another cohort where fresh oocytes were used during the same timeframe.

Results: To date, 7 pregnancies have resulted from the injection of thawed ooytes.

Conclusion: Oocyte vitrification has presented a new challenge,however the results are very promising.

P.110

Correlation between pre-pregnancy Anti-Mullerian hormone levels and number of oocytes retrieved in patients with polycystic ovarian syndrome

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Introduction: Polycystic ovarian syndrome (PCOS) is the major causes of infertility due to anovulation. While serum Anti-Mullerian hormone (AMH) is a marker used to asses ovarian reserve and is correlated to the yield of oocytes upon ovarian stimulation, in the case of patients with PCOS, the interpretation of AMH levels is still controversial. The increased amount of AMH in PCOS is due to an increased number of pre-antral and antral follicles in the polycystic ovary.

Methods: From among the cohort of patients (n=250) attending the ART Clinic at Mater Dei Hospital, a subset of PCOS patients (n=40) was recruited. Their demographics as well as details of their investigations, including serum AMH levels, were recorded and analysed. The response to their in vitro fertilization treatment was observed, especially with regards to the number and quality of the oocytes retrieved.

Results: Patients with PCOS were more likely to hyperstimulate, leading to higher numbers of follicles. In some instances, the patient had to have freezing of all oocytes retrieved, and fertilization by ICSI followed by embryo transfer postponed to a later cycle.

Conclusion: It is hypothesized that the high AMH level present in women with PCOS plays a role in leading to anovulation by inhibiting the actions of follicle-stimulating hormone (FSH).

P.111

Outcome of frozen ooctye cycles - the Maltese experience

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Introduction: Following the enactment of the Embryo Protection Act in December 2013, it has been possible to cryopreserve oocytes following retrieval of oocytes in excess of the number permitted to inject during intracytoplasmic sperm injection (normally 2 oocytes, maximum of 3 in exceptional circumstances). It is also possible to cyropreserve oocytes in cases where the patient is at risk of ovarian hyperstimulation syndrome.

Methods: Frozen oocytes, vitrified using Kitazato method have been thawed and intracytoplasmic sperm injection carried out. The patient parameters leading to successful outcome have been analyzed.

Results: To date, there have been over 30 frozen-thaw cycles, a number of which resulted in a positive outcome.

Conclusion: Thawed ooyctes following freezing at retrieval have been succesfully injected and led to pregnancy.

P.112

Luteal phase support: progesterone levels and pregnancy outcome

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Introduction: Luteal phase support with exogenous progesterone in assisted conception is a contentious issue. Serum progesterone levels following oocyte retrieval and embryo transfer fluctuate considerably with serum progesterone dropping after oocyte pick up. The aim of this study is to investigate the effect of fluctuations in luteal phase serum progesterone levels on success of assisted conception cyles and to determine the optimal timing and te optimal dose for commencing luteal phase support.

Methods: Two groups of patients undergoing assisted conception were followed up. Progesterone was administered both intramuscularly and via vaginal pessaries. The first group had luteal phase support starting with embryo transfer. The second group of women had luteal phase support starting just after vaginal oocyte retrieval. The progesterone levels were repeated every two days for ten days starting from the day of embryo transfer. On the tenth post embryo transfer day, serum

HCG was measured in order to assess pregnancy. The two patient groups were compared with each other to detect any benefit in preventing the serum progesterone drop after pick up when progesterone support was given just after vaginal oocyte retrieval as opposed to when progesterone support was started at embryo transfer.

Results: A total of 85 cycles were followed up. Dips in serum progesterone levels and the timing of the dips were compared, and difference in pregnancy rates determined.

Conclusion: There was no significant difference between the groups when progesterone support was given just after vaginal oocyte retrieval as opposed to when progesterone support was started at embryo transfer

P.113

Correlation between serum anti mullierian hormone levels and number of oocytes retrieved during IVF cycles

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Introduction: Serum anti-Müllerian hormone (AMH) has been measured to reflect the number of antral and pre-antral follicles present in the ovaries, and thus it has been suggested to predict the ovarian response to hyperstimulation for in vitro fertilization, and to indicate ovarian follicle reserve.

Methods: Female patients with primary infertility (n=120) were recruited between July 2014 and August 2015 upon their first visit at the ART Clinic at Mater Dei Hospital. They had their AMH levels measured by a standard assay. Patients were all of reproductive age (between 25 and 42 years of age) and all were of Maltese origin. These patients eventually underwent ovarian stimulation as part of their IVF treatment, and the number and quality of the oocytes retrieved was recorded.

Results: There is a linear relationship between AMH and oocyte yield after ovarian stimulation.

Conclusion: The positive correlation between AMH and number of oocytes retrieved during IVF is of value in predicting ovarian hyperstimulation. AMH can also identify 'poor responders', however so far it is inappropriate at present to withhold IVF only on the basis of this.

P.114

Diagnosis of aneupoloidy using quantitative real-time PCR

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Introduction: Aneuploidy is the most common cause of chromosomal aberration in humans and is known to occur in 75% of foetal loss. Trisomy of chromosome 21, known as Down's syndrome is the most common aneuploidy. Cytogenetic analysis, such as karyotyping is the gold standard method for the diagnosis of aneuploidy. This technique is time-consuming whereas techniques such as FISH, QF-PCR, MLPA and quantitative real-time PCR are more rapid.

Methods: 10 samples from patients with known trisomy 21 and 20 control samples from individuals with a normal karyotype were studied using quantitative RT-PCR using TaqMan probes. Two samples from patients with known trisomy 18 were also analysed. All patients consented to participate in the study. Simultaneous amplification of two genes; *TYMS* present on chromosome 18 and *APP* present on chromosome 21, was carried out in the same reaction vessel. The two genes were quantified relative to each other using the relative quantification method.

Results: The results show a significant difference between the mean $\Delta\Delta$Ct of the normal control samples, the trisomy 21 and 18 samples. The results are consistent with the karyotypes of all the samples analysed.

Conclusion: This study shows that RT-PCR can be used as a rapid and sensitive technique for the diagnosis of Trisomy 21. As only 2 samples with trisomy 18 were studied, no conclusion can be drawn on the use of this method in trisomy 18. This method is more rapid and results can be obtained within a few hours eliminating the need for cell culture of a fresh sample.

P.115

Sub-acute bacterial endocarditis in a patient with a history of patent foramen ovale repair

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Mater Dei Hospital

Introduction: 66 year old lady known case of thalassaemia trait, who had patent foramen ovale repair (2008), was referred after being found to be anaemic while investigating symptoms of increasing lethargy. The patient had been investigated in 2009 for subacute bacterial endocarditis (SBE) and treated using gentamicin and benzylpenicillin. Noting that the patient was febrile without an obvious focus of infection a CT abdomen and pelvis was performed. Blood cultures were taken and Streptococus gordonii was cultivated. The patient was reviewed by the infectious diseases specialists and a provisional diagnosis of SBE was made. A dental review was done where an extraction was performed.

Methods: None

Results: The initial CT scan showed no features of malignancy, however intrapulmonary lesions, cardiomegaly, bilateral small pleural effusions and a non specific splenic nodule (possibly septic embolus) were noted. A trans oesephageal echocardiogram revealed a large flap structure attached to the atrial septum in the right ventricle and possible vegetations were seen. CT pulmonary angiogram done 20 days after presentation to exclude pulmonary embolism following sudden onset of shortness of breath showed patchy opacification in the right mid and lower lung zone, which possibly represented septic embolisation. After review it was decided to treat the patient with a protracted course of Gentamicin and Tazobactam/ Piperacillin.

Conclusion: This case highlights the importance of multidisciplinary team management of such complex cases; the importance of taking a good and thorough history and the importance of close follow up in view of how the case evolved.

P.116

Hyperemesis gravidarum in an Insulin dependent diabetic patient

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Introduction: Nausea and vomiting in pregnancy is extremely common. Continuous excessive vomiting during pregnancy is known as hyperemesis gravidarum, the etiology of which is still unclear. Vomiting usually subsides after the first trimester. We report a 35-year old secondagravida lady who presented with severe and persistent vomiting at the emergency department. She was admitted to the Obstetrics ward at 11+5 weeks' gestation as she was unwell and unable to tolerate oral fluids or solids. She spent the rest of her pregnancy in hospital during which a combination of anti-emetics were administered, a nasogastric tube was inserted and she also needed parenteral nutrition. However the vomiting continued as she was treatment-resistant.

Conclusion: A number of factors contributed to her severe condition including her long standing insulin dependent Type

1 diabetes causing recurrent unrecognizable hypoglycemic attacks and also gastroparesis which was made worse by the progesterone effect of pregnancy; the increase in pressure of the growing uterus during pregnancy causing an amplification of the acid reflux and psychological factors as she also suffered from depression.

P.117

Pneumomediastinum & subcutaneous emphysema in migrants: a report on three cases travelling on the same boat

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Introduction: Three immigrants, originally from West Africa but were residing in Libya for three months prior to presentation, who were crossing the Mediterranean Sea on a dinghy were rescued in the open sea in January 2015. They were admitted at Mater Dei Hospital, Malta in view of severe dehydration, acute kidney injury and respiratory tract infections. Two patients were found to have sepsis and infected wounds peripherally. Two improved with rehydration, one of them required amputation, and two required intravenous antibiotics for a lower respiratory tract infection. Even though none complained of chest pain, pneumomediastinum and subcutaneous emphysema were discovered as incidental findings on chest x-ray. A diagnosis of spontaneous pneumomediastinum was made.

Methods: A discussion of three cases of patients who were found to have pneumomediastinum as incidental findings on their chest X-rays after being rescued following periods of extreme stress. The cases will be compared to each other as well as to other similar cases and several processes that could have potentially lead to the occurrence of spontaneous pneumomediastinum as well as the appropriate management will be discussed.

Conclusion: Following periods of extreme stress, starvation and dehydration, pneumomediastinum could occur spontaneously. The basic pathogenesis behind spontaneous pneumomediastinum is an increased alveolar pressure gradient secondary to a transient increase in intrathoracic pressure.

P.118

Quality of initial management of hypertension

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Introduction: Hypertension is common, significantly increasing the risk of cardiovascular disease, the commonest cause of morbidity and mortality. Effective management reduces adverse outcomes, and our healthcare system provides tools for this. We assessed whether these are being applied effectively, using NICE Guidelines (2011). These recommend the following baseline assessments for newly diagnosed hypertensives: Modifiable risk factors for IHD (fasting blood glucose, lipid prolife) Renal function assessment for possible secondary damage (renal profile, Albumen-creatinine ratio (ACR), assessment for haematuria) ECG for possible secondary left ventricular hypertrophy

Methods: A protocol was prepared, and data protection approval obtained. Consecutive patients (n=40) for newly diagnosed hypertension referred to medical consultant (MCC)/schedule V clinics in Floriana and Gzira Heath Centres were reviewed in March 2015 ,identifying whether these recommendations had been met prior to their appointment. Data were anonymised at source, with no patient or referral source data collected.

Results: 75% had been assessed for modifiable risk factors within the previous two years; 7.5% had a documented urinalysis , or ACR, and 7.5% had had an ECG recording. These results have been copied to the Department as per data protection approval.

P.119

Mechanisms in tumour metastasis & methods aimed at slowing down/arresting the metastatic cascade

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University of Malta

Introduction: Metastasis is the process wherein malignant neoplastic tissue disseminates to a body region/s, remote from the site of the primary tumour. It is the leading cause of mortality in cancer patients, and research about new methods of inhibiting tumour dissemination is thus the focal point, in attempting to improve cancer survival rates. Metastasis is a mutation driven process: it is triggered by the upregulation/ downregulation of genes which gives cancer cells the predisposition to disseminate. Invasion of tumour cells through the extracellular matrix (ECM) then occurs via changes in the cell cadherin structure, and release of metalloproteinases and cathepsins, which cause degradation of the ECM. Motility factors are produced, which induce cytoskeletal changes, and thus migration of tumour cells through the ECM. Once in the bloodstream, a number of mechanisms, namely selection of antigen-negative tumour cells, and programmed cell death of cytotoxic T cells, help tumour cells escape the host's immune system. Once at the site of secondary tumour formation, tumour cells attach to the endothelium, and trans-endothelial migration and extravasation follow. Angiogenic growth factors are produced, triggering new blood vessel formation (angiogenesis).

Conclusion: Metastasis is the leading cause of mortality in cancer patients, and the mechanisms involved are thus receiving increased attention in the research field. Angiogenesis has already been a fruitful target area, with the development of bevacizumab, an anti-VEGF and anti-angiogenic drug. While other methods to arrest tumour metastasis to date remain limited, various steps within the metastatic cascade remain promising target areas, for slowing down tumour dissemination.

P.120

Transplants in ophthalmology with an emphasis on partial thickness (lamellar) corneal transplants

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Introduction: A global paradigm shift has been underway for over a decade in the field of Ophthalmological transplants. Partial thickness (lamellar) transplants now make up over 80% of corneal transplants in developed countries compared to full thickness (penetrating keratoplasties). With the Maltese Government's current drive to improve transplantology across all medical specialties, introduction of the former technique locally is a timely occurence.

Methods: A descriptive overview of transplants in Ophthalmology is laid out. Autografts range from autologous plasma as tear substitutes for severe dry eyes, to conjunctival autografts in pterygium surgery. In lid surgery, buccal mucosal transplants are used in reconstructing conjunctival fornices, while free pre-auricular grafts are used for the anterior lid. Tensor fascia lata strips are used in congenital ptosis. Allotransplantation includes amniotic membrane transplants for persistent epithelial defects, to scleral patches preventing tube extrusion in glaucoma surgery. The avascular cornea is an immunologically privileged site allowing transplantation to occur without tissue typing and with minimal postoperative topical immunosuppression for the prevention of rejection.

Results: Lamellar corneal tranpslants present minimal host antigenic load reducing rejection rates to aound 2% (compared to full thickness >10%) . Graft failure is also significantly reduced and in the case of posterior (endothelial) keratoplasty the virtually sutureless technique allows significantly reduced postoperative recovery times (weeks versus years) and almost instant visual rehabilitation.

Conclusion: The introduction of new transplantology techniques in Malta promises exciting times for local Ophthalmology, reduced costs to hospital budgets and workforce hours from faster visual rehabilitation, and most importantly improved patient quality of life.

P.121

The role of *FMR1* gene and autoimmunity in infertility

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Introduction: The importance of genetic polymorphisms and autoimmune factors in infertility is still uncertain. The long arm of chromosome X is important in the control of functional ovarian reserve and the FMR1 gene at Xq17.3 is known to be associated with early menopause and diminished ovarian reserve. Reproductive failure and diminished ovarian reserve may be associated with the number of CGG repeats on the FMR1 gene. Anti-Mullerian hormone (AMH) is used to evaluate ovarian reserve as it is a predictor as well as a reflection of both ovarian reserve and ovarian function. Previous studies have shown that there is a statistical correlation between AMH and CGG repeat size in the FMR1 gene in the premutation range. Genes on the X chromosome have a well-known association with autoimmune conditions, which are known to have a significant impact on female reproductive success.

Methods: A total of 100 Female patients with a history of primary or secondary infertility, of unknown cause were consented. Clinical history and blood samples for immunological parameters,hormonal profile, AMH,cytokines,and FMR1 genotying were taken. The CGG repeat size of the FMR1 gene was studied by PCR using primers across the CGG repeat in exon 1. Cytokine assay for IL-2, IL-4, IL-6, IL-8, IL-10, IFN-γ, TNF-α will be done by luminex Bio-Plex Pco®.

Results: The clinical features and hormonal levels including AMH will be correlated to the level of cytokines as well as to the results from FMR1 genotyping.

Disclosure: Sponsorship: Libyan Embassy in Malta

P.122

Laparascopic surgical management of endometrioid cysts

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Introduction: Endometriosis is a common problem affecting women presenting with pelvic pain, dyspareunia and fertility delay. Endometrioid cysts occur when endometrial tissue grows inside the ovaries. In this study we assessed the size of endometriotic cysts that are resected laparoscopically, and the method of removal and how haemostasis is achieved.

Methods: All patients who have ovarian cysts undergo an endovaginal ultrasound. Patients whose cysts are diagnosed as being endometriotic are admitted for therapeutic laparoscopy. The endometriotic cyst is dissected laparoscopically and removed either through the posterior fornix or through one of the abdominal ports using endobag. Heamostasis at the base of the endometriotic cyst is secured either by electrocautery or by laparscopic suture

Results: There were 28 endometrioid cysts which were removed laparoscopically with most of the cases having had suturing of the ovary to secure heamostasis.

Conclusion: Operative laparascopic surgery for endometrioid cysts offers pain relief and improved fertility, avoiding the more radical option of oophorectomy.

P.123

Setting up an early pregnancy assessment unit at Mater Dei Hospital- an optional extra or a necessity?

Helga Consiglio[1], Carmen Portelli[2], Mark Formosa[2 1]

Introduction: Bleeding and/or pain in early pregnancy are amongst the commonest causes for referral to Gynaecology emergency service. They are time-consuming in a system that covers both advanced obstetrics and gynaecology emergencies. In addition, miscarriage and ectopic pregnancies take a financial toll in terms of inpatient admission as well as theatre use. Moreover, since miscarriage is so common, its effect on women's physical and psychological health are greatly underestimated. On the other hand, ectopic pregnancy stil remains a potentially life-threatening emergency, albeit not all patients need inpatient care.

Methods: It is well recognized that in units where there is a dedicated Early Pregnancy Assessment Unit (EPAU), early pregnancy problems in stable patients are dealt with efficiently and in an organized but more sensitive manner. Admissions and surgery are resorted to less often with considerable advantage to both patients and hospitals alike.

Results: On our unit, all staff strive to provide good-quality care, but the time-contraints, lack of appropriate setup and protocols, and the absence of written information for patients significantly limits the service provided.

Conclusion: An audit of patients seen at emergency obstetrics ward is currently underway to compare the standard of care delivered to patients with that recommended by the RCOG and AEPU. It is anticipated that the audit will make a case for the setting up of an EPAU by improving quality of care whilst reducing the need for admission and surgery.

P.124

Right ventricular outflow tract stenting – effective palliation for Fallot's tetralogy

Joseph DeGiovanni, Justine Bugeja, Victor Grech

Introduction: Traditionally, the management of patients with Fallot's tetralogy (TOF) with excessively reduced pulmonary flow and cyanosis has been complete repair or palliation until complete repair. Palliation involves a procedure that augments pulmonary flow. The latter may be more practical and/or safer in small babies and/or associated lesions. Palliation in such cases has usually consisted of a surgical systemic to pulmonary shunt or transcatheter stenting of the arterial duct. Both have disadvantages. Transcatheter stenting of the right ventricular outflow tract (RVOT) is gaining popularity as this results in a more physiological haemodynamic result and encourages the growth of small pulmonary arteries, providing a better surgical substrate for subsequent repair.

Conclusion: We present a Maltese preterm baby (gestation 31/40) with TOF who required intervention at 5 weeks of age due to slowly deteriorating saturations. Weight was 1.85kg. A bare metal stent was implanted across the RVOT (3 mm by 13 mm) with resolution of intermittent desaturations. This will allow the baby to grow into a suitable weight for eventual Fallot surgery.

P.125

Bendy stents help negotiate hairpin intracardiac curves

Justine Bugeja, Victor Grech, Alexander Borg, Joseph DeGiovanni

Introduction: Simple transposition of the great arteries (TGA) occurs in 0.2 per 1000 live births. The condition is surgically repaired in the neonatal period by the arterial switch procedure (ASO). This involves stretching of the pulmonary arteries since the pulmonary trunk must be displaced anteriorly during surgery. Pulmonary artery stenosis is a recognised complication. Surgical repair is associated with high recurrence

rates. Ballooning and stenting is currently the most satisfactory option. This may involve negotiating tight bends in order to reach the site of stenosis. The passage of non-premounted stents may be problematic in such situations, especially with longer stents and tighter bends.

Conclusion: We describe several techniques that may facilitate such interventions and these were utilised in an adolescent patient who had had ASO for TGA in the neonatal period. These included manually giving the mounted stent a slight bend in order to help the balloon-stent combination negotiate hairpin bends.

P.126

Preparing to deal with an Ebola case in Malta?

Tanya Melillo, Maria Borg, Maya Podesta, Jackie Maistre Melillo, charmaine Gauci

Infectious Disease Prevention and Control Unit, Department of Health Promotion and Disease Prevention

Introduction: Ebola virus disease, one of the viral haemorrhagic fevers, causes an acute, serious illness which is often fatal in humans. A huge outbreak started in West Africa in March 2014 resulting over 28,000 cases and 11,000 deaths to date. Though concentrated in 3 countries in West Africa, the disease travelled to other countries, including America and Europe. Malta, like all other countries in the world had to prepare for the eventuality of a case reaching our shores due to international travel. The Ebola preparedness and response plan prepared by the Infectious Disease Prevention and Control Unit(IDCU) involved different sectors within the Ministry of Health.

Conclusion: The plan involved preparing a case definition and protocols for all doctors to use for early detection of suspected cases, risk assessment and contact tracing protocols for IDCU doctors , procuring the necessary personal protective clothing (PPEs), training of staff to wear PPE, setting up a room in the infectious disease ward to cater for potential cases, providing information on the infection to healthcare workers, procurement of diagnostic laboratory kits with transport containers and infection control equipment. Efforts made by IDCU doctors to increase awareness among the general public included leaflets, setting a helpline, posters at the airport and ports, announcement on flights and training workers in other entities . Public health measures included screening and monitoring of persons coming from the affected countries. To prepare such a plan, the Health Department worked hand in hand with other entities and undertook a number of simulation exercises.

P.127

Middle East Respiratory Syndrome Coronavirus (MERS-CoV): do we need to be prepared ?

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Infectious Disease Prevention and Control Unit, Department of Health Promotion and Disease Prevention

Introduction: MERS is a novel viral respiratory infection identified in Saudi Arabia in September 2012. Since then, over 1500 cases have been reported from 26 countries. It is transmitted from person-to-person through direct contact with respiratory secretions. It typically presents as a non-specific febrile respiratory tract infection that can progress rapidly to respiratory failure. Under the International Health Regulations, Malta is obliged to notify confirmed cases and ensure that the necessary Public Health measures are in place for prompt detection and response to prevent further spread of disease. With increased global travel and mass migration, the risk of such an infection reaching our shores is possible and therefore it is necessary to be prepared.

Conclusion: The Infectious Disease Prevention and Control Unit plays a pivotal role in ensuring that all medical doctors are provided with the necessary information to enable them to promptly detect and notify a suspected case. Early identification and management of cases and their contacts limits transmission of infection and so efforts have been ongoing to increase awareness about MERS amongst healthcare workers and the public. This includes drafting of protocols on detection and management of cases and contacts as well as information on necessary preventive protective clothing required to prevent spread of infection. Critical to an effective response is ensuring that the necessary laboratory diagnostic tests are available and that all frontlines are trained on how to gown and de-gown and to prevent spread of infection.

Disclosure: none

P.128

Elastography - a powerful tool for early prediction of a high risk preterm birth? A literature review

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Mater Dei Hospital

Introduction: Preterm labor is defined as premature birth before 37 completed weeks of gestation and is the major cause of neonatal morbidity and mortality with 1.1 million infant deaths from its complications. Risk assessment of a spontaneous preterm delivery (PTD) is still a challenging and an unresolved problem. Elastography is a relatively new ultrasound-based technique that creates images of tissue stiffness on a color map. There is a strain elastography with pressure-responsive tissue displacement and a shear wave elastography measuring the speed of shear waves traversing the tissue.The aim of this study was to review the value of cervical elastography to predict high risk of the preterm labor in both asymptomatic and symptomatic women.

Methods: A search of the PubMed/Medline database for terms ' preterm delivery', 'preterm labor' in association with 'cervical elastography' restricted to English language studies between 2010–2015.

Results: Elastography allowed for easy correlation between colour distribution and the anatomical structures image. Increasing gestational age was accompanied by reduction in internal cervical os stiffness and decrease in cervical length. Elastographic assessment of the internal cervical os may identify patients with high risk of preterm delivery at the early stage preceding other ultrasound and clinical findings.

Conclusion: This method has the potential to be used as a tool to evaluate the risk of preterm delivery as early as at 18th week of gestation. Proper selection of high risk patients may facilitate good management, decrease the number of preterm labors and unnecessary hospitalizations.

P.129

A rare giant borderline endocervical type mucinous ovarian tumour: a case report and review of the literature

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Introduction: Herein, we present the case of a 26 year old nulliparous female with a very large mucinous ovarian tumour. The patient presented at a late stage, when the cyst had accrued more than ten litres of fluid and when her abdomen was comparable to that of a term pregnancy. Radiological assessment confirmed the presence of a large cyst arising from the right ovary and occupying the whole abdomen, causing organ compression. The cyst was completely excised from the right ovary following cyst drainage with a Veress needle. Histology confirmed the lesion to be a borderline mucinous ovarian tumour, endocervical type. To our knowledge, this is the largest borderline mucinous ovarian tumour ever recorded. We discuss the case in detail, together with an update on pathogenesis and treatment of this uncommon disease.

Conclusion: Borderline mucinous epithelial tumours are a rare pathological entity, and endocervical subvariants

reaching this size are exceedingly rare indeed. They represent, however, a variant of ovarian malignancy which has an excellent overall prognosis, even when associated with epithelial invasion and lymph node metastasis. Highly conservative treatment strategies are available in fertile women, although more radical treatment is favoured in older individuals. Regular follow up is critical in these patients for early assessment of recurrence, should this occur.

P.130
Imatinib mesylate-induced acute generalized exanthematous pustulosis

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Introduction: An 86 year old elderly lady presented to a general oncology clinic in view of fever, together with a generalized pruritic maculopapular red-violet rash with overlying pustule formation, shortly after having been started on imatinib mesylate for CD117-positive gastrointestinal stromal malignancy. She was found to have raised white cell counts and inflammatory markers, but infective serology screening was negative. A biopsy of the pustular lesions demonstrated subcorneal pustules with neutrophilic infiltration, together with diffuse papillary dermal oedema and mixed inflammatory cell infiltrate, confirming the diagnosis of acute generalised exanthematous pustulosis. Imatinib mesylate was discontinued and the patient was admitted for hydration and corticosteroid application. She suffered acute renal failure as a complication of the condition, which required referral to an acute medical hospital. She made a full recovery with complete resolution of the rash and biochemical parameters.

Conclusion: Acute generalized exanthematous pustulosis (AGEP) is a rare skin condition, marked by the formation of numerous small sterile pustules over an erythematous background, often associated with fever and neutrophilia. The vast majority of cases are drug-related reactions, although viruses and other non-specific agents have also been implicated. The disease is rarely fatal, often demonstrating a self-limiting pattern of disease, with complete resolution within a couple of weeks on withdrawing the offending agent. We describe the case of an 86 year old lady with gastrointestinal stromal malignancy, who developed AGEP shortly following treatment with imatinib mesylate; an agent which has been associated with AGEP on exceedingly rare occasions.

P.131
Cross border health threats-what is our role?

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Introduction: The increasing rate, rapidity and volume of global travel and trade is facilitating the potential for pathogens to spread faster worldwide with the possibility of a newly discovered pathogen travelling to the rest of the world within 24-48 hours. According to the EU directive 1082/2013/EU, all European Member States need to be prepared to deal with any health threats that may spread between countries. The International Health Regulations (IHR) which came into force in June 2007, obliges Malta to respond to acute public health risks that have the potential to cross borders and threaten people globally.

Conclusion: The Infectious Disease Prevention and Control Unit (IDCU) has been tasked with preparing a generic preparedness and response plan for the Health Department in order to be able to respond to all types of threats that may be caused by natural disasters, climate change, man made and BCRN (biological, chemical, radiological and nuclear) threats. The aim of the plan is to ensure that the necessary capacities are in place to deal with a public health emergency. The plan is based on 5 main pillars: Mitigation/Prevention; Preparedness; Response; Business continuity and Communications. The process of managing an emergency involves detecting the event, undertaking a rapid risk assessment, followed by the operational response which includes planning, distribution of roles and responsibilities, management of information, logistics, communications and evaluation of response. The plan incorporates all entities within and outside Health that play an active role during such emergencies.

Disclosure: none

P.132
Pilonidal sinus disease of the scalp

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Introduction: Pilonidal disease of the scalp is an exceedingly rare phenomenon. We describe the case of a 37-year-old female who presented with a longstanding history of a lump on the posterior aspect of the scalp, which was excised successfully. Histology demonstrated the presence of a pilonidal sinus. The report reviews the modern understanding of this condition and collates previous cases of pilonidal disease of the scalp.

Conclusion: This case described the rare phenomenon of pilonidal disease of the scalp, which was successfully treated. Hence, pilonidal disease should be included in any differential diagnosis of scalp lumps.

P.133
Outbreak of gastroenteritis following dinner at a band club, Malta, October 2014

Maria Louise Borg, Anthony Gatt, Annalise Buttigieg
Infectious Disease Prevention and Control Unit, Health Promotion and Disease Prevention Directorate

Introduction: On 12th October 2014, we were notified from Casualty of 4 people who presented with gastroenteritis following a dinner night organised by a local band club on Friday night. Eighty people attended the event and more people were reportedly symptomatic. An outbreak control team was set up to investigate the outbreak and implement timely control measures.

Methods: We conducted a retrospective cohort study to find additional cases and identify the source of the outbreak. Cases were defined as individuals who developed gastroenteritis within 2 days following the dinner at the band club on 10th October 2014. As the organisers had no details of the individuals who attended the event, a message was posted on the event web-page advising attendees to contact our unit. We followed up attendees and completed questionnaires on symptoms and food consumed by means of telephone interviews. We analysed data and calculated risk ratios (RR) and 95% confidence intervals (95%CI) to identify potential risk factors.

Results: Forty-two (53%) of the attendees were interviewed. Of these 26 (62%) were cases. Consumption of frozen seafood, particularly mussels (RR=3.2; 95%CI=1.2-8.6) and prawns (RR=3.9; 95%CI=1.1-15.6) was significantly associated with illness. None of those who did not eat seafood developed symptoms. No leftover food was available for analysis. Salmonella infantis was isolated in 5 of the submitted stool specimens.

Conclusion: This investigation highlights the important role of social media in outbreak investigations. In the absence of environmental findings, the epidemiological study proved crucial in identifying seafood as the likely source of infection.

P.134

A case of pulsatile tinnitus from ipsilateral carotid artery stenosis

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Introduction: Atherosclerotic carotid artery disease is a recognised cause of pulsatile tinnitus. Carotid endarterectomy is one method of improving pulsatile tinnitus in patients with unilateral symptoms and severe ipsilateral stenosis.We present a case of ipsilateral pulsatile tinnitus which was successfully treated with an elective left carotid endarterectomy.

Methods: A 69 year old lady was seen at the Vascular Outpatient Clinic after suffering with severe tinnitus in her left ear for twelve months. Examination of her external ears and cranial nerves was unremarkable but a left sided systolic carotid bruit was present.

Results: Carotid Doppler ultrasounds were organised and these showed an approximate stenosis of 50% at the origin of the left external carotid artery. The patient opted to proceed to surgery if this would at all relieve her symptoms. A CT angiogram of the aortic arch and carotids and an MRI of the internal auditory meatus were done pre-operatively to ensure there was no other cause of her symptoms.

Conclusion: Tinnitus is the perception of non-verbal sound for which there is no external source or stimulus to the body present. Atherosclerotic carotid artery disease is one of the three most common causes of tinnitus. It should be suspected as the cause in patients older than 50 years and when atherosclerotic risk factors are present.

P.135

A rare cause of upper gastrointestinal bleeding - giant Brunneroma

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Introduction: A 53 year old male with a family history of colon carcinoma presented with vague epigastric discomfort and black stools. Physical examination was unremarkable. Faecal Occult Blood (FOB) testing was consistently negative. Haemoglobin, platelet count, liver function tests and tumour markers (CEA and CA19-9) were within normal limits. At oesophagogastroduodenoscopy (OGD) we encountered an 8cms polypoid lesion on a wide base extending from the pylorus down to the third part of the duodenum. Using tripod forceps, the lesion was retracted back into the stomach and an attempt was made to snare it piecemeal however the lesion was exceedingly hard to divide with the hot snare and after two resections the procedure had to be abandoned. Histology confirmed Brunner's gland hyperplasia/hamartoma and the patient was subsequently treated with laparoscopic distal gastrectomy.

Conclusion: Disproportionate overgrowth of Brunner's glands results in hyperplasia although adenoma, hamartoma and Brunneroma are sometimes used interchangeably. Diagnosed predominantly in the fifth or sixth decade of life and with no difference in gender distribution, Brunner's gland hyperplasia represents around 5-10% of duodenal tumours and although typically asymptomatic, can easily be confused with other pathologies resulting in upper GI bleeding. Complications of obstructive jaundice, intussusception, biliary fistulas and haemorrhagic shock can arise. There is dysplastic potential within such lesions and it is dangerous to assume that all large Brunneromas are non-neoplastic. In a patient who is fit for surgery, we advocate resection.

Severe pre-eclampsia in the context of posterior reversible enchephalopathy syndrome (PRES).

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Introduction: We present a case of severe pre eclampsia associated with PRES in a twin pregnancy. 32 year old primagravida, presented at 27+3 weeks gestation with hypertension (204/129mmHg), proteinuria (4+), severe headaches, vomiting and loss of vision. She was admitted to labour ward and started on dexamethasone, intravenous hydralazine and magnesium sulphate. Neurological examination revealed hyper-reflexia and 3 beats of clonus. MRI head showed bilateral hyperintensities inthe parieto-occipital regions affecting the cortex and subcortical white matter together with petechial haemorrhages in the occipital lobe, suggestive of PRES.

Methods: After 4 hours of continuous monitoring, the blood pressure and patient's symptoms did not improve and she was consented for an emergency lower segment caesarean section. Both infants weighing 560g and 850g were transferred to neonatal intensive care unit , whilst the mother was kept intubated and managed in an intensive care unit. Her vision recovered after 24 hours with her blood pressure was reduced by labetalol and nifedipine. However, proteinuria persisted and her blood pressure control was still sub-optimal.

Results: She was discharged 12 days later on calcium channel blockers and followed up by a nephrologist. One of the infants died of severe necrotising enterocolitis.

Conclusion: Pre-eclampsia is a not uncommon disorder of pregnancy. Early diagnosis, adequate monitoring and treatment can prevent long-term complications associated with the condition.

Disclosure: n/a

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Inclusion epidermal cysts: a late complication of childhood female genital mutilation

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Introduction: Female genital mutilation (FGM) is a non-medical procedure performed by some cultures rooted in gender inequality. This case report aims to increase awareness regarding epidermal inclusion cysts as a late complication of FGM.

Methods: We hereby report a case of a 23 year old Eritrean lady who presented to A&E with fresh vaginal bleeding and severe genital pain radiating to right thigh and lower abdomen. The patient was being followed-up regarding the presence of the vulval cyst. The cyst had been presented since childhood and was otherwise asymptomatic. It had increased in size during pregnancy. The pain had increased considerably over the past days and she was unable to walk. She was able to pass urine with some difficulty. Inspection of the perineum revealed a 15cm cystic mass originating from the residual clitoral hood area. The mass was draining pus and blood. The patient was thus admitted, treated with intravenous antibiotics and pain relief with a view for exploration of the mass in theatre. At operation the origin of the mass was confirmed. The abscess wall was sent for histology. The histological findings were compatible with a diagnosis of secondary infection of an inclusion epidermal cyst.

Results: The patient experienced an otherwise uneventful recovery and was discharged home on oral antibiotics.

Conclusion: Epidermal inclusion cysts are usually slow growing and relatively asymptomatic. Malignancy despite rare has also been reported within epidermal inclusion cysts. Excision of inclusion epidermal cysts is indicated in cases of secondary infection or when there is a suspicion of malignancy

Treating Unilateral Vocal Cord Palsy: A Case Study

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Introduction: Vocal cord palsy is a well known sequela to thyroid surgery. Conservative management is the first approach to treating symptoms. However, in patients who do not respond to these measures, surgical options are available. This case study focuses on vocal fold medialisation using a Kurz

titanium implant under local anaesthesia. The aim is to compare pre-operative and post-operative perceptual, acoustic and video cinematographic parameters in a patient with unilateral vocal cord palsy who underwent vocal fold medialisation using a Kurz titanium implant under local anaesthesia.

Methods: The patient was diagnosed with right vocal cord palsy post right hemithyroidectomy, not responding to conservative measures. Patient consent to take part in the study was established. Preoperative testing using nasendoscopy and voice spectrography using PRAAT software for objective voice analysis and a questionnaire were used. During the procedure, photos of the steps involved in thyroplasty were taken. Post operatively, nasoendoscopy, voice spectrography and the questionnaire were repeated post operatively and after 3 months. The steps involved in the above procedure were illustrated using video recordings of the procedure.

Results: Significant patient satisfaction and improvement in voice quality and cord medialisation were noted and recorded as objective outcomes.

Conclusion: The results show that there is a significant improvement in patient satisfaction and quality of life. This is supported by the objective assessment used. This case study evaluation will be replicated to future prospective patients undergoing the same procedure. An audit will then be devised to assess and document outcomes

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Metastatic squamous cell carcinoma of unknown origin to right atrium

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Introduction: We describe a case of metastasis to the heart, which was initially suspected to be a myxoma causing acute right heart failure. The histology showed a metastatic squamous cell carcinoma possibly of head and neck origin. Various investigations were performed with no primary source identified. Description and differential diagnosis: A 66 year-old male with a past history of hypertension, hyperlipidaemia and insulin dependent diabetes mellitus, presented with sudden onset of shortness of breath with recent episodes of orthopnea and fainting. On examination he was tachypnoeic and tachycardic with clear breath sounds bilaterally. He was also noted to have right upper limb and facial swelling as well as distended neck and chest wall veins. A CT-Pulmonary Angiogram was carried out to exclude pulmonary embolism, revealing a mass in the right atrium which extended up the superior vena cava (SVC) and into the azygos vein. Transthoracic echocardiography was performed, revealing a large right atrial mass prolapsing across the tricuspid valve and compromising right ventricular filling. A transoesophageal echocardiogram revealed mass considered to be a large right atrial myxoma attached to the inter-atrial septum. The possibility of other cardiac tumor could not be excluded, especially since there was involvement of the SVC, which is unlikely in a myxoma. Patient underwent an emergency removal of the mass in view of his symptoms.

Conclusion: Metastatic squamous cell carcinoma of unknown origin to right heart is very rare occurrence with only few cases reported previously in literature and carries very poor prognosis.

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Eagle Syndrome: A case of ossification of the stylohyoid ligament

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Introduction: Eagle Syndrome was first described in 1937 by W.W. Eagle as an aggregate of symptoms that include recurrent throat or facial pain, foreign body sensation and dysphagia. This is caused as a direct result of an elongated styloid process or calcified stylohyoid ligament. Diagnosis of Eagle Syndrome is made by symptoms correlated to physical examination and radiographic findings. Calcification or ossification of the stylohyoid ligament is often an incidental finding on radiographs (4%), however this is termed Eagle's syndrome when the patient is symptomatic.

Methods: A 37 year old gentleman referred to ENT by his dentist with a visible accessory bone on orthopantogram for submandibular pain. He gave a 4 month history of pain over the left submandibular area. Onset of symptoms was vague and the patient could not attribute it to a specific event. The pain was aggravated by yawning, opening of the mouth and eating and was referred to the left ear and left side of the neck.

Results: On physical examination, there was palpable tenderness in the peritonsillar area but no palpable masses. Neck and mouth examination was otherwise unremarkable A CT scan of the neck and mandible showed a heavily ossified styolid process and stylohyoid ligament in its entirety.

Conclusion: Management options are non-surgical or surgical. Non-surgical options are limited to symptomatic relief, however in view of the significant symptoms, the age of the patient and the effect on quality of life, surgery is highly indicated. Surgery is either through the transpharyngeal approach or the extra oral route.

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Imaging Systemic Sclerosis - an illustrative review for the trainee and general radiologist.

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Introduction: To discuss and illustrate the imaging findings of the pulmonary, gastrointestinal and musculoskeletal manifestations of diffuse systemic sclerosis (dSSc).

Methods: A review of cases of dSSc compiled by our imaging department were performed.

Results: *Pulmonary manifestations:* The chest radiograph is insensitive to early changes. High-resolution computed tomography scanning is more sensitive in detecting early interstitial disease, and is the best imaging test for assessing the extent and severity of pulmonary disease. Early findings include ground glass change. Honeycombing and evidence of lung volume loss represent late findings. Features of pulmonary hypertension may also be noted. *Gastrointestinal manifestations:* The commonest site to be affected is the oesophagus. Findings on barium studies include dilatation of distal 2/3 of the oesophagus; apparent shortening of length due to fibrosis; dysmotility of lower oesophagus and gastro-oesophageal reflux due to reduced sphincter tone. dSSc produces atrophy of the muscularis of the small bowel. The jejunum and duodenum are more severely involved than the ileum. The valvulae coniventes are normal or thinned. The features of the affected colon are dilatation, loss of haustrations, wide-mouthed diverticulae on the anti-mesenteric border, and pneumatosis intestinalis. *Musculoskeletal manifestations:* The hands are the most common site of involvement. Bone findings on plain films include acro-osteolysis; periarticular osteoporosis; joint space narrowing and erosions. Soft tissue changes include

subcutaneous and periarticular calcification; atrophy especially at tips of fingers and flexion contractures.

Conclusion: The radiologist should be aware of the vast radiological abnormalities in the different organ systems in dSSc particularly assessment of the potentially fatal pulmonary complications. Thrombocytopaenia in Pregnancy – a case report Greta Mattocks[1], Alison Micallef Fava[2], John Mamo[3], Alex Gatt [4], Abigail Magro[5], Daliso Chetcuti[6] [1]Foundation Year 1 Doctor, Mater Dei Hospital, [2]Resident Specialist, Department of Obstetrics and Gynaecology, Mater Dei Hospital. [3]Consultant, Department of Obstetrics and Gynaecology, Mater Dei Hospital.[4] Consultant haematologist, Department of Pathology, Mater Dei Hospital [5]Foundation Year 1 Doctor, Mater Dei Hospital [6]Higher Specialist Trainee, Department of Obstetrics and Gynaecology, Mater Dei Hospital

Introduction: Thrombocytopaenia is the second most common haematological problem in pregnancy, surpassed only by anaemia. It is defined as a platelet count of less than 150,000/μL, but the risk of bleeding significantly increases as the platelet count drops below 20,000/μL.

Methods: This case involves a 31 year old patient in her second pregnancy who was diagnosed with thrombocytopaenia during routine antenatal testing at 13 weeks. She was asymptomatic; blood pressure was normal and no proteinuria was present. The other investigations were all normal. The patient was followed up by a multidisciplinary team (MDT) involving the caring obstetrician, haematologist and obstetric anaesthetist. She was diagnosed with pregnancy related immune thrombocytopaenia. Serial platelet counts were taken and the platelet count progressively decreased reaching 20,000/μL at 36 weeks. She never had episodes of bleeding. At 38 weeks she received 0.4g/kg of intravenous immunoglobulin for 5 days. Delivery was uneventful and the neonate was followed up with platelet counts and cerebral ultrasound.

Conclusion: Maternal immune thrombocytopaenia occurs due to an autoimmune process by which patients produce IgG antiplatelet antibodies to the membrane glycoproteins of their own platelets. These platelets are then destroyed by the reticuloendothelial system, mostly by the spleen and at a faster rate than platelet production, which causes thrombocytopaenia. As discussed, the involvement of the MDT is important to prevent the complications of ITP in pregnancy, antenatally, during delivery (especially as regards mode of delivery and the use of methods of analgesia), in the postpartum period and in the care of the neonate.

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A case of Todani type II choledocochal diverticulum

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Introduction: Choledochal cysts (CDCs) are rare congenital malformations of the biliary ducts and belong to a class of anomalies known as the fibropolycystic disorders. The incidence in Western countries varies between 1 in 100,000 and 1 in 150,000. Here we report the case of a Todani Type II cyst in a 70 year old gentleman.

Methods: PubMed was used to conduct a literature review. Choledochal; Diverticulum; Cyst; Todani Classification were used to generate results. Patient records and imaging through our local PACS system were consulted for our case report.

Results: A search on PubMed generated 178 cases, 17 of which were relevant to our case.

Conclusion: Todani Type II choledochal diverticuli are rare, making up just 2% of all choledochal cysts, which in turn have an incidence of 1 in 150,000. Our case was atypical in view of the patient remaining asymptomatic, with the cyst identified incidentally on CT - scanning. We present a review of the literature and a consideration for the embryogenesis of biliary anatomy and cyst formation.

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Atrial septostomy for the treatment of pulmonary hypertension and diastolic dysfunction

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Introduction: Atrial septostomy (AS) is a technique indicated in selected patients with refractory right ventricular (RV) failure and pulmonary hypertension. The formation of an iatrogenic interatrial septal defect in these patients has been shown to improve cardiac output and improve RV function. sfgbh

Methods: Case Report We report a case of a 68 year old lady who had signs and symptoms of right heart failure and raised pulmonary pressures that were refractory to conventional medical treatment. Echocardiography showed severe biatrial dilatation, severe diastolic dysfunction, an impaired RV function and significant pulmonary hypertension. In order to relief the increased right heart pressures, a percutaneous AS was successfully performed. Within a few days of the procedure the patient's symptoms improved considerably as did echocardiographic parameters.

Discussion: The procedure of percutaneous AS involves the creation of an iatrogenic interatrial septal defect, thereby creating a right-to-left shunt. The interatrial septum is punctured and the defect is progressively dilated with a balloon of increasing size, thereby dilating the defect gradually. This allows control over the size of the shunt created and ensures adequate oxygenation of arterial blood. A fenestrated septal device is then deployed that allows shunting of blood while maintaining the defect at its required size. The decrease in systemic oxygen saturation brought about by the shunt is compensated for by an increase in cardiac output.

Conclusion: AS has been shown to have a beneficial effect on refractory pulmonary hypertension with symptomatic benefit, and should be considered as adjunctive treatment in selected patients.

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"Had I only known..." - The lived experience of coronoray artery bypass graft in Maltese men.

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Introduction: Cardiac surgery is frequently described as a "multidimensional phenomenon"; spanning over the biological, psychological and social fields. Coronary artery bypass graft (CABG) is well known to encompass extensive stress and emotions on the patient. There is however, a paucity of psychosocial literature on the Maltese patient's experiences of this procedure. This study therefore aimed to explore the lived experience of undergoing CABG in Maltese men.

Methods: A qualitative approach, namely Interpretative Phenomenological Analysis (IPA) was used and audio recorded semi-structured individual interviews were conducted with Maltese men who had undergone CABG. The recruited participants were all between the age of fifty-five and seventy-one and were recruited through purposive sampling.

Results: Five major themes were extrapolated from the participant's narratives during data analysis through IPA. Prevailing factors originated from the experience involve dealing with the knowledge of undergoing major heart surgery, attitudes towards the outcome of the procedure, perceived change of self, struggles with anxiety and depression and the

importance of spiritual and family support.

Conclusion: Findings show that each of the mentioned factors may not only influence patients' recovery from CABG, but may also impact a person's entire lifetime. Recommendations for future research proposed the implementation of a longitudinal study for better comprehension of the lasting impacts of CABG. Sustained psychological support throughout the CABG experience is also highly advised.

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To evaluate the laparoscopic management of ovarian dermoid cysts

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Introduction: Dermoid cysts are the commonest germ cell tumors of the ovary known as benign mature teratomas. Transvaginal sonographic diagnosis of ovarian dermoid cysts together with laparoscopic approach are beneficial in diagnosing and treating these benign lesions. Most of dermoid cysts occur without significant clinical symptoms and they are often discovered incidentally during pelvic examination or routine ultrasound.

Methods: The histological findings of women who underwent laparoscopic ovarian cystectomies between January 2014 and July 2015 were retrospectively reviewed.

Results: All ovarian dermoid cystectomies were carried out laparoscopically. They constitute 6 of 38 (16%) laparoscopic cystectomies. Other histolopathological findings included ovarian fibroma, serous cystadenoma, developmental cyst, paratubal cyst, borderline and haemorrhagic cyst. Dermoid cysts were present in women aged between 16 and 46 years. The mean patient's age was found to be 35 years. All of the cases were unilateral. On histology, dermoids were found to contain hairs and soft yellow material, keratinising stratified squamous epithelium with skin appendageal structures within the wall as well as adipose tissue, smooth muscle cells, thyroid gland, calcification and bone.

Conclusion: The laparoscopic approach provides a treatment option with smaller incisions, shorter hospital stay and recovery period as well as provides the least chance of adhesions which aims to preserve future fertility. Spillage of cyst contents is one of the main risks of laparoscopic ovarian cystecomites which can lead to chemical peritonitis. Risk can be minimised by aspirating the cyst after placing it intact within the endo bag during laparoscopy.

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End-stage acahalasia of the cardia – oesophagectomy is a viable though radical option

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Introduction: Case report with striking cross-sectional and operative images.

Methods: We present the case of a 64-year old gentleman with neglected achalasia of the cardia of 44 years duration, complaining of post-prandial retrosternal fullness and pain associated with belching, halitosis and progressive regurgitation of undigested food and fluid. He was referred in 2013 and endoscopy confirmed gross mega-oesophagus, a tight and unyielding lower oesophageal sphincter but no obvious tumour. PET-CT confirmed the absence of avid lesions and indicated that the megaoesophagus was replacing most of the right hemithorax. Co-incidentally, the patient had become cachectic and was newly diagnosed with crippling rheumatoid arthritis. He was admitted for intravenous anti-inflammatory treatment and concurrently fed via a surgical jejunostomy for a period of three months. Subsequently he underwent an uneventful 3-stage McKeown oesophagectomy with gastric pull-up and cervical hand-sewn anastomosis.

Results: The patient was discharged on the 10th post-operative day tolerating an almost normal diet. Over a period of 3 months he required 3 anastomotic endoscopic balloon dilatations, at six months the jejunostomy tube was removed through a mini-laparotomy. He remains well and asymptomatic 2 years post-operatively.

Conclusion: In an era where minimal access cardiomyopathy and POEM have become the mainstay of treatment for achalasia, oesophagectomy remains a radical but effective option for neglected end-stage disease in the fit and well nourished patient.

Comparison of medical record keeping between Mater Dei Hospital and Karin Grech Hospital

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Introduction: Medical record keeping is a daily practice amongst doctors. The idea of this audit is to identify any differences and similarities between medical record keeping in an acute medical setting at Mater Dei Hospital (MDH) and rehabilitation centre at Karin Grech Hospital (KGH).

Methods: Two different audits about medical record keeping at MDH and KGH were compared so as to identify any possible similarities and differences in the results obtained. Student t-test is used to identify for any differences between medical recording keeping at MDH and KGH.

Results: Despite some similarities such as the rate of documentation about CPR statuses which is low in both hospitals (unfortunately); there are some differences. Whereas at KGH most of the old notes are available; not so may be said for the acute hospital where only about 69% of old notes are available. 28% of entries at KGH do not have a named most senior member versus 7.1% of those at MDH. Also entries at MDH are appropriately labelled in most cases (75.5%) whereas 63% of entries at KGH had a missing item (identity number, patient's name or surname). There were significant differences according to the statistical tools.

Conclusion: Medical record keeping is of utmost importance nowadays more than in previous years because of the increasing medicolegal issues. This comparison has shown that medical record keeping is somewhat more up to date in the acute hospital than at KGH. In both cases, more importance is to be given for good record keeping especially amongst the younger doctors.

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The homemade laparoscopic trainer - is it a viable alternative to costly simulators?

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Introduction: Laparoscopic trainers have been proved to be effective to improve skills of laparoscopic surgery; they are usually installed at hospital in the surgical department with limited access hours, usually inconvenient to the schedule of the resident. Simple trainer boxes are necessary for residents who desire developing their skills at home independently to the venue and hours of surgical departments. Our goal is to bring the laparoscopic trainer to the desktop of the surgical resident by making it very cheap, small, light, secure and easy to construct.

Methods: A 6 litre plastic box, neoprene rubber, disposable laparascopic instruments, an HD webcam and silk sutures were used to create a simulator for under 60 Euros. A questionairre was devised to assess its reception amongst surgical trainees. Core trainees were taught a set of 6 skills on the trainer box before carrying out the same skills on a formal simulator.

Results: 80% of students were able to use the trainer box effectively. 75% showed improved capability when performing skills on a simualtor after beng trained on the box for three weeks.

Conclusion: We believe that the handmade laparascopic trainer box is a cheap and viable alternative to practice essential laparascopic surgical skills.

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Laparoscopic hysterectomy for endometrial carcinoma

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Introduction: Endometrial carcinoma is the third most common malignancy in Maltese women. It is usually treated by total hysterectomy and bilateral salpingo-oophorectomy. According to NICE guidance, there is adequate evidence on the safety and efficacy of laparoscopic hysterectomy to support its use for endometrial carcinoma. Aim: Review of patients undergoing laparoscopic approach or the conventional open laparotomy as the surgical management for endometrial carcinoma.

Methods: Patients who had laparoscopic or open hysterectomy and bilateral salpingo-oophorectomy as treatment for endometrial carcinoma between January 2013 and July 2015 were included.

Results: Fourteen patients had surgical management for endometrial carcinoma between January 2013 and July 2015, age ranged between 54 and 83years. Nine patients (age range 57-83years) underwent open surgery, for endometrial adenocarcinoma Figo IA (two patients), IB (six patients) and IIIA (one patient). Laparoscopic hysterectomy and bilateral salpingo-oophorectomy was carried out in five patients (age ranges 54-75years) for endometrial carcinoma Figo IA (three patients), Ib (one patient) and Figo stageII (one patient). Only one of these was carried out in 2013 while four were carried out in 2014/2015. There were no conversion from laparoscopy to open. The patients in the laparoscopic group had shorter length of stay as compared to the laparotomy group. As regards complications, there were no patients in both groups that needed readmission.

Conclusion: Provided laparoscopic skills for this procedure are available and after patient selection, the laparoscopic approach for management of endometrial cancer provides an effective treatment option with smaller incisions and scars, and shorter recovery period.

Disclosure: none

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Is multi-morbidity becoming normal?

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Introduction: Chronic conditions are known to be increasing with implications for their ongoing care ; to date there is little information available regarding patient conditions within the Maltese outpatient sector. We assessed referrals to Medical Consultant Clinics/Schedule V Clinics, aiming to classify the reasons for referral, the relevant systems and identify multi-morbidity, defined as two or more concurrent medical conditions in the same patient.

Methods: 100 consecutive Tickets of Referral (TOR) were prospectively analysed to identify the reasons for referral, the relevant system and whether multi-morbidity was present. All personal data were anonymised at source, with no possible backward linkage. Data were entered into an Excel ® sheet and analysed using a framework from the literature.

Results: N=100, men 45%, women 49%, 6% unclear from TOR. The clinical tasks identified from the 'Reasons for referral' included treatment (89%), review (23%), diagnosis (5%) and handover(1%).93% were cardiometabolic referrals,2% respiratory, 2% neurology, 3% unclear referrals (to Schedule V Clinic). 80% of referrals were hypertensive, 17% diabetic, and 23% dyslipidaemic. Multimorbidity was indicated in 41%.

Conclusion: Cardiovascular conditions accounted for the majority of referrals, who were referred mainly for treatment and review, reflecting ongoing chronic disease management. Just over a third of referrals had information indicating multi-morbidity in their TOR-the real proportion is likely to be higher given that the patients were still due to be assessed. In view of the implications of multi-morbidity for individual risk and prognosis, healthcare utilisation and cost, this figure is of concern, and warrants further investigation.

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The Malta BioBank / BBMRI.mt

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Introduction: The Malta BioBank is the BBMRI-ERIC's national node for Malta (BBMRI.mt) and forms part of the new inter-faculty Centre for Molecular Medicine and BioBanking at the University of Malta. It is a founding partner in EuroBioBank and RD-Connect. The Malta BioBank's management includes experts in: Ethics, Law and Sociology forming the ELSI working party; bioinformatics and Quality.

Methods: The clinical biobank links medical research conducted at the University of Malta with the Department of Health and Mater Dei Hospital's departments including Pathology, Paediatrics, Neurology and Oncology. The clinical catalogue holds a number of disease collections including: the Globin Bank; Parkinson's Disease (PD); Diabetes; Multiple Sclerosis; renal disorders; various cancers and rare diseases. The population biobank is being developed in the form of a research co-operative and includes a random collection of Maltese citizens and healthy Maltese senior citizens.

Results: The Globin Bank includes Beta and Alpha Thalassaemia and other haemoglobinopathies. The PD collection holds 200 cases and 400 age and gender matched controls and lifestyle questionnaires. The Diabetes Collection includes data and samples from newly-diagnosed Type 2 Diabetes Mellitus (T2DM) patients and Maltese and Libyan T2DM with advanced end-organ complications. Banked renal disorders include congenital nephrotic syndrome, CAKUT and Bartter's syndrome. Banked cancers include: familial breast, colon, lung and gastric cancer. Two new rare disease collections include mitochondrial disorders and s Medical and Life Science research would not be possible without well curated biobanks. udden cardiac deaths.

Conclusion: Medical and Life Science research would not be possible without well curated biobanks.

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Where is the Wnt blowing? Wnt signalling and cancer

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Introduction: Nusse and Varmus first discovered Wnt in 1982. Since then, significant research has been done in this family of glycoproteins made of 19 different ligands. Wnt is an evolutionarily conserved signalling pathway which has a multitude of functions including in embryology and planar cell polarity. Its major pathways are Wnt/β-catenin, called the canonical pathway as well as the non-canonical pathways Wnt/PCP and Wnt/Ca^{2+}. These are subject to complex mechanistic control. In fact, research is still ongoing to discover more about interactions between themselves and other pathways and now there is an approach towards a more integrative view of Wnt signalling due cross-talk both between the Wnt pathways themselves as well as with other pathways such as Notch. It follows that Wnt dysregulation will have disastrous consequences. One disease commonly associated with defective Wnt signalling is cancer. These include colon, breast and liver cancer. A lot of research is being done both to elucidate which part of the pathway is responsible for the development of the

cancer and also into how to treat the cancer. In fact there have been several recent discoveries of possible potential future treatments which are still at an experimental phase.

Conclusion: There is still a lot of work to be done in order to understand better the complexities of Wnt signalling. However, the future looks bright for Wnt and cancers associated with a high mortality rate, may, become amenable to treatment.

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An unusual presentation of gastric carcinoma

Maria Mifsud, Christabel Mizzi

Introduction: A fifty-four year old gentleman, known case of Hepatitis C and heavy smoker, was admitted to Medical Admissions Unit with a ten day history of dyspnoea on mild exertion, haemoptysis and increased sputum production. Chest radiograph showed bilateral pulmonary infiltrates and cardiomegaly. The shortness of breath did not settle with oxygen and administration of intravenous diuretics. In view of respiratory distress, Intensive Therapy Unit admission was necessary. A bedside echocardiogram was performed, which showed a large pericardial effusion with consequent cardiac tamponade. Pericardiocentesis was performed and haemorrhagic fluid was drained. After a period of monitoring, the patient's respiratory function improved and he was fit for transfer to a medical ward. Cytology of pericardial fluid showed numerous clusters of adenocarcinoma cells. Computed tomography of patient's trunk showed thickening of stomach curvature with enlarged perigastric and mediastinal lymph nodes. Diffuse reticular pulmonary infiltrates with moderate amount of bilateral pleural effusions were also seen on imaging suggestive of lymphangitis carcinomatosa. Based on these results a diagnosis of gastric adenocarcinoma was made. Patient was refered to oncologist for further management.

Conclusion: Gastric carcinoma presents insidiously with most of the cases having no specific symptoms whilst others having nonspecific gastrointestinal complaints such as dyspepsia. This unfortunately causes delay in diagnosis with most cases of gastric carcinoma presenting at an advanced stage. This case describes an unusual first presentation of gastric carcinoma presenting with a malignant pericardial effusion causing cardiac tamponade as a result of metastasis to the pericardium.

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Pericarditis - clinical conundrum

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Introduction: Pericarditis is pericardial inflammation, which can be idiopathic or secondary. The general consensus is that pain is sharp, central, retrosternal and better on leaning forward but worse on inspiration and lying flat. However, older papers and books describe it as being worse on leaning forward. What is the bottom line?

Methods: *Discussion:* To answer this, we must look at the innervation of the pericardium. This in itself leads to a number of questions. Parietal pericardium is innervated via the phrenic nerve. However, while there are cases of pain referred to the shoulder, it does not explain the variation in intensity. Another question is why pain should be better on moving forward since theoretically when moving forward, the layers of pericardium rub together causing pain. Also, why is the pericardial friction rub heard more on leaning forward considering pain is reduced? Is it because the heart is closer to the chest wall thus making the rub louder? Is there a difference in pain depending on whether there is an effusion or not? This is because the fluid separates the layers on leaning forward, which may explain why pain is lessened. Finally, is it possible that there is innervation from intercostal nerves, particularly in the cardiac notch which is the area not covered by pleura? We produce a hypothesis, which attempts to answer all this.

Conclusion: These questions are not easy to answer. However, they provide interesting and useful clinical insights, which may aid in the diagnosis of pericarditis.

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A study on the management of corticosteroid side effects in cancer patients

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Introduction: Systemic corticosteroids lead to many adverse effects especially in cancer patients. Preventive measures and treatment options are essential to minimise side effects. The study aims to evaluate the prescribers' management of corticosteroid induced hyperglycaemia, dyspepsia, oral candidiasis and proximal myopathy. It is also aimed to discuss possible reasons for non adherence to guidelines and recommend interventions to reduce their risk of occurrence.

Methods: A retrospective review of the medical records for 156 consecutive patients was performed at the oncology outpatients and oncology wards of Boffa Hospital during the month of September 2014. Only patients who were on long term corticosteroids (>2 weeks duration) were considered. Patients younger than 12 years of age were excluded from the study. Any form of management to reduce corticosteroid side effects was compared to the guidelines published in the Allergy, Asthma and Clinical immunology journal*

Results: From 156 cancer patients, 55 patients satisfied the inclusion criteria. The mostly addressed side effect was Dyspepsia (n=35; 63.6%) followed by Proximal myopathy(n=27; 49%), Hyperglycaemia (n=24; 43.6%) and lastly Oral candidiasis (n=20;36%). Adherence to guidelines was as follows:-
Hyperglycaemia- Haemoglucose test (HGT) and Glycated Haemoglobin (HbA1c) monitoring(36%)
Dyspepsia- Prescribing of omeprazole (51%) and ranitidine (5%)
Oral candidiasis- orophargyngeal exam (29%)
Proximal myopathy- quadriceps strengthening (40%)

Conclusion: Improvement is required with regards to the management of corticosteroid side effects. Possible Actions that may be taken include strategies to improve guideline awareness, the prescribing of the least effective dose, adequate patient education and the implementation of a steroid card.

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Outpatient delivery of oncology treatments at Sir Paul Boffa Hospital - review of current practice

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Introduction: With the development of newer anti-cancer agents and supportive medications, more oncology treatments can be delivered in an outpatient setting. In Malta, outpatient treatments for adults with solid malignancies are delivered at the Oncology Day Ward (ODW), Sir Paul Boffa Hospital. The aim of this study was to review current practice of this service prior to the move to the new oncology centre.

Methods: All intravenous chemotherapy (CT) and targeted therapies (TT) delivered at the ODW in October and November 2014 were included in this review. Data regarding patient demographics, type of malignancy, treatment and intent, was collected from patient and pharmacy records.

Results: 268 different patients received CT at the ODW over two months, amounting to over 879 visits. 64% of patients were women; 61% were aged 51-70 years. Treatment for gastrointestinal malignancies accounted for 38% of visits,

followed by breast (26%), lung (13%), gynaecological (12%) and genitourinary cancers (6%). The most commonly administered chemotherapeutic agents were weekly 5-fluorouracil (23%) and gemcitabine (13%). 55 patients received TT over 142 visits. Administration of trastuzumab accounted for 90% of these visits, while bevacizumab accounted for 10%.

Conclusion: This review provides a valuable insight into current practice and acts as baseline for future audits. With increasing service demands, we need to explore ways of making treatment delivery more efficient in order to sustain growth. Oral and subcutaneous drug formulations will allow us to deliver the same treatments utilizing fewer resources.

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Mechanism of sternotomy dehiscence

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Introduction: Biomechanical modelling of the forces acting on a median sternotomy can explain the mechanism of sternotomy dehiscence, leading to improved closure techniques.

Methods: Chest wall forces on 40 kPa coughing were measured using a novel finite element analysis (FEA) ellipsoid chest model, based on average measurements of eight adult male thoracic computerized tomography (CT) scans, with Pearson's correlation coefficient used to assess the anatomical accuracy. Another FEA model was constructed representing the barrel chest of chronic obstructive pulmonary disease (COPD) patients. Six, seven and eight trans-sternal and figure-of-eight closures were tested against both FEA models.

Results: Comparison between chest wall measurements from CT data and the normal ellipsoid FEA model showed an accurate fit ($P < 0.001$, correlation coefficients: coronal $r = 0.998$, sagittal $r = 0.991$). Coughing caused rotational moments of 92 Nm, pivoting at the suprasternal notch for the normal FEA model, rising to 118 Nm in the COPD model (t-test, $P < 0.001$). The threshold for dehiscence was 84 Nm with a six-sternal-wire closure, 107 Nm with seven wires, 127 Nm with eight wires and 71 Nm for three figure-of-eights.

Conclusion: The normal rib cage closely fits the ellipsoid FEA model. Lateral chest wall forces were significantly higher in the barrel-shaped chest. Rotational moments generated by forces acting on a six-sternal-wire closure at the suprasternal notch were sufficient to cause lateral distraction pivoting at the top of the manubrium. The six-sternal-wire closure may be enhanced by the addition of two extra wires.

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Biological scaling in the heart : A study of sizing in physiological pressure vessels

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Introduction: Hollow organs, functioning as pressure vessels, obey Laplace's Law. The adherence of hollow organs to Laplace Law's predictions is a measure of mammalian internal organs' efficiency in functioning with economic regulation.

Methods: The laws governing pressure vessels can be applied to hollow organs in the body that are subject to distending pressures, in order to assess the relationship between the mass of the pressure vessel and its surface area, its volume of content, the mass of the body and its pressurization energy, and by the principle of conservation of energy, between mass of the heart and cardiac output, and between wall thickness and radius. A literature search, identifying heart and lung data across different mammalian and bird species, was used to generate allometric relationships to assess the validity of these observations.

Results: Near isometry exists between mass of body and mass of pressure vessel and between pressure vessels and their contents e.g. mass of heart and end–diastolic volume and mass of lung and lung volume. Isometry has been demonstrated between heart mass and cardiac output in small animals.

Conclusion: Mammalian hearts have reached the physical limit of Laplace's Law indicating a high degree of efficiency in pressure vessel mechanics. The heart operates at the minimum mass necessary to maintain structural integrity, demonstrating a high degree of symmorphosis. Cardiac output decreases in larger animals due to a relatively negative aortic cross-section allometry, matched to the basal metabolic rate, which may lead to turbulence within the aorta on exercise.

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e-Referral system in oncology

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Introduction: For years, referrals to the Oncology Department involved writing a referral or consultation note, and then sending it by hand or faxing it. This often caused delays and paper trail proved difficult to track. In early 2014, a government email address was created and a memo sent to all health departments introducing this electronic referral system. The aim of this audit was to assess the implementation of this new system, assess any concerns and create a template for future referrals

Methods: All referrals received at the oncology department between May 26th 2014 and June 9th 2014 were identified and reviewed. Information on patient demographics, medical carer details, past medical history, current plans, diagnosis and staging was noted.

Results: 54 referrals were sent in total to the Oncology Department during the two week period. 52 referrals were electronic. Information on patient demographics was complete in 59% of referrals; medical carer details were present in 62%. 20% of referrals included information on medical history and treatment plans; diagnosis and staging was present in 44% of referrals .

Conclusion: There was an excellent uptake of the e-referral system. However, important information was missing from several referrals and this could result in delays to the process. A template has been designed to streamline future referrals and facilitate the process.

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An update of acute oncology guidelines

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Introduction: Oncology is a complex area requiring specialist knowledge in cancer therapeutics. In the onset of unexpected complications, the cancer patient is likely to present to our general hospital for immediate management. For the casualty physician, appropriate support is needed to improve patient outcomes in the acute setting. To determine whether this was the case, a question based survey was carried out amongst trainees in the Department of Medicine and Casualty. The conclusion was a lacunae in the acute oncology service, in terms of clinical practice guidelines. Subsequently the following guiding documents were designed; hypercalcaemia of malignancy, superior vena caval (SVC) obstruction and malignant spinal cord compression (MSCC). A clinical

practice guideline was already in place for febrile neutropenia. All three emergencies listed are potentially treatable, if this is immediate, appropriate and sequential. These guidelines are intended to assist on the initial assessment, investigation and streamline management of patients. They are however not intended as a substitute for specialist oncology input but to disseminate a framework for homogenous and evidence based clinical practice for the clinicians concerned.

Conclusion: Adoption of these guidelines will allow widespread implementation of up to date and evidence based oncology protocols, assist in the provision of consistently high standard of care in the local setting and improve patient outcomes and survival.

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Determinants of road courtesy in Malta: a prerogative of gender, age and car size

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Introduction: Courtesy on busy Maltese roads is not always evident but is it dependent on or influenced by, for example, driver and car characteristics?

Methods: Courtesy was defined when a driver with the right of way 'allowed access' to another, 'secondary' car onto a main road leading to a congested roundabout, whereby 'courteous passage' was the only reasonable means of access. The same car (class2, 17.5yrs in poor condition), with one driver (SAM, 50+) and passenger (EAM, 17yrs), approaching the same junction at 0730hrs±15min on school days was used as the secondary car. Details of all cars that refused or allowed access, their drivers' gender and age (to nearest 10yrs), accompanying passengers and weather were recorded by EAM onto a proforma, standardised after a weeks' pilot trial. Cars were grouped according to the British Vehicle Classification.

Results: Records from 88 schooldays over 6 months resulted in 141 refusals plus 44 courteous passes (analysed), and 46 access events through gaps in traffic or via known acquaintances (not analysed). Gender, age, weather and passengers had no bearing on road courtesy, if analysed independently. Courtesy was significantly enhanced with family saloons (Gp4-6) when compared with small cars (Gp1-3, p=0.04), and luxury or work vehicles (Gp7-11, p=0.009), especially in those with male drivers (p=0.01) aged 40+ (p=0.04). Drivers of large and work vehicles, mostly male (92%), were significantly less courteous, p=0.04.

Conclusion: Males over 40 years driving family saloons were the most courteous, whilst luxury cars, trucks, buses and vans were the least likely to afford courteous access.

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How much anatomy do medical students remember?

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Introduction: Pure anatomy teaching at the University of Malta is completed by the second year, and is not formally revisited later. This study aimed to determine the extent of anatomical knowledge retention in each year of medical school.

Methods: Participating students, recruited from the first to the final year of medical school, submitted voluntarily to a best of four multiple-choice test, consisting of 99 clinical and non-clinical anatomy questions spanning all principal body regions, under examination conditions.

Results: 239 students enrolled in the study. Overall, second year students scored lowest (56.6%), with progressive improvement noted with clinical exposure in the third (63.0%) and fourth (64.2%) years; p=0.0264. Knowledge of thoracic anatomy improved in the clinical years ($p < 0.0001$), limb anatomy improved in the clinical years following an initial decline after first year (upper: $p = 0.0166$; lower: $p = 0.0022$), gastrointestinal ($p = 0.1155$) and neuroanatomical ($p = 0.5818$) knowledge levels were largely unchanged, whilst knowledge of renal and reproductive anatomy declined between first and second year students, before plateauing ($p = 0.0110$).

Conclusion: Our results largely support the traditional teaching method currently employed. This whilst raising questions on the clinical relevance of content taught in various body regions, and supporting the relevance of an all-encompassing final anatomical exam at the end of the preclinical years.

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The grey area: self-evaluation of performance in medical students at the University of Malta

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Introduction: Precise self-evaluation and a keen insight into one's performance and limitations are essential in medical practice. We sought to assess the accuracy of medical students' assessment of their own performance in a written clinical anatomy test.

Methods: Participating students, recruited from the first to the penultimate year of medical school, submitted voluntarily to a best-of-four multiple-choice test, consisting of 99 clinical and non-clinical anatomy questions spanning all principal body regions, under examination conditions. They were then asked to estimate their score. Unpaired t test and ANOVA were used for initial statistical analysis.

Results: 189 students, 89 (47.1%) male, participated in the study. 139 (73.5%) were Maltese nationals, whilst 34 (17.9%) and 16 (8.4%) were European and other international students, respectively. Overall, students underestimated their true performance by 16.2±15.2% (mean±SD), with no improvement in accuracy of self-evaluation noted along the course of study ($p = 0.7560$). Female students tended to underrate more than their male counterparts (19.1±13.9% vs 12.8±16.0%, $p = 0.0048$), despite no difference in actual score ($p = 0.1527$). Non-Maltese European students estimated the furthest below their actual score (22.9±9.5%), with Maltese (15.7±15.8%) and other international (5.3±12.8%) students showing more insight (p=0.0005).

Conclusion: Students failed to correctly evaluate their performance in a simple written anatomy test. It needs to be determined whether this lack of insight also extends to practical examinations as well as clinical skills. This may demonstrate the need for targeted non-technical skills training in medical school and beyond.

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A model study investigating the minimization of deflation in cadaveric bulbi oculi via the identification and treatment of major anatomical leakage sources

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Introduction: Owing to the cessation of physiological processes upon death and ineffective preservation techniques, cadaveric bulbi oculi become deflated. As a result, ophthalmic surgery tuition centers are resorting to the use of fresh animal eyes to aid students in mastering ocular surgical techniques. The objectives of this study are to classify anatomical sites of major fluid leakage in cadaveric bulbi oculi and identify ways of minimizing them.

Methods: A total of 3 ml of coloured isotonic saline was injected into the vitreous humour of four bovine eyes. The major leakage sites were marked and cauterized using a soldering iron. Saline was re-injected to re-assess leakage sources.

Results: During the first test, in which the ocular muscles were removed, leakage occurred from the posterior aspect close to the initial injection site, optic nerve and ophthalmic vessels. Minimal leakage from the posterior scleral veins was noted. No leakage from the anterior aspect of the eyeball was observed. Deflation was visible 60 minutes post-injection. During the second test, in which the ocular muscles were intact, leakage was much less compared to the previous test. The most visible leakages were attributable to the area around the injection site, however the area around the optic nerve has shown minimal leakage over the same time period. The bulbi oculi remained significantly inflated for 90 minutes. No visible leakages were observed after cautery.

Conclusion: The investigation of fluid injection and cautery of all leakage sources has shown a favourable outcome in devising an optimal preservation technique for the cadaveric eye.

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A case of internal carotid artery thrombosis associated with thalidomide administration in multiple myeloma

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Introduction: The use of thalidomide in multiple myeloma (MM) in combination with other chemotherapeutic agents at induction has led to remarkable rates of remission. However, thalidomide is known to cause teratogenicity, neuropathy, venous thromboembolism, and rarely arterial thrombosis. We report the case of a 45 year old lady who was diagnosed with MM after presenting with anaemia and thrombocytopenia. Serum protein electrophoresis and immunofixation demonstrated hypogammaglobulinaemia and an IgG lambda monoclonal band. Her serum free light chain k/l ratio was abnormal at 0.001 (N: 0.26-1.65). A bone marrow trephine biopsy revealed a nodular infiltrate of plasma cells. She was started on thalidomide, cyclophosphamide and dexamethasone with lower molecular weight heparin as prophylaxis for thromboembolism. A week later, she developed sudden right hemiparesis, right facial paralysis and expressive aphasia. Ultrasound doppler revealed left internal carotid artery occlusion, and magnetic resonance imaging confirmed left cerebral hemisphere infarction. She had no cardiovascular risk factors while her vasculitic and thrombophilia work-up were unremarkable. She was prescribed an antiplatelet and started on a rehabilitation programme. Thalidomide and cyclophosphamide were switched to bortezomib and dexamethasone.

Conclusion: While venous thrombosis as a complication of thalidomide therapy has often been described, arterial thrombosis is rare. The prothrombotic state in MM and the properties of thalidomide predispose patients to both arterial and venous thrombotic events. Our index patient succumbed to the former despite the absence of other risk factors. It is yet unknown as to why this complication occurs despite the administration of anticoagulant prophylaxis.

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5-Fluorouracil-induced acute cerebellar syndrome: a case report

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Introduction: A 74-year old gentleman presented to the Emergency Department with sudden onset of constipation and distension. On computed tomography (CT), he was found to have a tumour in the descending colon with liver metastases. A left hemicolectomy was carried out and histology revealed moderately differentiated tubular adenocarcinoma. Despite 43 cycles of 5-fluorouracil (5-FU) and a further 24 cycles of 5-fluorouracil and folinic acid (5-FU/FA), carcinoembryonic antigen (CEA) levels still kept increasing, indicating progressive disease. Therefore, palliative folinic acid, 5-FU and oxaliplatin (FOLFOX regimen) was started. After the tenth cycle of FOLFOX, the patient presented with a one-week history of unsteady gait and dysarthria. On examination, Romberg's and heel-to-shin tests were positive. Dysdiadochokinesia and past-pointing were more pronounced on the left than on the right. A wide-based unsteady gait and slurred speech were noted. CT brain showed no new metastatic changes. FOLFOX chemotherapy was stopped and the patient was referred to the neurology outpatients' clinic. Antibodies against the IgG anti-neuronal nuclear autoantibody ANNA-2 (anti-Ri), Purkinje cells (anti-Yo) and Hu proteins (anti-Hu) were negative and physiotherapy was started.

Conclusion: The patient was reviewed after four weeks of regular physiotherapy sessions. He was walking steadily and his speech was normal. An improvement in coordination was also noted. Chemotherapy was withheld and the patient continued to be followed up by the neurologists. This case highlights the importance of careful assessment of all patients on chemotherapy in order to identify complications as early as possible.

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The background to teaching anatomy from first year medical students' perspective: a review of the approach taken and an analysis of the results

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Introduction: Peer-education is an alternative teaching technique that utilizes students' perspective to facilitate the delivery of information to their fellow peers. The exam performance of medical students being taught anatomy through conventional methods was compared to that of peer-teaching to consider its efficacy.

Methods: After obtaining the required knowledge, students substituted the professor in lecturing their cohort using cadaveric specimens. The peer-teachers delivered a video-aided lecture indicating structures of the specimens in vivo, in an approach that, based on the peer-teachers' experience, facilitated student comprehension. This was followed by small group sessions to aid the students with difficulties and reinforce the material through individual testing. Practical exam results of the peer-educated semester were collected and compared to those obtained under traditional lecturing techniques.

Results: Results obtained in the second semester of 2011/12 were significantly lower than those of the first semester (8.26%, $P<0.001$). The difference in results achieved in 2012/2013 were also lower than the first semester (1.46%, $P>0.05$), however the decline was found to be insignificant. In contrast,

during the year of peer-education (2013/14), students' exam performance improved significantly by 2.60% ($P<0.05$) in the second semester when compared to first semester. Therefore results show that the students who underwent peer-teaching performed better in examinations than those who were taught through conventional teaching techniques.

Conclusion: Although many factors need to be taken into account when comparing teaching techniques, the introduction of peer-teaching coinciding with improved student performance is a finding that should not be overlooked.

The use of immunotherapy for the treatment of canine cancers following surgery

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Introduction: With approval from the Animal Welfare Council, this research aims to create vaccines directed at specific tumours using dogs' own tumour antigens, which are retrieved in the laboratory from the excised tumour. The hypothesis is that when these vaccines are administered in conjunction with another vaccine (the 7-in-1), they encourage the dogs' own immune system to mount an immune response against the tumour antigens given in the vaccine, and thus against the tumour itself.

Methods: The primary tumour is removed surgically and tumour tissue is taken from it as the source of tumour antigens. The tumour tissue is exposed to both microwaves and enzymatic digestion for antigen retrieval in the laboratory, and filtration sterilization is used to obtain the final vaccine. The vaccine is then administered to the dog with informed consent from the owner, and the dog is monitored for signs of progression of disease or recurrence.

Results: Results so far have not shown any serious side effects, and no recurrence of tumours has been reported as the dogs continue to be followed.

Conclusion: This study may provide in future, a relatively safe option for fighting tumours using a specific, personalized and relatively economical method to control tumour spread and recurrence.

Disclosure: This research is carried out with approval from the Animal Welfare Council.

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Are medical students getting better at passing examinations in the basic medical sciences?

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Anatomy department

Introduction: The aim of this study was to investigate the examination success rate of local and international students in the biomedical sciences.

Methods: The anonymized actual exam results of each study unit in the first and second years were obtained from SIMS for four academic years from 2010/11 to 2013/14. The average marks and number of failures per study unit were analysed by nationality.

Results: The average mark for all students in all study units between 2010/11 and 2013/14 was 61.6% (SD 8.1), with no significant difference between Years 1 and 2 over the study period. The average mark in the practical exam which covers only anatomy was significantly higher at 68.9% (SD 8.7). The average Year 2 practical mark was almost 6% lower than that of Year 1 reflecting the greater difficulty of the examinations. Students fared best in the respiratory and renal systems, and worst in head and neck and neuroanatomy. The proportion of students failing any exam halved between Year 1 and Year 2, reflecting the maturity of students. Local students fared significantly better than international students in most subjects as the mean number of local students failing any exam in any year was 16 versus 66 for international students.

Conclusion: The ability of medical students to successfully pass biomedical sciences examinations did not change significantly between 2010/11 and 2013/14. However, international students fared significantly worse, suggesting that language, cultural adjustment and psycho-social issues still need to be addressed.

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Attitude of Medical Students Towards Game-Based Learning of Anatomy

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Introduction: Game-based learning has come to prominence as new tools are now available to aid students learn and memorise concepts for a variety of subjects. Games are known to add fun to the process of learning while promoting understanding and retention of the subject. The purpose of this study is to survey attitudes of medical students towards gamifying the learning and recall of anatomy.

Methods: An anonymous questionnaire was circulated online to all Year 1 medical students at the University of Malta in 2014/15.

Results: 35 students responded (18%), of whom 25 (71.4%) were female, and 25 (85.7%) were local. Just over half (52.4%) had ever used games while studying anatomy, but in the majority of cases, the games were simple flash cards (81.2%). Among the majority of respondents (83.3%) who agreed that games are beneficial to student learning, 76% preferred quiz style games to help them in their studies. The vast majority of Year 1 medical students surveyed felt that games could be useful for testing existing knowledge (97.6%) as well as for teaching new concepts (88.1%).

Conclusion: Anatomy is a visual science, which encourages the use of game-based learning. The use of serious games for learning and recall of anatomy is perceived as valuable by medical students at the University of Malta. Our next step is the local development and testing of a game to provide an effective learning solution in the context of the current educational environment.

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Learning anatomy through "Peer Teaching" in medical school: a literature review

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Anatomy Department

Introduction: Medical schools in the twenty first century, have undergone drastic changes in their teaching methodologies worldwide, more specifically in the teaching of anatomy. The main goal of any educational institution is the transfer of knowledge from educator to student in an effective manner. This review attempts to bring together the different teaching methodologies used in medical schools in this new era. Medical institutions have a wide variety of different approaches in teaching anatomy. Tradition dictates that cadaveric dissection and prosected specimens are the gold standard in providing medical students a solid foundation upon which they can build their knowledge and understanding. However, some medical schools use other educational tools, such as anatomical models, computer programs and medical imaging. Moreover, the recent introduction of non-conventional teaching techniques such as problem based learning, encourage cognitive thinking, teamwork and professionalism. Peer teaching is an innovative way of education, and it's success is thought to lie in cognitive congruence; having shared learning experiences and capabilities, cognitive congruence allows students to ask questions in confidence and make any clarifications, without fear of being judged. Other advantages include, enhanced teamwork and communication skills, for both the peer teacher and the students being taught.

Conclusion: When viewing the whole spectrum of teaching tools and learning techniques, there are none that appear to be more superior to others, but rather that they should be used in conjunction with one another, in order to enhance learning.

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The GoPro® Action Camera in the Operating Theatre - A New Method of Teaching Medical Students

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Introduction: The GoPro® Hero device is an action camera used for recording high definition footage of extreme sports, underwater photography and slow motion videos. We used a head-strapped model to record 10 operations in high resolution for the purpose of teaching medical students.

Methods: A GoPro® camera with a head-strap and bayonet mount was used in theatre. Wireless connection allowed the operation to be followed in real-time on student smartphones and tablet-devices. A dedicated software application allowed students to slow down periods of the operation to 240 frames per second, allowing for precise understanding of each operative step.

Results: 10 operations were recorded. 90% of students reported full understanding of each operative step. 75% reported improved learning based on the slow motion function of this camera. 90% confirmed enhanced visualisation of the operation when compared to traditional teaching methods ('looking over the surgeon's shoulder'). 100% would recommend employing this method for future teaching classes.

Conclusion: An anonymised questionnaire yielded positive results from attending students, suggesting that this equipment may become a popular intra-operative teaching device.

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A theoretical understanding of the Postgraduate Hospital Educational Environment Measure questionnaire

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Introduction: Human environments can be theoretically conceptualised as constituting dimensions grouped into three broad domains: goal orientation, relationships and organization/regulation. The clinical learning environment (CLE) is a complex interaction of physical, social and relational factors that is a major determinant of the quality of education and clinical care. Its evaluation is primarily through measurement of 'climate', the perceptions of those exposed to the environment. The Postgraduate Hospital Educational Environment Measure questionnaire (PHEEM) is a 40-item questionnaire commonly used to measure the CLE. Factor analysis allows identification of underlying constructs. As such, it may support a theoretical basis for the PHEEM

Methods: The PHEEM was administered to 73 trainees (response rate 65.2%). Analyses was by primary component analysis (PCA) with orthogonal rotation (varimax) using Hatcher's interpretability criteria. Kaiser Meyer Olkin Measure of Sampling Adequacy was 0.749, showing adequate characteristics for analysis.

Results: The final 5 factor model retained 27 variables. Factor 1 accounted for most of the model variance (37.67%). This included primarily variables relating to the quality of teachers and teaching/training. Factor 2 related to training environment, Factor 3 to training support, Factor 4 to organization of the work environment and Factor 5 to the environmental culture.

Conclusion: This study is limited by its small sample size but psychometric properties were adequate to allow analyses. The PHEEM measured primarily teaching/training and teacher qualities but also identifies other factors relating to the affective aspects of the environment and its' organization. Thus, the PHEEM reflects theoretical conceptualisation of human environments.

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A survey of the climate of professionalism in one institution

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Introduction: Professionalism represents the set of values, attributes and behaviours that is the basis of trust between the profession and society. Measurement of the demonstrations of behaviours that reflect these concepts are important because they allow for a measure of the learning environment. The UMKC-SOM climate of Professionalism instrument (UMKC-SOM) gives a measure of the perception of the frequency of professional behaviour and of the teaching of professionalism. This incorporates 46 Likert items (scored 1-4) subdivided into 2 subscales, 'Professionalism Behaviour' (PB) and 'Teaching of Professionalism' (ToP). The scale assumes that items are summative.

Methods: The UMKC-SOM was used to measure the climate of professionalism in one institution. The UMKC-SOM was completed by 37 trainers (response rate 35.2%) and 64 trainees (response rate 53%).

Results: The combined (trainee and trainer) overall (PB and ToP)scorewas139.25(95%CL135.92142.59)(75%oftotalpossible score). There was no difference between trainees and trainers. The combined PB score was 110.57 (95% CL 108.20112.94) (76.8%) with no difference between trainees and trainers. The combined ToP score was 29.87(95% CL 28.35-31.38) (74.7%). However, trainers (32.36 {95%CI 29.97-34.74}) rated themselves higher for ToP than did trainees (28.46{95%CI 26.55-30.36}) (p = 0.013). Differences for some individual item scores for PB existed between trainers and trainees, indicating differences in the perceptions of each other's behaviours.

Conclusion: This study suggests a reasonable measure of the climate of professionalism in one institution. However, trainers may not model or teach professionalism as well as they think they do.

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Outbreak of invasive group A Streptococcus in a nursing home, Malta, June 2015

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Introduction: In June 2015 we were notified of a fatal case of invasive Group A Streptococcus (iGAS) in an elderly patient who had been admitted to MDH from a nursing home. Upon further investigation, it was found that another resident from the same nursing home had died in May 2015 due to iGAS infection. The cases resided in adjacent rooms in the home but did not interact with each other. We launched an outbreak investigation to identify the source of infection and prevent further cases.

Methods: Urgent meetings were held with the nursing home staff and the following measures were implemented:Strict hand hygiene policy amongst staff/visitors; Terminal cleaning with bleach of the affected ward; Throat swabs of staff involved in wound care management, of staff assigned to the affected ward and residents sharing same room with the cases; Swabbing of any staff/residents with symptoms of GAS infection including sore throat and skin infection/wounds; Monitoring of staff/residents for symptoms of GAS infection.

Results: A total of 22 staff members and 9 residents were swabbed during the 1 month of enhanced surveillance. None were positive for GAS.

Conclusion: This outbreak highlights the importance of increased awareness of GAS infections amongst healthcare staff and of strict hygiene protocols to prevent person-to-person transmission. This is especially important where immunocompromised and elderly patients are involved owing

to the high mortality rate. Guidelines are currently being drafted with an aim to improve notification, management and treatment of iGAS cases and their close contacts.

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"Shielded from death": The lived experience of Maltese men who have an implantable cardioverter defibrillator

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Introduction: An implantable cardioverter defibrillator (ICD) is an effective way to prevent sudden cardiac death in patients who are at high risk of suffering from ventricular arrhythmias (abnormal heart rhythms). However there is a lack of literature exploring patients' experiences with ICD both locally and on an international level. The aim of this study was therefore to explore the lived experiences of people who went through this procedure and are living with an ICD.

Methods: A qualitative approach was adopted to achieve the aim of the study. Five Maltese male participants with ICD were recruited through purposive sampling. Data was collected through audio recorded indivdual semi-structured interviews. Data was analysed using interpretative phenomenological analysis.

Results: From this analysis, five major themes emerged: 'To live or to die; Life before implantation' , "My new life"; Living with the ICD, "Keep calm and carry on"; Coping with the ICD', 'Finding Support' and 'The experience of an Improved Quality of Life: Benefits of ICD?'.

Conclusion: This study revealed how after ICD, participants reported an improvement in their quality of life. However, they described negative emotions that arose post-procedure along with the various coping mechanisms used which included optimism, spirituality and overall acceptance of the device. Moreover, psychosocial and medical support were deemed as crucial both before and after the procedure. Longitudinal psychosocial research, using parallel qualitative and quantitative methods, are necessary for a better understanding of the patient's experiences. Future psychosocial interventions in clinical practice are critical to ameliorate the lived-experience and quality of life.

P.178

Lung function in fuel station attendants: a comparative study

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Introduction: Volatile fuel compounds and roadway motor vehicle exhaust are the major sources of a hazardous environment for full time fuel station attendants. The aim of this study was to infer whether fuel station attendants manifest a further decrease in lung function when compared to other full-time workers working outdoors and whether smoking tobacco manifest a further decrease in lung function among attendants.

Methods: Lung function of 30 fuel station attendants (28.6 ± 6.24 years) was compared to 30 outdoor workers (27.53 ± 5.59 years) as control group via spirometry. Half of both exposed and control group consisted of participants who smoke tobacco. All participants were Caucasian males.

Results: Results showed a statistically significant decrease in FEV1, FVC and FEV1/FVC ratio in the exposed group when compared to the control (FEV1 78.84 ± 7.19% of predicted vs 87.97 ± 8.32% of predicted, p< 0.001; FVC 85.84 ± 7.00% of predicted vs 90.24 ± 9.41% of predicted, p = 0.02; FEV1/FVC ratio (76.28 ± 4.72% vs 81.15 ± 4.31%, p< 0.001). Fuel station attendants who smoke showed a significant drop in lung function when compared to non smoking attendants (FEV1 75.38 ± 4.31% of predicted vs 81.74 ± 8.18% of predicted, p 0.006; FVC89.93 ± 5.43 % of predicted vs 88.75 ± 7.34 % of predicted, p = 0.01).

Conclusion: More research is needed to further shed light on the exposure hazards that fuel stations attendants face.

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Audit on head injury discharge advice in neuro-surgery

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Introduction: NICE guidelines on Head Injury state that patients with any degree of head injury are to be given verbal and *printed* discharge advice. This includes:
- Details of nature and severity of injury
- Contact details relevant medical services
- Risk factors alerting patient to return to A&E
- Details about recovery process
- Information about return to everyday activities

Methods: We audited the discharge advice present in all the discharge letters (case summaries) of the patients admitted under Neuro-Surgical care with a head injury in 2014. Our study contained 99 patients and apart from individual risk factors, details about the recovery process and information about return to daily activities, we also took into consideration the patients' gender, ITU admission and the cause of the injury. The NICE clinical guideline 176 was used as the standard for the discharge advice typed.

Results: Any mention of head injury advice was only present in ten (17%) discharge letters with mention of individual risk factors even lower (eg. headaches, vomiting <10%; amnesia 0%). Details of the recovery process were more infrequent (2%).

Conclusion: Improvement in printed head injury advice is needed. A readily available pre-set template on the Electronic Case Summary software that includes all the advice aduited is suggested. Thus, at just the click of a button, all the necessary discharge advice will be available in a printed format to be given to the patient on discharge. Detailed guidelines on head injury discharge advice is lacking locally and this audit aims to fill this current locum.

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Use of online forms for patient data sheet inputting in Maltese health centres A quality improvement project

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Introduction: Information technology is essential in administrative and clinical data management. Patient demographic details and reason for encounter are currently inputted by health centre doctors in a handwritten format

Methods: The aim of this pilot project was to analyse the feasibility of switching from a handwritten to an online electronic system which includes additional data fields related to the presenting encounter including International Classification of Primary Care (ICPC) coding. Data of patients walking in health centres were anonymously recorded by 3 doctors working 48 hours a week at the 3 main (Mosta, Floriana, Paola) health centres between the 13th of October and the 11th of January.

Results: An online input sheet was designed via Google® Sheets® whereby timestamp and username were automatically generated on inputting data. The sheet also notified the user if important data such as whether the case was urgent, referred or a police case. A total of 1063 records were inputted and viewed in a database generated by the programme. The project showed that the

system ensured a fast alternative offering legibility, thorough inputting and automatic statistical analysis.

Conclusion: A similar system in health centres will assist in auditing current practice and resource management according to changing needs and demand.

P.181

The experience of general practitioners with elderly patients with osteoarthritis

Doriella Galea

Introduction: Osteoarthritis is a degenerative condition commonly effecting elderly patients in the community. There is a "demographic transition" leading to an aging population. The aim of the study is to perform a qualitative assessment about how general practitioners (GPs) look at osteoarthritis, its effects on patients' lives as regards to the biopsychosocial model. The aim is to analyse the GPs' perspectives about the local available sources and any possible improvements.

Methods: Interpretative phenomenological analysis (IPA) was used as it allows to discover the details of each individual GP. Two GPs who have been practising for more than 5 years within the community where selected on a first come basis. Snow balling was used to recruit two others. Semi-structured interviews were then conducted transcribed and analysed.

Results: There was a common feeling that dealing with such a common disease is challenging within the community and there is a need for a specialised osteoarthritis clinic in the community to cater for all these patients' needs via a multidisciplinary team. The need for a holistic approach was agreed amongst all the participants.

Conclusion: Osteoarthritis is a common, challenging condition which is treated by GPs. Being multi-faceted; input from other professionals is required ideally in specialised clinics.

Disclosure: Masters supported by Master IT

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Twin-twin transfusion syndrome - a case study

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Introduction: Twin-Twin Transfusion Syndrome (TTTS) can occur in 8-10% of twin pregnancies with a monochorionic, diamniotic (MCDA) placenta. We present a case of Twin-Twin Transfusion Syndrome, followed by Chorioamnionitis.

Methods: Through sonographic evaluation early on in the pregnancy, nuchal thickening was noticed in one of the twins. The mother was closely monitored thereafter and at 16 weeks, TTTS was diagnosed. She was thus sent to the UK for fetoscopic laser photocoagulation of the placental anastomoses, and the growth of the twins stabilized. At 28 weeks, however, she was re-admitted with fever and spontaneous rupture of membranes, in which the liquor had a greenish colouration. Cardiotocography showed foetal distress and the patient underwent emergency Caeserian Section under general anaesthesia.

Conclusion: The twins were delivered with very poor oxygenation potential but despite this, one of them survived.

P.183

An unusual case of middle aortic syndrome

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Introduction: Middle aortic syndrome is a rare disease with only two hundred cases reported in the literature. It is also known as coarctation of the abdominal aorta or abdominal aortic hypoplasia. It may present clinically as uncontrolled hypertension, lower limb claudication or abdominal claudication. Surgical treatment is known to offer effective symptomatic relief an improves life expectancy.

Methods: Keywords: Middle-aortic syndrome, Abdominal aortic coarctation, Hypertension, Lower limb claudication, Aorto-aortic bypass were used in a PubMed-generated review of the literature.

Results: Two hundred other cases pertinent to our study were generated.

Conclusion: Mid aortic syndrome or Middle aortic syndrome (MAS) is a rare condition that may be congenital or acquired affecting the abdominal aorta in children and young adults. It is characterised by a narrowing of the distal thoracic and/or abdominal aorta and its branches. It is also referred to as 'Abdominal aortic coarctation'. We present a case of mid-aortic syndrome in a 58 year old Moroccan gentleman diagnosed at Mater Dei Hospital's Cardiothoracic Unit, Malta. Our case was unusual due to its association with a bicuspid aortic valve, a single (left) common carotid artery and such a late presentation.

P.184

Prolonged withdrawal of anti-parkinsonian treatment and enteral feeding resulting in a neuroleptic malignant syndrome

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Introduction: Neuroleptic malignant syndrome (NMS) is an adverse reaction reported to occur with pharmacological agents active on the central dopaminergic system.

A 69 year old male suffering from Parkinson's disease on nasogastric tube (NGT) feeding presented to our rehabilitation hospital after being treated for aspiration pneumonia in an acute hospital setting. His treatment included co-careldopa 110mg six times daily, ropinirole 2mg three times daily and amantadine 100mg daily. Intravenous antibiotics were administered, and a percutaneous endoscopic gastrostomy (PEG) tube was inserted since the patient was non-compliant with NGT placement.

After starting continuous feeding he became increasingly dependent and was febrile, with increased rigidity in all four limbs. C-reactive protein levels peaked at 160mg/l and creatine kinase (CK) levels were 1931U/l. The clinical picture was indicative of NMS, meeting all 3 major Levenson's criteria (fever, rigidity, elevated CK).

The feeding regimen was altered so that levodopa was taken an hour prior to bolus feeding and amantadine was re-started. Thereafter he made noticeable clinical improvement with CK levels declining steadily.

Conclusion: The patient had missed 16 doses of co-careldopa and 8 doses of ropinirole over 7 days due to issues with proper NGT placement. Amantadine doses were missed for 17 days due to drug unavailability. Moreover levodopa was administered concurrently with feeds resulting in reduced drug absorption. The case highlights the importance of timely and adequate therapy in patients with Parkinson's disease as prolonged drug withdrawal and drug-feed interactions can lead to potentially life threatening NMS.

P.185

Case report: intussusception with Meckel's diverticulum in a 3 year old with Edward's syndrome

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Introduction: We describe a child with trisomy 18 aged 3.5 years who developed bowel obstruction due to an intussuscepting Meckel's diverticulum who, despite underlying problems including established pulmonary hypertension, tolerated anaesthesia and surgery and recovered well after corrective intervention. Whilst Meckel's diverticulum is a widely reported finding in patients with Edwards syndrome and is a known cause of intussusception, the incidence of intussusception in such

patients is unknown. Most foetuses with Edwards syndrome die during the embryonic and foetal life. However, a small number of children with trisomy 18 survive beyond their first year of life. Knowledge about the clinical picture and on the prognosis of Edwards syndrome patients is of great importance with respect to neonatal care and the decisions about invasive treatments. The possibility of long-term survival should be considered when counselling parents regarding trisomy 18.

Conclusion: Whilst Meckel's diverticulum is a widely reported finding in patients with Edwards syndrome and is a known cause of intussusception, the incidence of intussusception in such patients is unknown. This is likely the result of several factors. Firstly, the majority of infants with Edwards syndrome die during the intra-uterine period. Secondly, those that do survive birth are often assigned for palliative care with no invasive management and thus succumb to the more serious clinical manifestations of the syndrome, such as cardiac malformations and respiratory difficulties, early in infancy. Of the less than 10% of cases that survive to 1 year, many do so with the help of invasive surgery. Baty et al (1994) reported that at age 1 year, there was an average of approximately 2 operations per living child (4). Knowledge about the clinical picture and on the prognosis of Edwards syndrome patients is of great importance with respect to neonatal care and the decisions about invasive treatments. The speed to have a confirmed diagnosis is important for making decisions about medical procedures. Often, interventions are performed under emergency conditions, without many opportunities for discussion, and they involve difficult medical and ethical issues (2).

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Medical students' plans for foundation training: Malta or UK?

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Introduction: Monitoring the migration of doctors is important to ensure the local health care system remains fully staffed. The aim of this study was to determine the number of medical students who currently intend to complete Foundation training in the Maltese Islands.

Methods: A questionnaire was distributed to all students present during lectures on several occasions between October and November 2014.

Results: The response rate was 50.2%, of whom 56.4% (Year 1), 64.5% (Year 2), 61% (Year 3), 53.6% (Year 4) and 93.1% (Year 5) students aim to commence Foundation training locally. Almost 88% of students provided motives, ranked from most to least frequent: local student, excellent local FY Programme, experience abroad, finances, familiar with Maltese system, International student, opportunities available, and language barrier. There are 185 students in Year 1 (9.7% non-EU; 27% are EU (non- Maltese)), 183 in Year 2 (6.6% non-EU; 31.1% EU), 165 in Year 3 (15.2% non-EU; 21.2% EU), 102 in Year 4 (10.8% non-EU; 11.8% EU), and 112 in Year 5 (10.7% non-EU; 0.9% EU).

Conclusion: As students progress through training, the proportion planning to stay in Malta to complete their Foundation training increases. The high ranking of the Malta Foundation School is a strong motive. Although these results appear to augur well for the near future, the large proportion of non-local students currently in Years 1-3 may shift the balance in 2017-2019.

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Clinical students' perception of their educational experiences (2014-2015)

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Introduction: The aim of this study is to examine students' perception of their undergraduate educational experience at the University of Malta Medical School.

Methods: A questionnaire was distributed to 379 Year 3 to Year 5 medical students who were present during lecture hours between October and November 2014.

Results: There were 196 respondents in total (51.7% response rate). Just over 30% and almost 50% of Year 4 and 5 students respectively felt they were being prepared to become good doctors, down from 68% in Year 3. Almost 90% of students in Years 4 and 5 reported that important clinical skills are not covered in the curriculum, up from 63% in Year 3. Only just over 50% of Year 4 and 5 students reported that the hospital was serving its purpose as a teaching hospital, down from 72% in Year 3. Nearly 75% of clinical students reported that the number of students in their cohort affects the quality of their education.

Conclusion: Students become more aware of the skills and knowledge required of a good doctor when they start their clinical years. Despite the extensive clinical exposure, the majority of Year 4 and 5 students still feel unprepared for the world of work. Efforts to make the clinical learning environment more student-friendly and increase the time allocated for clinical skills teaching is essential to compensate for the increasing number of medical students.

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Rib angulation

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Introduction: Optimal design in pressure vessels has resulted in filament-wound pressure vessels constructed of filaments bound within a matrix, resulting in high-strength, lightweight pressure vessels. Since the properties of reinforcing fibers in pressure vessels are highly direction-specific, the reinforcing fibers are optimally loaded along their length. This implies that ribs should also be oriented in the load direction. Rib angulation was investigated to assess whether human ribs behave as efficient struts.

Methods: The angulation of vector forces in the chest wall was measured using of Finite Element Analysis (FEA) computer simulations of a model of the chest wall based on the mean measurements of eight Caucasian male thoracic computerised tomography (CT) scans. A literature search was performed on adult rib angulation. Changes in rib angulation with development were investigated using CT data at different ages.

Results: The FEA ellipsoid model and Gayzik series were statistically significantly correlated ($r=0.753$, $p=0.01$). There was no correlation between the ellipsoid model and Dansereau series (Pearson $r=0.378$ $p=0.281$, t-test $p=0.163$), nor between the two reference series, the Gayzik and Dansereau series (Pearson $r=0.112$, $p=0.758$, t-test $p=0.353$). However the ellipsoid model was within one standard deviation range of the large Dansereau series. Rib angulation increases with age, two-way ANOVA $p<0.001$, and rib level, $p<0.001$.

Conclusion: Human ribs in the adult are angulated close to the resultant chest wall force vectors. This means that human ribs are stable and do not move on coughing. This has important survival implications, due to the survival advantage resulting from ribs functioning effectively as struts.

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Patient survival following renal transplantation in Malta

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Introduction: The Malta National Transplant Register (MNTR) was set up in 1999 and collects information regarding organs harvested in Malta, whether transplanted locally or abroad. The aim of the study was to determine survival of renal transplant patients in Malta and to compare this to Europe.

Methods: All renal transplants registered in the MNTR up to 2010 were followed up to end of 2014 (N=127) through linkage with the mortality register. Crude survival with corresponding confidence intervals were calculated using Kaplan-Meier method.

Results: 1,2 and 5 year survival in recipients of a cadaveric kidney improved from 82.4% (95% CI 68.8 – 90.4), 82.4% (95% CI 68.8 – 90.4), 66.7% (95% CI 51.9 – 77.8) for transplants conducted in 1999-2004, to 87.0% (95% CI 73.2 – 93.9), 87.0% (95% CI 73.2 – 93.9), 77.8% (95% CI 62.7 – 87.4) for transplants conducted in 2005-2010 . 1, 2 and 5 year survival of local recipients of a live kidney for the period 1999-2010 was 96.2% (95% CI 75.7-99.5), 92.3% (95% CI 72.6 – 98) and 88.5% (95% CI 68.4 – 96.1) respectively. In general, crude average survival reported by European Registries for transplants from 2004 – 2008 falls within survival ranges found for cadaveric and live kidney transplants in Malta.

Conclusion: Since 1999, there has been an improvement in the survival of patients receiving a renal transplant in Malta. Considering the small numbers and wide confidence intervals, crude survival of patients in Malta compares relatively well with the available data from other transplant registries in Europe.

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Does it still make sense to define adequate competency as a fixed value: the case for standard setting

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Introduction: Until 2014/15 most examinations in the biomedical sciences consisted of negatively marked True/False questions and short response questions. The aim of this study was to assess the effect of the change in the assessment method to best of four questions in 2014/15.

Methods: The anonymized published exam results of each study unit were obtained from SIMS from 2010/11 to 2014/15. The mean mark and standard deviation for each study unit was calculated for each year.

Results: In 2014/15, there was a significant increase in mean marks in all study units examined by means of best of four multiple choice questions. For example, in the musculoskeletal system (Year 1) the mean mark between 2010 and 2013 was 65% (SD 11.4), increasing to 74% (SD 11.8) in 2014-15. Similarly in the gastrointestinal system (Year 2) the mean mark between 2010 and 2013 was 63% (SD 10.7), increasing to 77% (SD 8.6) in 2014-15. Failure rate for the gastrointestinal system fell from 1.8% in 2010-13 to 0.6% in 2014. In the head and neck module (one of the few units retaining the mixed exam approach), the mean mark for the best of four section was significantly higher at 70.7% (SD 16.5) compared with 58.8% (SD 15.7) for the short answer questions.

Conclusion: Students performed exceptionally well in the 2014/15 examination sessions, suggesting that determining the appropriate Pass/Fail score using standard setting is now overdue.

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Investigating the differentiation of HL-60 cell-lines induced by terpinoid and isoquinoline derivatives

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Introduction: Acute myeloid leukaemia (AML) of the M2 subtype is the commonest type of acute leukaemia in adults, resulting from an arrest of the differentiation of leukocytes at the myeloblastic stage, causing unregulated proliferation. Unlike promyelocytic leukaemia, AML cannot be treated with all-trans retinoic acid (ATRA) due to the lack of the 15:17 translocation. The aim of this experiment was to find an appropriate chemical to be used as treatment in order to stop this unregulated proliferation by inducing eventual apoptosis through differentiation.

Methods: On day 0, the cells were exposed to different chemcials at 1μM and 10μM and allowed to incubate under controlled conditions. On days 3 and 5, the MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) and NBTZ (nitroblue tetrazolium) protocols were followed and the plates were analyzed colorimetrically to obtain results.

Results: Out of the 24 chemicals tested, derivates of terpinoid and isoquinoline showed promising results as indicated by the NBTZ:MTT ratio.

Conclusion: Altough these results offer hope for future patients suffering from AML, further investigations need to be carried out to better assess the adequacy of these chemicals for future treatments.

Disclosure: Chemicals were provided by Bruno Botta, whose lab is part of STEM-Chem COST consortium (CM1106), funded by the EU.

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Prioritisation of Infectious Diseases in Publuic Health

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Introduction: In 2012 the Infectious Disease Prevention and Control Unit (IDCU) conducted an exercise to systematically prioritise pathogens by public health criteria in order to guide surveillance activities and effectively allocate resources for the prevention and control of infectious diseases in Malta.

Methods: A predetermined standardised weighting and scoring system was utilised to rank 77 selected infectious disease pathogens based on 11 public health criteria: Burden of disease (incidence, severity and mortality); Epidemiological dynamic (outbreak potential, trend and emerging potential); Information need (evidence for risk factors/groups); International duties and public attention; Health-gain opportunity (preventability and treatability). For each criterion a numerical score of -1, 0 or +1 (highlighting increasing importance) was given and each criterion received a weight by which the numerical score of each criterion was multiplied. Seventy-eight local experts in infectious diseases were invited to participate in face to face meetings during which feedback on weighting and scoring by pathogen was collected by means of paper-based questionnaires.

Results: Sixty (76.9%) of the experts completed the questionnaires. The total weighted scores ranged from +56.10 (Severe acute respiratory infections/SARIs) to –96.58 (Erysipelas) with the median being -35.67 (Hepatitis

C). SARIs ranked highest followed by AIDS, HIV, Influenza, campylobacter, nosocomial infections and MRSA.

Conclusion: The exercise proved to be a useful tool in directing Public Health effort on the infectious diseases of main concern. The Health Promotion and Disease Prevention Directorate is currently liaising with the relevant stakeholders to develop strategies for the prevention and control of the identified priority diseases.

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The investigations taken when a low vitamin B12 level is found, were studied and noted.

Gordon Muscat[1], Jessica Gauci[1], Martha Grima[2], Nicholas Delicata[3], Gerald Buhagiar[4] [1](optional), [2]

Introduction: Vitamin B12 (B12) is important in many of the body's metabolic processes, and its deficiency has many well known causes and complications. A proper work-up is thus essential when investigating a low B12 level. In this audit B12 deficiency was considered to be B12 levels less than 200 pg/mL.

Methods: A retrospective analysis of the investigations performed on all patients found to have B12 deficiency from January 2014 till June 2014 was done using the Isoft Clinical Manager. The number of patients with B12 deficiency who had associated investigations done were noted.

Results: 21,678 B12 levels were taken in total, of which 1,687 (7.78%) had B12 deficiency. In patients with B12 deficiency, the following number of the following investigations were taken: full blood count: 1667 (98.8%) , folate: 1637 (97.0%), ferritin: 1552 (92.0%) , thyroid stimulating hormone: 1559 (92.4%), T4:1563 (92.6%), anti-intrisnic factor: 62 (3.67%), anti-gastric parietal cell antibody: 120 (7.11%), tissue transglutaminase: 519 (30.8%), calcium: 1176 (69.7%) , albumin: 834 (49.4%), total protein: 656 (38.8%), vitamin D: 76 (4.50%), iron profile: 511 (30.3%), gastroscopy: 79 (4.70%), colonoscopy: 43 (2.56%)

Conclusion: It was noted that full blood count, folate, ferritin, thyroid stimulating hormone and T4 were most commonly taken, that anti-intristic factor, anti-gastric parietal cell antibody, vitamin D, gastroscopy and colonoscopy were rarely taken and that tissue transglutaminase, calcium, albumin, total protein and iron profile were taken at an intermediate level. Using this data a guideline will be created so that B12 deficiency can be adequately investigated.

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Conditions associated with vitamin B12, investigation and prevelence.

Gordon Muscat[1], Jessica Gauci[2], Martha Grima[1], Nicholas Delicata[2], Gerald Buhagiar[1]

Introduction: Vitamin B12 (B12) is involved in many of the body's metabolic processes and B12 deficiency (B12 less than 200pg/mL) is associated with multiple conditions, both causes and complications. The aim of this study is to note the prevalence of conditions associated with B12 deficiency.

Methods: A retrospective analysis of the investigations performed on all patients found to have a B12 level less than 200 from January 2014 till June 2014 was done using the Isoft Clinical Manager. The number of patients found to have conditions associated with a low B12 level was noted.

Results: The total number of patients with B12 deficiency was 1687. 519 tissue transglutaminase levels were taken; 12 (2.3%) were positive. 62 anti-intristic factor levels were taken; 7 (11.3%) were positive. 511 iron profiles were taken; 100 (19.5%) of which had iron deficiency anemia. 79 gastroscopies were done, of which 29 (31.52%) had reactive gastropathy, 6 (7.6%) had gastritis and 3 (3.26%) had coeliac disease. 31 colonoscopies were done, of which 5 (11.65%) had IBD, 5 (11.65%) had adenocarcinoma an 1 (2.33%) had colitis.

Conclusion: Colitis, coeliac disease and gastritis were the least commonly associated conditions; pernicious anemia, gastropathy, inflammatory bowel disease and adenocarcinoma were more commonly associated, while reactive gastropathy and iron deficiency anemia were the most commonly associated. Considering how low B12 levels were poorly investigated, the results showed a number of associated conditions with important implications. This shows that by poorly investigating B12, there is a possibility of missing important diagnoses.

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Audit - Treatment charts and drug prescription at Mater Dei Hospital

Doriella Galea

Introduction: Safe drug prescription is of utmost importance avoiding potential serious harm to our patients. The aim of the audit was to identify any common errors in drug prescription and to identify any possible improvements.

Methods: Five acute medical wards were randomly chosen and the treatment charts of the patients present were reviewed (total of 98). Treatment charts were reviewed and the following considered:

- full patient identification on each treatment chart
- identification of any allergies
- doctor's signature for each prescribed drug
- prescribed treatment should be dated
- prescribed drugs should be written in the appropriate section

Results: All treatment charts had full patient identification details. 45.9% had regular treatment written under the as required section whereas 6.1% had as required medications written in the regular medication section. 3.1% had regular medications written in the as required section and vice-versa. 1% of prescribed drug were not dated.
3.1% of drug written on the treatment chart were not signed.
3.1% did not have clear identification of any possibly allergies.
37.7% of the treatment charts fulfilled the above criteria.

Conclusion: Overall, drug prescription at Mater Dei Hospital was satisfactory but some improvements should be considered. The results indicate that the structure of the available treatment charts should be re-considered to ensure that drugs are prescribed in the appropriate sections. More awareness about drug prescription amongst doctors is necessary.
Disclosure: Nil

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Pressure ulcer prevention in hip fracture patients - are we meeting the standards?

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Introduction: Pressure ulcers in elderly patients can result in reduced quality of life, pain, longer hospital stays, higher healthcare costs and poor rehabilitation outcomes.

Hip fracture patients are at increased risk due to long periods of immobility before, during and after surgery.

Methods: A hip fracture integrated care plan has been developed and is now in use in orthopaedic wards in order to facilitate better assessment and management of patients. The Waterlow score and space for documentation of preventive measures for pressure ulcers have been included within this booklet. Patients sustaining a hip fracture from July 2015 were enrolled into the study. Data collected included: age, gender, comorbidities, documentation of Waterlow score and presence of pressure ulcers, documentation of methods of prevention and re-assessment. The guidelines developed by the National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance was used as a standard for this audit.

Results: This is an ongoing audit and full results will be available in due course. Preliminary results indicate that the Waterlow score and assessment is very often left out or is

incompletely filled in. Documentation of methods of prevention for pressure ulcers is lacking too.

Conclusion: Prevention of pressure ulcers and assessment is a marker for quality of care. Pressure ulcer risk assessment is a duty for every healthcare professional involved in the care of the patient.

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Centralisation of trauma services within a UK trauma network has shown changes in clinical outcomes at a major trauma centre

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Introduction: A major reorganisation of trauma services occurred in the England in 2012, with creation of major trauma networks with a centralized specialist trauma centre, receiving patients from significant geographical distances. This reconfiguration is reviewed with respect to clinical outcomes

Methods: Data were analysed from a prospectively maintained trauma database from a Major Trauma Centre in Liverpool, UK between Nov'11 and Jun'14. Primary outcomes included basic demographics, ISS, intervention and mortality rates. Data were compared pre and post centralisation, utilising Fisher's exact test

Results: The pre-centralised study period was from Jan'12 to Oct'12 and the post-centralisation period was Nov'12 to Jun'14. Mean monthly admissions increased significantly 15.7 vs 63.1 ($p<0.005$). There were no significant difference in demographic statistics and GCS levels. There are more patients with an injury severity score >15 in the pre centralisation group, 58% vs 27% ($p<0.0001$). Less patients required radiological or operative intervention, 28% vs 13% ($p<0.0001$), fewer patients required intensive care, 18% vs 12% ($p=0.0569$). Similar numbers of patients required neurosurgical transfer, 12% vs 11% ($p=0.506$). There was a non-significant decrease change in mortality rates, 7% vs 5% ($p=0.2373$).

Conclusion: There has been a significant increase in volume of major trauma at our institution since Nov'12, with a small decrease in overall mortality. The proportion of severely injured patients has reduced but in reality there is a 3.5 times increase in significant trauma cases. The management has become more refined , with no worsening of change to morbidity or mortality, demonstrating the effect of this institutional increase in volume.

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Risk factors for perineal injury during childbirth in Malta between 2000 and 2014.

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Introduction: Perineal trauma during delivery may result in faecal incontinence, faecal urgency, chronic perineal pain and dyspareunia, and hence are a cause of maternal morbidity. Our aim was to determine which maternal, neonatal and obstetric variables are associated with an increased risk of perineal lacerations during vaginal delivery of live born singletons in Malta.

Methods: We analysed data obtained from the National Obstetrics Information System for all vaginal deliveries of singleton live births in Malta between 2000-2014. The predictor variables were categorized into three groups: maternal, neonatal and obstetric. The main outcome variables were: no damage, episiotomy, perineal laceration and both episiotomy and perineal laceration. The significance of associations was determined using univariate analysis in IBM SPSS Statistics software package, version 22.

Results: Significant associations were found between maternal age, parity, height, body mass index, cigarette smoking during pregnancy, type of delivery (unassisted, forceps or ventouse), use of epidural analgesia, infant sex, birth weight, gestational age, year of delivery and perineal trauma during delivery (p values <0.001). Gestational diabetes ($p = 0.001$) and onset of delivery ($p = 0.006$) were also found to be associated with perineal trauma. Pre-gestational diabetes mellitus ($p = 0.66$) and shoulder dystocia ($p = 0.40$) were not found to be associated with perineal trauma during delivery.

Conclusion: This study further confirms associations between perineal trauma and potentially modifiable risk factors. Contrary to the reported literature, this analysis did not show any association between maternal pre-gestational diabetes mellitus and infant shoulder dystocia and perineal trauma. A multivariate analysis will follow.

Disclosure: Conflict of interest: None.

P.199

An audit on the national colorectal cancer screening programme (CCSP) 2014. Do the candidates fit international screening criteria?

David Agius[1], Tiffany Buhagiar[2], Rachel Abela[2]

Introduction: Patients between the ages of 60 and 64 are invited by the Colorectal Cancer Screening Programme (CCSP) to perform a Faecal Immunochemical Test (FIT). Candidates scoring more than 100ng/mL in such an examination are invited to attend for a colonoscopy which is usually performed at Gozo General Hospital under the care of five consultants.

Methods: The candidates' symptoms and FIT values were recorded. The time gap between presentation at Lascaris screening centre and the colonoscopy date was noted. The incidence of bowel abnormalities was recorded. Ceacal intubation rate was noted. Colonoscopy exit time was noted.

Results: 59 screening patients were identified. 204 (79%) of them were found to be symptomatic with bleeding per rectum being the commonest symptom with an incidence of 103 (40%). The mean colonoscopy waiting time between the Lascaris visit and the endoscopic procedure at Gozo General Hospital was 44 days. It was noted that there was no significant difference in the colonoscopy waiting time in between asymptomatic and symptomatic candidates.The caecal intubation rate was at 90.4% (235 patients). The documented ileal intubation rate is 7.7% (20 patients). Average colonoscopy duration was at 37 minutes and 59% of colonoscopies lasted between 21 and 40 minutes. Only 5% lasted less than ten minutes

Conclusion: The FIT test is the preferred initial screening tool which is being used internationally. Screening is a strategy used to identify asymptomatic stages of disease. Symptomatic patients should therefore be excluded from the screening programme and referred urgently for further investigation.

Disclosure: nil P.200

Microbiological swabs in cases at the venous ulcer clinic: indications, relevance, empiric antibiotic use and outcomes

David Agius[1], Susan Aquilina[1], Michael Angelo Borg[2]

Introduction: The main aim of this audit is to assess whether dermatologists are adhering to guidelines that are designed for the management of venous ulcers and what culture results are showing in response to the actual practice.

Methods: 77 cases of wound swabs taken from patients with ABPI of>0.8 at the Venous Ulcer Clinic (Sir Paul Boffa Hospital) were collected . Clinical indications to justify such an investigation were noted. Isoft Clinical Manager was used to collect the results of the culture and sensitivity reports. Antibiotic use and its subsequent clinical response are noted for each case which is swabbed. The above mentioned data is collected in an audit proforma sheet for each case and the collective results are processed and tabulated.

Results: 19.5% of swabs were taken routinely without a documented indication of infection suspicion. Cellulitis was the commonest indication for swabbing wounds. Commonest cultured organism (48%) was Staphylococcus aureus, 43% of which were MRSA. 67.5% of cases (52) were treated and the

commonest empirical antibiotic used was ciprofloxacin which treated 27% of all cases. 27% of the treated cases had bacteria which were sensitive to the empirical antibiotic use while 9% of empirical antibiotics were "treating" proved resistant organisms.

Conclusion: Better documentation is required. There is a need for stricter adherence to the universal signs of infection as indications for swabbing ulcers. It is evident that a high amount of non-infected wounds are being swabbed and treated empirically, increasing antibiotic resistance

P.201

Audit on A-scan use prior to cataract surgery in Mater Dei Hospital

David Agius[1], Stefan Buttigieg[2], Obafemi Giwa Amu[3], Mario Vella[2]

Introduction: The A scan is a method of measurement of the eye length from cornea to retina which is usually coupled with keratometry readings so that by use of formulae like SRK, one can measure the required power of an intraocular lens that would refract sharp images on the retina.

Methods: This is a retrospective audit where notes from post-operative refraction visits were used in order to check the A scan method, ultrasound method vs optical method, the postoperative visual acuity and refraction. The notes of post-operative refractions done from November to December 2014 were taken into account.

Results: 55% of the A scans were performed using the Lenstar® while 38% were performed using the ultrasound method. No major difference was noted between the post-operative refraction and resulting visual acuity.

Conclusion: Either method is useful. The advantages of the Lenstar® include that is is less invasive, does not transmit infections, more tolerable. The advantages of the ultrasound method include the fact that it can give readings in very dense cataracts and in not so co-operative patients. Documentation of ophthalmic notes needs improvement. A pre and post op cataract booklet is an idea that emerges from such audit. It could include all pre-operative and intraoperative data and post-operative examination in one booklet that can be easily identified.

P.202

An audit on venous thromboembolism prophylaxis of admissions at Gozo General Hospital

David Agius[1], Giulia Attard Navarro[2], Tiffany Buhagiar[1], Jo Etienne Abela[1]

Introduction: Hospitalisation poses a risk to venous thromboemobolism (VTE) due to several reasons, including immobility, the specific illnesses in question and surgery. Some patients present to hospital with prior risks for VTE. These factors should be identified as early as possible on admission to guarantee adequate prophylactic measures.

Methods: 38 admissions at the Gozo General Hopsital were assessed. The risks documented were identified and tabulated. Prophylaxis prescription with enoxaparin or thromboembolic deterrant (TED) stockings were noted. The standards used were; SIGN Prevention and management of venous thromboembolism guidelines 2010, NICE guidelines on DVT prophylaxis.

Results: It was noted that despite having identified VTE risks in most (92%) patients, only 11% of the "at risk" patients were prescribed prophylactic enoxaparin on admission. It is noted that 72% of patients had more than one VTE risk while 38% had two or more risks . 37% of patients with VTE risks had bleeding risk factors and none of these were prescribed enoxaparin. No TED stocking prescription was documented.

Conclusion: VTE prophylaxis prescription needs improvement. A casualty sheet reminder is suggested. Re-auditing is necessary.

P.203

Can serum bio-markers decrease radiological investigations in patients with suspected small bowel Crohn's Disease?

Anthea Brincat[1], Neville Azzopardi[1], Kris Micallef[1], Pierre Ellul[2]

Introduction: Computed tomography enterography (CTE) and Magnetic resonance enterography (MRE) are useful modalities in the evaluation of small bowel (SB) Crohn`s disease (CD). However, both have their drawbacks, with CTE utilising ionising radiation and MRE being less easily available and being a challenge for claustrophobic patients. The aim of this study was to determine if the serum bio-markers ESR and CRP can predict small bowel pathology.

Methods: This was a retrospective analysis were all CD patients above the age of 18 who underwent CTE or MRE between October 2013 and February 2015 were identified and their findings documented. Their radiological reports and serum bio-markers were reviewed.

Results: 62 patients were recruited (50 patients with CTE and 12 patients with MRE). SB pathology was present in 59.6% of patients; these being active SB inflammation in 25.8%, a SB stricture in 30.6% and active inflammation with associated SB stricturing and fistulating disease in 3.2%. 16.1% of patients had an incidental inflammatory process outside the SB. None of the patients with completely normal imaging had a raised bio-marker. However, biomarkers were raised in 88.9% of patients with an inflammatory process outside the SB. The ESR`s sensitivity for SB pathology was 71.9% and the specificity was 100%, whilst these were 53.1% and 100% respectively for the CRP.

Conclusion: CTE and MRE are important tools in management of CD patients; however, serum bio-markers may help clinicians decide when to request these investigations.

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Reason for encounter in Maltese health centres during Summer 2014

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Introduction: Over 1,356,000 services are delivered annually by health centres which offer free-of-charge 24 hours walk-in primary care service.

Methods: The study aim was to analyse demographic data and reasons for encounter of patients walking in health centres between the 16th of July and the 13th of October 2014. The second version of the International Classification of Primary Care (ICPC-2) was used to code encounters. Patients attending health centres were anonymously recorded by 8 doctors working 48 hours a week each. Data was organised according to sex, age, locality and ICPC-2 reason for encounter.

Results: 6,421 patients from the 3 main (Mosta, Floriana, Paola) and 5 satellite health centres were reviewed. Age of patients ranged between 1 month and 96 years. The commonest reasons for encounter in descending order were muskuloskeletal and respiratory complaints followed by general and administrative encounters and skin complaints. Results obtained were similar to local and overseas studies investigating reasons for encounter in primary care.

Conclusion: Evaluation of needs assists in delivering quality care. Such study can serve as a baseline method through which the national primary care services can be audited in order to allocate resources, personnel, training and funding towards the changing demographics and primary care demand.

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Notes

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- Fast onset of anticoagulation for rapid patient protection[3]
- Improved patient management from hospital to home[4-6]
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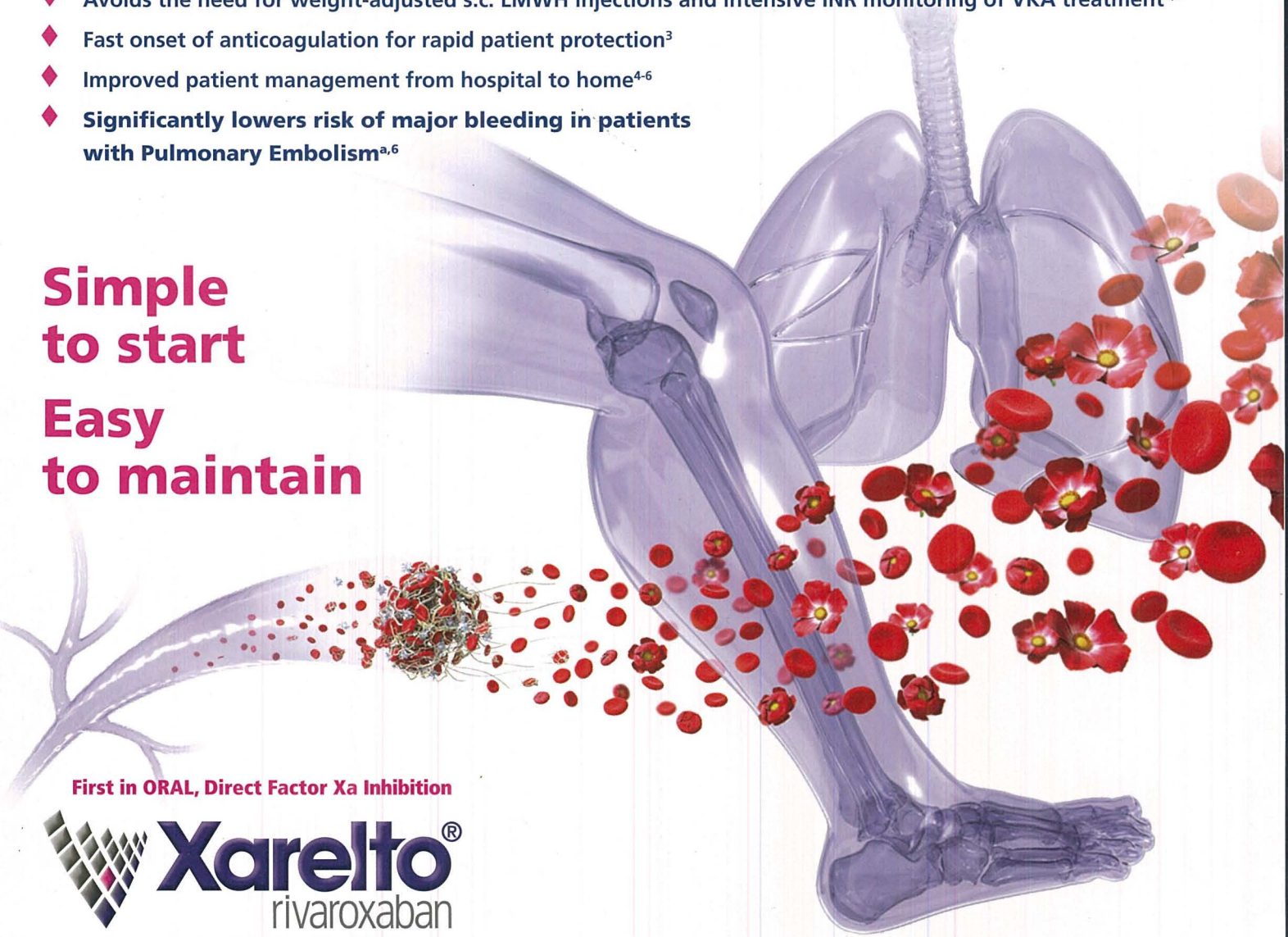

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Simple Protection for More Patients

Xarelto 10 mg / 15 mg / 20 mg film-coated tablets
(Refer to full SmPC before prescribing.)

This medicinal product is subject to additional monitoring.
Composition: *Active ingredient*: 10 mg / 15 mg / 20 mg rivaroxaban. *Excipients*: Microcrystalline cellulose, croscarmellose sodium, lactose monohydrate, hypromellose, sodium laurilsulfate, magnesium stearate, macrogol 3350, titanium dioxide (E171), iron oxide red (E172). **Indications:** *10 mg:* Prevention of venous thromboembolism (VTE) in adult patients undergoing elective hip or knee replacement surgery. *15 mg/20 mg:* Prevention of stroke and systemic embolism in adult patients with non-valvular atrial fibrillation with one or more risk factors, such as congestive heart failure, hypertension, age ≥ 75 years, diabetes mellitus, prior stroke or transient ischaemic attack. Treatment of deep vein thrombosis (DVT) and pulmonary embolism (PE), and prevention of recurrent DVT and PE in adults. Special populations: Patients undergoing cardioversion: Xarelto can be initiated or continued in patients who may require cardioversion. **Contraindications:** Hypersensitivity to the active substance or any of the excipients; active clinically significant bleeding; lesion or condition if considered a significant risk for major bleeding; concomitant treatment with any other anticoagulants except under specific circumstances of switching anticoagulant therapy or when unfractionated heparin is given at doses necessary to maintain an open central venous or arterial catheter; hepatic disease associated with coagulopathy and clinically relevant bleeding risk including cirrhotic patients with Child Pugh B and C; pregnancy and breast feeding. **Warnings and Precautions:** Clinical surveillance in line with anticoagulation practice is recommended throughout treatment. Xarelto should be discontinued if severe haemorrhage occurs. Increasing age may increase haemorrhagic risk. *Not recommended*: in patients with severe renal impairment (creatinine clearance <15 ml/min); in patients receiving concomitant systemic treatment with strong concurrent CYP3A4- and P-gp-inhibitors, i.e. azole-antimycotics or HIV protease inhibitors; in patients with increased bleeding risk; in patients receiving concomitant treatment with strong CYP3A4 inducers unless the patient is closely observed for signs and symptoms of thrombosis; *not recommended due to lack of data*: in patients below 18 years of age, in patients concomitantly treated with dronedarone. For 15 mg / 20 mg only: in patients with prosthetic heart valves, in patients with PE who are haemodynamically unstable or may receive thrombolysis or pulmonary embolectomy. *Use with caution:* in conditions with increased risk of haemorrhage; in patients with severe renal impairment (creatinine clearance 15 - 29 ml/min) or with renal impairment concomitantly receiving other medicinal products which increase rivaroxaban plasma concentrations; in patients treated concomitantly with medicinal products affecting haemostasis; when neuraxial anaesthesia or spinal/epidural puncture is employed. For 15 mg / 20 mg only: specific dose recommendations apply for patients with moderate to severe renal impairment and in case of DVT/PE-patients only if the patient's assessed risk for bleeding outweighs the risk for recurrent DVT/PE. In patients at risk of ulcerative gastrointestinal disease prophylactic treatment may be considered. Although treatment with rivaroxaban does not require routine monitoring of exposure, rivaroxaban levels measured with a calibrated quantitative anti-Factor Xa assay may be useful in exceptional situations. Xarelto contains lactose. **Undesirable effects:** *Common*: anaemia, dizziness, headache, eye haemorrhage, hypotension, haematoma, epistaxis, haemoptysis, gingival bleeding, gastrointestinal-tract haemorrhage, gastrointestinal and abdominal pains, dyspepsia, nausea, constipation, diarrhoea, vomiting, pruritus, rash, ecchymosis, cutaneous and subcutaneous haemorrhage, pain in extremity, urogenital tract haemorrhage (menorrhagia very common in women < 55 years treated for DVT, PE or prevention of recurrence), renal impairment, fever, peripheral oedema, decreased general strength and energy, increase in transaminases, post-procedural haemorrhage, contusion, wound secretion. *Uncommon*: thrombocythemia, allergic reaction, dermatitis allergic, cerebral and intracranial haemorrhage, syncope, tachycardia, dry mouth, hepatic function abnormal, urticaria, haemarthrosis, feeling unwell, increases in: bilirubin, blood alkaline phosphatase, LDH, lipase, amylase, GGT. *Rare*: jaundice, muscle haemorrhage, localised oedema, bilirubin conjugated increased, vascular pseudoaneurysm. *Frequency not known*: compartment syndrome or (acute) renal failure secondary to a bleeding. *Post-marketing observations* (*frequency not assessable*): angioedema and allergic oedema, cholestasis and hepatitis (incl. hepatocellular injury), thrombocytopenia.
Classification for supply: Medicinal product subject to medical prescription.
Marketing Authorisation Holder: Bayer Pharma AG, D-13342 Berlin, Germany
Further information available from: *xarelto.medinfo@bayer.com*
Version: EU/5**Xarelto 10 mg / 15 mg / 20** mg film-coated tablets.
(Refer to full SmPC before prescribing.)

References: 1. Enoxaparin SmPC. **2.** Warfarin SmPC. **3.** Kubitza D et al. Investigation of Pharmacodynamic and Pharmacokinetic Interactions Between Rivaroxaban and Enoxaparin in Healthy Male Subjects. Clin Pharmacol Drug Dev; published online: 15 MAY 2013. DOI: 10.1002/cpdd.26. **4.** Xarelto® (rivaroxaban) Summary of Product Characteristics as approved by the European Commission. **5.** EINSTEIN Investigators. Oral rivaroxaban for symptomatic venous thromboembolism. N Engl J Med 2010;363(26):2499-2510. **6.** EINSTEIN-PE Investigators. Oral rivaroxaban for the treatment of symptomatic pulmonary embolism. N Engl J Med. 2012;366(14):1287-1297. DVTx=treatment of deep vein thrombosis; OAC=oral anticoagulant; PEx=treatment of pulmonary embolism. **a** Compared with current standard of care (dual-drug approach of LMWH and VKA).

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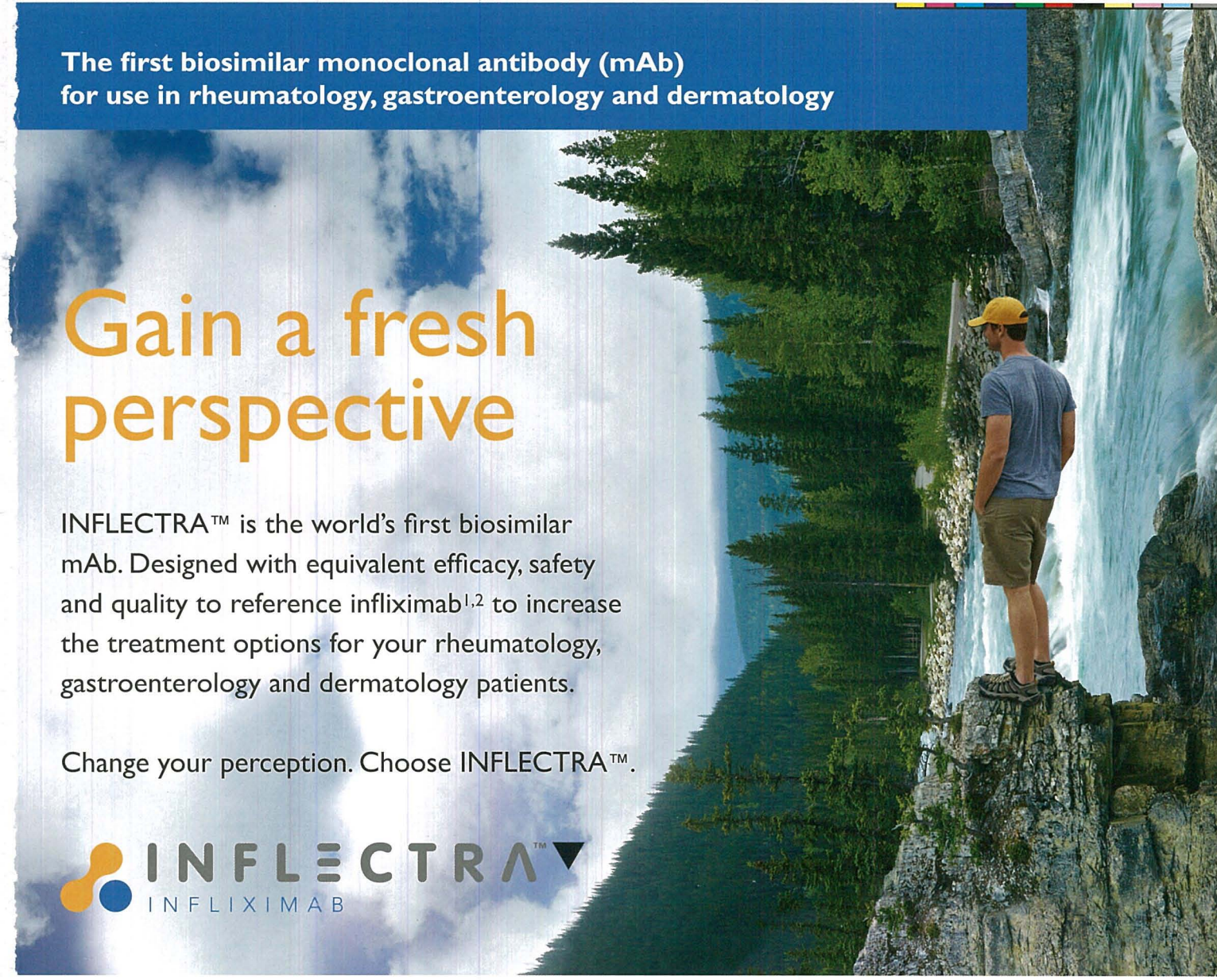

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INFLIXIMAB

Abbreviated Prescribing Information – INFLECTRA▼ (Infliximab) powder for concentrate for solution for infusion.
Please refer to full Summary of Product Characteristics (SmPC) before prescribing. **Presentation:** Vial containing 100 mg of infliximab powder for concentrate for solution for infusion. **Indications:** 1) Rheumatoid arthritis (RA) in combination with methotrexate (MTX) in adult patients with active disease with inadequate response to disease modifying antirheumatic drugs (DMARDs) or adult patients with severe, active and progressive disease not previously treated with MTX or other DMARDs. 2) Adult Crohn's disease (CD) a) In patients with moderately to severely active CD who have not responded despite a full and adequate course of therapy with a corticosteroid and/or an immunosuppressant; or who are intolerant to or have medical contraindications for such therapies. b) In patients with fistulising, active CD who have not responded despite a full and adequate course of conventional treatment (including antibiotics, drainage and immunosuppressive therapy). 3) Paediatric CD Severe, active CD in patients aged 6 to 17 years, who have not responded to conventional therapy including corticosteroid, immunomodulator and primary nutrition therapy; or who are intolerant to or have contraindications for such therapies. 4) Ulcerative colitis (UC) In both adult patients with moderate to severely active UC, and children and adolescents aged 6 to 17 years with severely active UC and an inadequate response to conventional therapy including corticosteroids and 6 mercaptopurine (6-MP) or azathioprine (AZA), or those who are intolerant to, or have medical contraindications for such therapies. 5) Ankylosing spondylitis (AS) In adult patients with severe active AS who have responded inadequately to conventional therapy. 6) Psoriatic arthritis (PsA) In adult patients with active and progressive PsA when response to previous DMARD therapy has been inadequate. Infliectra should be administered in combination with MTX - or alone in patients who show intolerance to MTX, or for whom MTX is contraindicated. 7) Psoriasis (PsO) In adult patients with moderate to severe plaque PsO who failed to respond to, or who have a contraindication to, or are intolerant to systemic therapy including cyclosporine, MTX or Psoralen ultra-violet A (PUVA.) **Dosage & Administration:** All doses to be administered as an intravenous (IV) infusion over 2 hours initially and monitor post-infusion for at least 1-2 hours for infusion-related reactions. 1) RA 3 mg/kg repeated 2 and 6 weeks after initiation, then every 8 weeks. Inflectra must be given concomitantly with MTX. 2) Moderately to severely active CD 5 mg/kg repeated 2 weeks after initiation. If no response after 2 doses, no additional dose should be given. In responding patients: Maintenance dose of 5 mg/kg at 6 weeks after the initial dose, followed every 8 weeks, or: Re administration of 5 mg/kg if signs and symptoms recur. 3) Fistulising, active CD 5 mg/kg repeated 2 and 6 weeks after initiation. If no response after 3 doses, no additional dose should be given. In responding patients: Maintenance dose of 5 mg/kg every 8 weeks or: Re administration of 5 mg/kg if signs and symptoms recur, followed by 5 mg/kg every 8 weeks. 4) UC 5 mg/kg repeated 2 and 6 weeks after initiation, then every 8 weeks. 5) AS 5 mg/kg repeated 2 and 6 weeks after initiation, then every 6 to 8 weeks. If no response by 6 weeks, no additional dose should be given. 6) PsA 5 mg/kg repeated at 2 and 6 weeks after initiation, then every 8 weeks. 7) PsO 5 mg/kg repeated 2 and 6 weeks after initiation, then every 8 weeks. If no response after 14 weeks no additional dose should be given. 8) Paediatric CD (6 to 17 years): 5 mg/kg repeated 2 and 6 weeks later, then every 8 weeks. Data do not support further treatment in children and adolescents not responding within the first 10 weeks. 9) Paediatric UC (6 to 17 years): 5 mg/kg repeated at 2 and 6 weeks, then every 8 weeks. Available data do not support further treatment in in patients not responding within the first 8 weeks. Older people (≥65 years): Studies have not been conducted. No major age-related differences in clearance or volume of distribution observed in clinical studies. No dose adjustment is required. Impaired renal and/or hepatic function: Not studied. No dose recommendations can be made. **Contraindications:** Hypersensitivity to infliximab, to other murine proteins, or to any excipients. Tuberculosis (TB) or other severe infections such as sepsis, abscesses, and opportunistic infections. Moderate or severe heart failure (NYHA class III/IV). **Warnings and Precautions:** Caution in patients with or at risk of infusion reactions and hypersensitivity. Do not administer in patients with bacterial infections, invasive fungal, viral or other opportunistic infections. Monitor for TB, and do not use in patients with TB. Test for latent/active TB prior to initiation of therapy. Do not use Inflectra in patients with active TB. In patients with latent TB, treatment with anti-TB therapy must be started before the initiation of Inflectra, and in accordance with local recommendations. Consult a physician with expertise in the treatment of TB. Monitor closely for infections, including TB before, during and for six months post-treatment. Patients with fistulising CD with acute suppurative fistulas must not initiate therapy until source of infection, specifically abscess, is excluded. Test for HBV infection before initiating treatment. For patients who test positive, consult a physician with expertise in the treatment of hepatitis B. Closely monitor carriers of HBV for signs and symptoms of active HBV infection during and after therapy. In patients with HBV reactivation, stop Inflectra and initiate effective antiviral therapy with supportive treatment. Symptoms or signs of liver dysfunction should be evaluated for evidence of liver injury. If jaundice and/or ALT elevations ≥5 times the upper limit of normal develop(s), stop Inflectra and initiate thorough investigation. Concurrent administration of Inflectra with anakinra, abatacept or other biologic therapeutics is not recommended due to possible increased risk of infection and/or other potential pharmacological interactions. Live vaccines or therapeutic infectious agents should not be used concurrently with Inflectra. Patients should continue to be monitored while switching from one biologic to another. If a patient develops symptoms suggestive of lupus-like syndrome following treatment with Inflectra and is positive for antibodies against double stranded DNA, discontinue Inflectra treatment. In patients with pre-existing or recent onset of demyelinating disorders (including multiple sclerosis and Guillain Barre syndrome), the risk/benefit of anti-TNF treatment should be carefully considered before initiation of Inflectra. Discontinuation of Inflectra should be considered if these disorders develop. Caution should be exercised in considering treatment of patients with increased risk for malignancy or when considering treatment in patients that develop a dysplasia or a malignancy or with previous history of malignancy. Caution should also be exercised in patients with psoriasis and a medical history of extensive immunosuppressant therapy or prolonged PUVA treatment. Potential risk of development of hepatosplenic T-cell lymphoma (HSTCL) when used in combination with AZA or 6-MP, especially in adolescents and young adult males with CD or UC. Periodic skin examination is recommended, particularly for patients with risk factors for skin cancer. Patients with UC who are at increased risk or prior history of dysplasia for dysplasia or colon carcinoma should be screened for dysplasia (including colonoscopy and biopsies) at regular intervals before therapy and throughout their disease course. Use with caution and monitor closely in mild heart failure (NYHA class I/II). Discontinue Inflectra treatment in patients who develop new or worsening symptoms of heart failure. Patients should be advised to seek immediate medical attention if they develop signs and symptoms suggestive of blood dyscrasias. Discontinuation of Inflectra should be considered in patients with confirmed significant haematologic abnormalities. For patients that require surgery, Inflectra long half-life should be taken into account and should be monitored for infections. Special populations: Risk of infections should be considered when treating elderly and paediatric patients. If possible, comply with vaccination program for paediatric patients prior initiating treatment with Inflectra. Women of childbearing potential: Use adequate contraception to prevent pregnancy and continue its use for at least 6 months after the last Inflectra treatment. Pregnancy: Administration of infliximab is not recommended during pregnancy. Breast feeding: Unknown whether infliximab is excreted in human milk or absorbed systemically after ingestion. As human immunoglobulins are excreted in milk, women must not breast feed for at least 6 months after Inflectra treatment. **Undesirable effects:** The most serious adverse drug reactions (ADRs) associated with the use of TNF blockers reported for infliximab include: hepatitis B reactivation, congestive heart failure (CHF), serious infections (including sepsis, opportunistic infections and TB), serum sickness (delayed hypersensitivity reactions), haematologic reactions, systemic lupus erythematosus/lupus like syndrome, demyelinating disorders, hepatobiliary events, lymphoma, HSTCL, leukaemia, Merkel cell carcinoma, melanoma, paediatric malignancy, sarcoidosis/sarcoid-like reaction, intestinal or perianal abscess (in CD), and serious infusion reactions. ADRs with a frequency of very common (≥ 1/10) or common (≥ 1/100 to < 1/10): Viral infection, bacterial infection, neutropenia, leucopenia, anaemia, lymphadenopathy, allergic respiratory symptom, depression, insomnia, headache, vertigo, dizziness, hypoaesthesia, paraesthesia, conjunctivitis, tachycardia, palpitation, hypotension, hypertension, ecchymosis, hot flush, flushing, upper respiratory tract infection (URTI), sinusitis, lower respiratory tract infection, dyspnoea, epistaxis, abdominal pain, nausea, gastrointestinal haemorrhage, diarrhoea, dyspepsia, gastroesophageal reflux, constipation, hepatic function abnormal, transaminases increased, psoriasis (new onset or worsening), urticaria, rash, pruritus, hyperhidrosis, dry skin, fungal dermatitis, eczema, alopecia, arthralgia, myalgia, back pain, urinary tract infection, infusion related reaction, pain, chest pain, fatigue, fever, injection site reaction, chills, oedema. For a complete list of undesirable effects please refer to the Summary of Product Characteristics. **Legal category:** POM **Marketing Authorisation Number:** EU/1/13/854/001, EU/1/13/854/002, EU/1/13/854/003, EU/1/13/854/004, EU/1/13/854/005 **Marketing Authorisation Holder:** Hospira UK Limited, Horizon, Honey Lane, Hurley, SL6 6RJ, UK. **Date of preparation:** September 2015 (EMEA/INF/15/0003(1))

Adverse events should be reported.
Any suspected adverse reaction can be reported to the Medicines Authority at www.medicinesauthority.gov.mt/adrportal
Adverse events should also be reported to the local distributor Drugsales Ltd (email safety@drugsalesltd.com or Tel: +356 21419070/1/2) or directly to Hospira UK Limited Medical Information: +44 0800 088 5133

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