

The journey of Malta's public healthcare service during the first 12 months of the COVID-19 pandemic

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BACKGROUND

COVID-19 was a global shock, causing challenges to many countries' healthcare services. This paper provides a summary of Malta's healthcare system journey during the COVID-19 pandemic with its initial preparedness for COVID-19 pandemic and the impact of COVID-19 on the service during the first 12 months of the pandemic.

METHODS

A literature search was conducted using Google and reviewing Maltese online newspapers. A comprehensive summary of internal operations conducted at Mater Dei Hospital, the country's only acute general hospital, was provided by the Chief Operating Officer.

RESULTS

Several infrastructural changes including the increase in bed capacity and ITU areas were instituted in preparation for the pandemic. The health system showed resilience during the first wave. However, the situation was more precarious during the second wave. The end of December 2020 saw the start of the Covid-19 vaccination rollout, with over 30 health system hubs offering this service across the islands. Simultaneously health professional's burnout is on the rise as resources and workforce are overstretched.

CONCLUSION

The collaborative effort between the guidance provided by the Public Health Authorities and the hospital's multi-disciplinary team have been pinnacle during the pandemic. However, the future of the healthcare system is heavily dependent on the population's behaviour, timely measures, the vaccination rollout and the type of immunity acquired through vaccination or infection.

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BACKGROUND

The novel virus SARS-CoV-2 was a global shock and huge disruptor, causing huge challenges to all healthcare systems and services. Health care systems are responsible for the health of their constituents, improving, maintaining and restoring their health status. They are also responsible for the provision of a number of health care services including primary care, hospital care, prevention and control of diseases, health work planning, health promotion as well as improving the social determinants of health.¹ All of these system entities were strained as the COVID-19 pandemic ravaged the globe. Indeed, during the first Covid-19 wave (Spring 2020), a number of healthcare systems collapsed while other European countries showed resilience such as in Malta.²⁻³ The second wave and its consecutive waves ravaged the globe (from Summer 2020 onwards) leading to yet another strain on many healthcare systems, including Malta's.⁴ This review is aimed to provide a comprehensive summary of the national healthcare system journey during the Covid-19 pandemic with regard to (i) its initial preparedness for COVID-19 pandemic and (ii) the impact of COVID-19 on service across the first 12 months of the pandemic.

MALTA'S PRE-COVID-19 HEALTHCARE SYSTEM

The healthcare system of Malta is a tax-financed National Health Service (NHS) available for all residents covered by social security legislation or humanitarian exemption. The main provider of public health services is the Ministry of Health, with the private sector providing complementary services especially for primary care and specialist consultations. The public health sector provides free at point of care services including inpatient hospital care along with associated medication and three day post-discharge medications.⁵ The island of

Malta has one state acute general hospital (Mater Dei Hospital) that caters for both secondary and tertiary care along with an acute Accident and Emergency department. The hospital caters for a total population of approximately 460,171 inhabitants.⁶⁻⁷ Ten primary healthcare centres are also dispersed across the islands, and provide a comprehensive primary care service as well as outreach specialist adult and paediatric clinics, immunization, national screening services and school health service, all also free at point of care.⁶

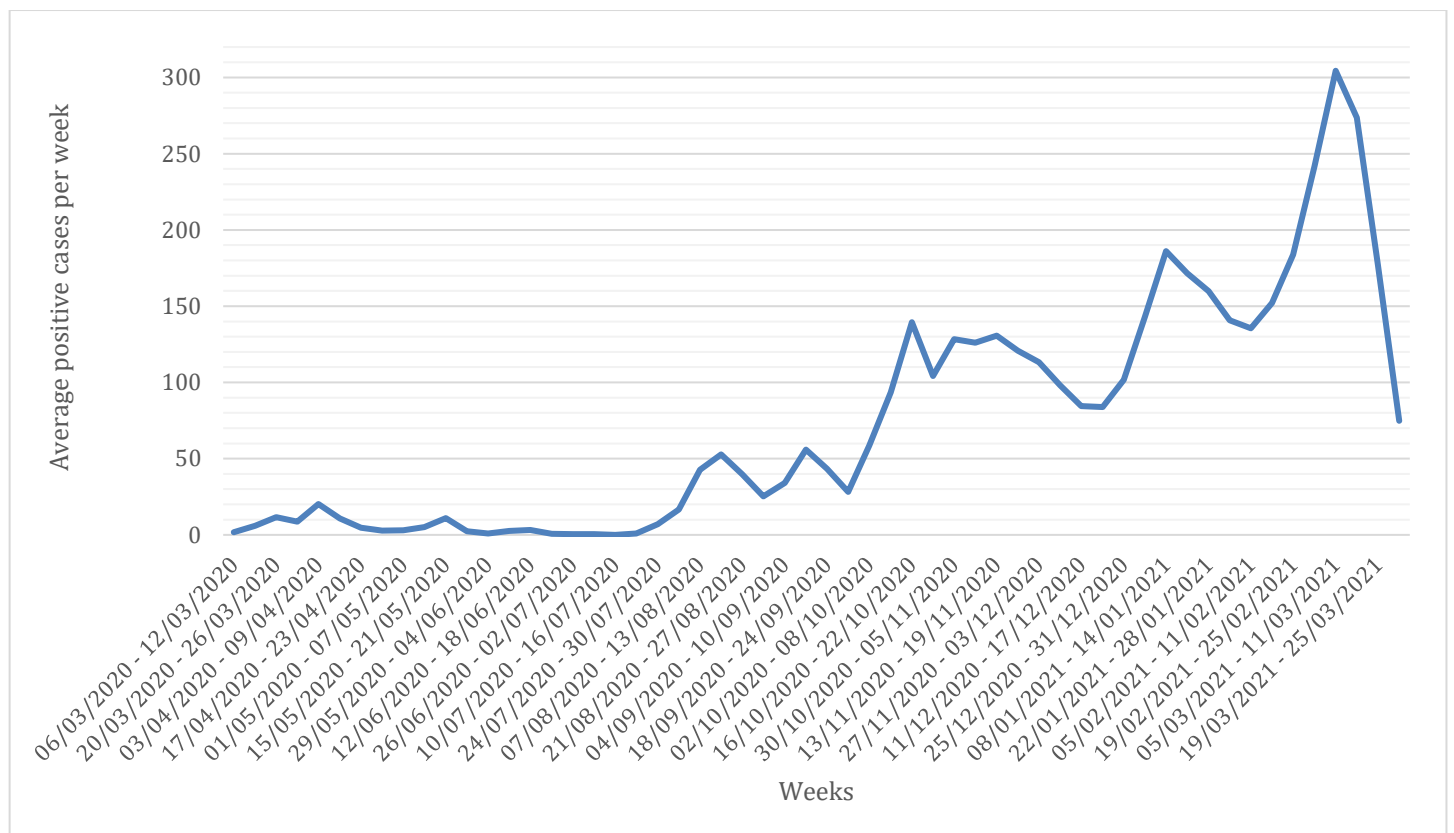
RESTRUCTURED HEALTH SYSTEMS IN MALTA FOR COVID19

As COVID-19 hit Northern Italy in January 2020, Malta was already in direct communication with public health authorities in China, through the WHO Office, in order to prepare for a COVID-19 outbreak.³⁻⁸ Indeed, in preparation for the potential surge in-patient admissions due to COVID-19, the hospital underwent rapid expansion of both the clinical and critical care areas following a redesigning and restructuring strategy to utilize existing spaces.⁹⁻¹⁰ The number of intensive care unit (ITU) beds were increased from the pre-COVID-19 twenty-bedded capacity to a 100 bed capacity, by converting clinical areas into ITU beds.¹¹ The number of ITU beds continued to increase, with a total of six ITU areas set up, to accommodate potential high admission rates among the Maltese population (Figure 1).¹² The original pre-COVID ITU area was restructured to cater for COVID-19 patients. As part of these contingency plans, a number of non-clinical areas (such as the Medical School library, lecture and seminar rooms and the staff canteen) situated within the building of Mater Dei Hospital were converted into temporary wards. These areas underwent structural changes and were patient-ready within three weeks. The number of hospital beds and facilities to be used for COVID-19

cases rose in line with the COVID-19 recommendations by the World Health Organization (WHO) European Regional Office.¹³ By the end of March 2020, more than 600 additional COVID-19 beds were available within Mater Dei Hospital and other off-sites hubs recruited from other private health care facilities.¹⁴ COVID-19 positive patients requiring hospitalisation were treated in rooms either with their ventilation system modified to produce negative pressure with respect to the corridor or with standalone fan filter units equipped with HEPA filters. A strong room was constructed to accommodate potentially violent or criminal COVID-19 cases.¹⁵ Donning and doffing

areas for personal protective equipment complete with mirrors for self-checks were made available in all COVID-19 areas.¹⁵ The hospital lifts were designated as COVID/non-COVID in order to prevent spread within these enclosed spaces. Considering that oxygen supply forms part of the critical management of COVID-19 patients, an increase in oxygen availability and delivery environments were created.¹⁶ Public open areas including the main hospital's foyer and the outpatient's corridors were all equipped with oxygen points in order to set up additional beds should the need arise.¹⁵ The coronary care unit also underwent renovations as it was equipped with high oxygen flow unit.

Figure 1: Seven day moving average of positive Covid-19 cases over a year (2020 – 2021)



All patients registered at A&E departments were swabbed for COVID-19, as were those patients requiring urgent interventions. Patients pending swab test results were housed in designated transition wards including the 'Management & Assessment of Respiratory Patient's areas' (MARPA). The theatre system also underwent infrastructural changes. Two of the pre-existing theatres were completely isolated from the rest and were to be used in the eventuality that a COVID-19 positive patient required urgent surgery. An increase in the availability of non-COVID-19 emergency theatres and trauma theatres was instituted in order to expedite patients care with an eventual earlier discharge from hospital.

CHANGES TO HEALTHCARE SERVICES

Similar to other countries such as the Mediterranean Island of Cyprus, Malta created protocols to increase the bed capacity by outsourcing care of non-critical patients to alternative sites as well as temporary halting all nonessential healthcare services during the first Covid-19 wave.¹⁷⁻¹⁸ Indeed, both elective surgery and non-urgent outpatient appointments were postponed during the first wave as a protective measure for the population while releasing more hospital staff for COVID-19 training and escalating the number of vacant beds. The hospital also temporarily suspended all visitation hours for relatives in order to continue safeguarding in-patients and staff.³ A similar protocol was followed a year later (March 2021) due to an upsurge of cases, as part of the ongoing second wave.¹⁹

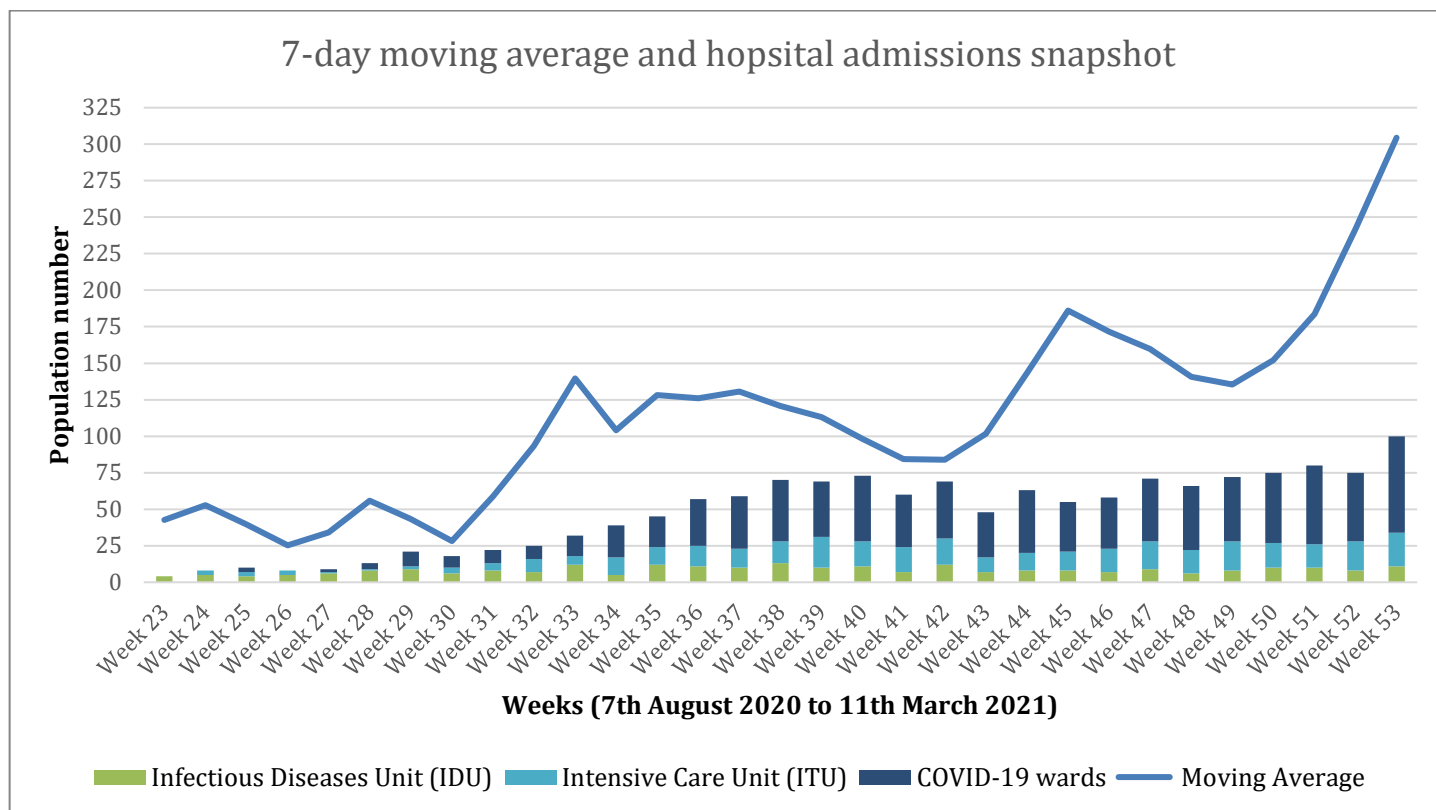
In conjunction with the processes and protocols established for the efficient running of Mater Dei Hospital, the hospital management was in direct contact with the sister island of Gozo. Gozo General Hospital, under the patronship of 'Steward Health Care', initially agreed to transfer all COVID-19 patients to Mater Dei Hospital in Malta for acute care and management. Subsequently, the office of the Medical Director of Mater Dei Hospital actively assisted Gozo General Hospital to set up of their own COVID-19 policies and care facilities for COVID-19 patients.

A quarantine protocol was instituted for the vulnerable elderly. Elderly being transferred from hospital to an elderly residential home were swabbed before leaving the hospital, then transferred to a "transit home or hospital", then transferred again to another quarantine area within the actual residential home.

THE MALTA COVID-19 SITUATION

On the 7th of March 2020, the first imported case of COVID-19 was reported and was admitted for isolation at Mater Dei Hospital's Infectious Disease Unit (IDU).³ A low positive case number was reported during the first Covid-19 wave (March to May 2020) and the transition period (May to July 2020), however the situation changed as Malta entered the second wave (August 2020 to March 2021) as shown in Figure 1.^{3,20,21} Indeed, the number of admissions to various wards, including ITU, at Mater Dei Hospital increased during the second wave, as shown in Figure 2.²²

Figure 2 Hospital Covid-19 admissions every Friday and 7-day moving average from the onset of the second wave in Malta



COVID-19 TESTING

Six designated ‘Testing Centres’ were set up across the island, including one at Mater Dei Hospital, with a free-to-user helpline established. The Pathology Department of Mater Dei Hospital was responsible for providing the results of all the swabs taken either at Mater Dei Hospital COVID-19 testing hub as well as the other allocated swabbing hubs situated across Malta.³ Initially, the Pathology lab carried out an average of 300 tests daily. However, with an increase in workforce, the number of tests increased to almost 500 daily over four runs at 9am, 1pm, 5pm and 9pm. Later on, with the introduction of a robotic machine within the Pathology lab, testing went up to 800 daily, and has now exceeded 2,000 tests daily. The increase in testing was in line with the advocacy of the World Health Organization Director General that urged all countries to increase

their testing capacity among the population so as to pick all positive cases as early as possible and contain hotspots.²³ COVID-19 testing results were digitally disseminated through a designated portal so that caring professionals could be able to take strategic decisions in a timely manner. A rapid test for the detection of COVID-19 antigens or antibodies had also been introduced at the Pathology Department in order to gauge the population’s immunity against the virus as well as immunity in recovered COVID-19 cases.

COVID-19 VACCINATION

Covid-19 vaccination roll-out in Malta started at the end of December 2020 at Mater Dei Hospital.²⁴ A previously designated lecture room within the premises was transformed into the first vaccination hub. Later, selected parts of the hospital’s

outpatients were transformed to vaccination hubs to expedite the vaccination process. Additionally, 31 vaccination hubs across Malta and the sister island of Gozo opened as part of the Covid-19 vaccination roll-out.²⁵ Till the end of March 2021 a total of 197,383 Covid-19 vaccine doses had been administered in Malta.²²

THE HEALTH SYSTEM WORKFORCE

The healthcare workforce is the most important asset during this pandemic. Following the European Commission recommendations, a number of measures were taken to protect and support this community.²⁶ A temperature screening protocol was introduced on the 11th of March for anyone entering the hospital premises as a safeguard measure to the workforce and the hospital's patients. All hospital staff were enrolled to a compulsory training and fitting test of Personal Protective Equipment (PPE) as per acquisitions made through the Central Procurement and Supplies unit.

The health and wellbeing of all staff was imperative during these unprecedented times. Frontlines were at an increased risk for mental health issues²⁷. In order to provide support to the staff, a number of support telephone lines were designated for (i) COVID, (ii) Psychological and (iii) Chaplaincy requirements. The COVID-19 staff helpline received over 2,000 calls from staff within the first 30 days of being in operation. Staff were also offered COVID-19 testing on site. The Employment Health and Wellbeing section of Mater Dei Hospital continued to offer services for all staff through remote

modalities. A number of sessions were offered including (i) online mindfulness sessions for Mater Dei Hospital administrators and medical staff; (ii) online staff support sessions (iii) online circuit training sessions; (iv) online Pilates session and (v) online yoga sessions. Concurrently, motivational emails were sent out to staff who were in the process of following a weight management programme that was postponed with the onset of COVID-19. A number of motivational thoughts were regularly posted on the Employment Health and Wellbeing social media account.

CONCLUSION

Although Malta's healthcare system coped well during the first COVID-19 wave, the situation was more precarious during the second wave. The multi-levelled planning and execution, including the increase in the in-patient bed capacity to accommodate COVID-19 patients, an increase in the number of ventilators and ITU beds, while maintaining essential health services are continuously in action. However, the year into the pandemic have affected a number of different sectors including healthcare professionals' morale, as reported elsewhere, with low or very low morale and burnout, as the workforce and other resources are overstretched.²⁸ The future is unknowable but the healthcare system is heavily dependent on the population's behaviour. Timely restrictions for the population, vaccination rollout and the type of immunity acquired through vaccination or infection will help to transition the country into a new normal.

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