

## The impact of COVID-19 on the Malta Medical School

Victor Grech, Simon Attard-Montalto

The novel coronavirus COVID-19 is currently pandemic and Malta has carried out numerous measures in a stepwise fashion to enforce a soft-lockdown, and from which it is slowly emerging. This paper outlines the history of Malta's Medical School, culminating in a state-of-the-art facility, and documents the School's (and Malta University's) adjustments in the wake of COVID-19. Changes span physical alterations carried at very short notice, drastic changes in teaching practices to comply with social distancing measures, transition to online learning and migration to on-line, hands-off and patient-free examinations.

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## INTRODUCTION

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The novel coronavirus COVID-19 is currently pandemic. Malta has not been spared and, at an early stage, opted to carry out numerous measures implemented in a stepwise fashion but at short notice, to establish a national soft-lockdown. Medical Education and the Medical School have been directly affected by lockdown measures, and were constrained to introduce radical changes, again at very short notice. These measures included restructuring and relocation of their physical environment, drastic changes in teaching practices to comply with social distancing measures, transition to online learning and migration to on-line, hands-off and patient-free examinations. Malta's policy and approach to the pandemic has, to-date, ensured that the country has not had a significant hit in terms of the population's health and healthcare, with just 674 confirmed COVID-19 cases and just 9 deaths from a total population of circa 500,000. The economic impact has yet to be fully determined, but is likely to be significant with an estimated decrease in GDP of 2-6% for 2020. The country has emerged from the first phase of the pandemic, the National Public Health Emergency has been officially suspended and Malta is currently slowly emerging from its self-imposed lockdown.<sup>1,2</sup> The Medical School is likewise emerging from lockdown, and although some changes have been reversed, others are destined to remain long-term as part of the so-called 'New Normal'. This paper will outline the history of Malta's Medical School, culminating in a state-of-the-art facility complete with simulation training, and document the School's (and Malta University's) physical sacrifice in the wake of COVID-19.<sup>3-4</sup>

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## HISTORY OF MALTA'S MEDICAL SCHOOL

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In 1592, the Hospitaller Order of the Knights of St. John founded the Collegium Melitense in Malta, a Jesuit college originally located in an old house in Valletta,<sup>5-7</sup> A purpose-built college was later constructed between 1595 and 1597 and this is now known as the Old University Building.<sup>5-7</sup> The Order's Sacra Infermeria was constructed in 1574 and despite this being one of Europe's best hospitals, no accompanying medical school existed until a century later when, in 1676, Grand Master Nicholas Cotoner founded the School of Anatomy and Surgery in the Sacra Infermeria itself.<sup>5-7</sup>

The University of Malta was founded in 1769 and the pre-existing School of Anatomy and Surgery was incorporated within the University in 1771, thus attaining academic status.<sup>5-7</sup> These events may have been prompted by Malta's worst-ever plague epidemic caused by *Yersinia pestis*, that was far worse than that experienced in the current COVID-19 pandemic.<sup>8</sup> Indeed the plague killed circa 11,300 from an estimated population of 60,000. The dead included 10 physicians and 16 surgeons, thereby significantly depleting the island's healthcare workforce at the time.

In 1676, students were required to study anatomy by attending lectures and cadaver dissection on patients dying in the Sacra Infermeria, initially within the hospital and later in a dissection room built in the hospital's graveyard.<sup>5-7</sup> The teaching of medicine and surgery has continued, uninterrupted, since then making Malta's Medical School almost three-and-a-half centuries old and, as declared by Sir Temi Zammit is the locus from which "the Maltese medical profession derived its origin, identity and vitality".<sup>5</sup>

The University inaugurated a larger campus on site at Tal-Qroqq in Msida in the late 1960s, but only the preclinical years (first and second years) of the Medical Course were located on campus.<sup>7</sup> By 1968, cohorts of Malta Medical students in their third to fifth year of clinical studies moved to a custom-built building within the grounds of St. Luke's Hospital in Gwardamanga.<sup>8</sup>

Mater Dei Hospital in Msida opened in 2007, replacing St. Luke's Hospital as the country's acute general and teaching hospital. This public hospital was affiliated to the University of Malta, and offered all hospital and specialist services. The 250,000 square metre complex included over 800 beds and 25 operating theaters and cost over €580,000,000 to complete. The hospital is sited adjacent to the University of Malta, and incorporates the faculties of Health Sciences, the clinical years of Medicine and Surgery, and Dental Surgery in a purpose built Medical School wing. The Health Sciences Library, a branch library of the University of Malta Library, was located within this block, on the Hospital premises.<sup>7</sup>

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### COVID-19 IN MALTA

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The current COVID-19 (coronavirus) pandemic was initially identified in Wuhan, China, in December 2019,<sup>9</sup> and since then spread to virtually all countries in the world, resulting in over 13 million infections and well over half a million deaths. The pandemic is certainly not 'over'. Indeed, many countries particularly in Latin America and the East have yet to reach the peak of their first wave of infection, whilst others especially China, the Far East and Europe are recording up-surges and, in some cases, a second wave of infection, often coinciding with relaxation of lockdown measures. In medical terms, a second wave

refers to a resurgence of infection in a different part of a population after an initial decrease.<sup>10</sup> Malta adopted an early and aggressive 'trace and isolate' policy that was well enforced and supported, and has fared well with 674 cases and 9 deaths recorded during the first wave of the pandemic.<sup>2</sup> The country is presently in a transition phase with a general return to "new normal", relaxation of lockdown and soon-to-reopen flight access. The resurgence of a second wave remains a possibility, and its magnitude, unknown.

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### MALTA'S RESPONSE

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In order to address an expected strain on the healthcare system, in early March 2020, the hospital underwent extensive changes to accommodate the pandemic. Provision was made to increase capacity to ventilate 100 patients in five intensive care facilities as opposed to the former single 20-bed intensive care facility.<sup>4</sup> An additional 600 beds for COVID-19 patients were added, with escalation plans that utilised patient corridors, service corridors, the hospital foyer and the Medical School.<sup>4</sup> Indeed, the entire Medical School barring a few offices, were relocated twice, *en masse*, to first one and, when this was taken over by yet more 'beds-for-COVID', to a second more distant site on the University Campus. The Library was gutted, all books placed in storage and converted into a large 40-bedded ward, the Boardroom replaced with a store room and lecture rooms and offices changed into facilities for ward staff. The preparation and implementation of these changes were completed within just a few days, and translated into a radical metamorphosis as will be shown later in this paper.

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## SOCIAL DISTANCING, TEACHING AND MEDICAL EXAMS

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A strong and relentless campaign was orchestrated by the Superintendent and Directorate of Public Health, the Ministry for Health and indeed, the Government of Malta for social distancing, staying at home, encouraging employers to provide telework facilities to all employees, the wearing of masks/visors, and maintaining personal hygiene measures, including regular washing of hands with soap etc.<sup>1</sup>

On-site education in all Schools, Higher Institutions and the University were stopped in March,<sup>1</sup> with transition to various remote teaching modalities for formal lectures and tutorials, with arguably the most popular being Zoom.<sup>11</sup> The Medical School with a mantra for hands-on clinical teaching, was particularly hard-hit and had to re-think at short notice. The inevitable reduction in hands-on teaching, bedside and patient contact, was unfortunate and, in a worse-case scenario, was epitomised by Morawo and colleagues:

While live virtual learning has allowed for continued education, it presents its unique challenges. The impersonal nature of the virtual learning environment creates a propensity for detachment and disengagement. While the video function is turned off and the microphone is muted, a participant can completely disengage from virtual learning while still appearing to be present.<sup>12</sup>

Fortunately, the events that have led to this radical change in scenario and enforced *modus operandi* occurred close to the end of the scholastic year. Nevertheless, several student cohorts had yet to complete their clinical

attachments especially in Medicine, Surgery, Obstetrics and Paediatrics, and many lectures and tutorials had yet to be delivered. Clinical attachments had to be suspended and are now being re-scheduled while lockdown is relaxed, whilst outstanding lectures/tutorials have been 'delivered' on-line using a plethora of platforms.

Clinical exams had to be altered, in some cases, with significant deviations (and, therefore, effort) from previous examinations, so as to exclude 'live' patients, increase simulation, and introduce social distancing and protective precautions. For example, in Paediatrics, although the Final Year Clinical Exam format was retained, the number of students examined during each session was halved, the examination period doubled and gaps between exam days tripled. These changes necessitated an 8-fold increase in the material (questions) that needed to be prepared to cover the entire examination. For written examinations, at the time of writing, the university has invested heavily for the June 2020 examinations in WISEflow, a "more than paperless" platform that constitutes a well proven cloud-based platform providing for digital examinations and assessments. It allows students to work on their own devices during exams, with or without proctoring (supervision).<sup>13</sup> This was a radical change and necessitated close liaison with (and considerably more work and support from) the University IT Department, rigorous and time-consuming training for all staff, and many more man-hours to set each examination paper. For various reasons, an unproctored format was chosen so that a degree of 'cheating' could not be eliminated, although several in-built measures within the system are designed to reduce this to a minimum. To date, and with credit to the IT Department and all

involved, numerous examinations have now been completed successfully using this platform.

### MALTA MEDICAL SCHOOL AND UNIVERSITY

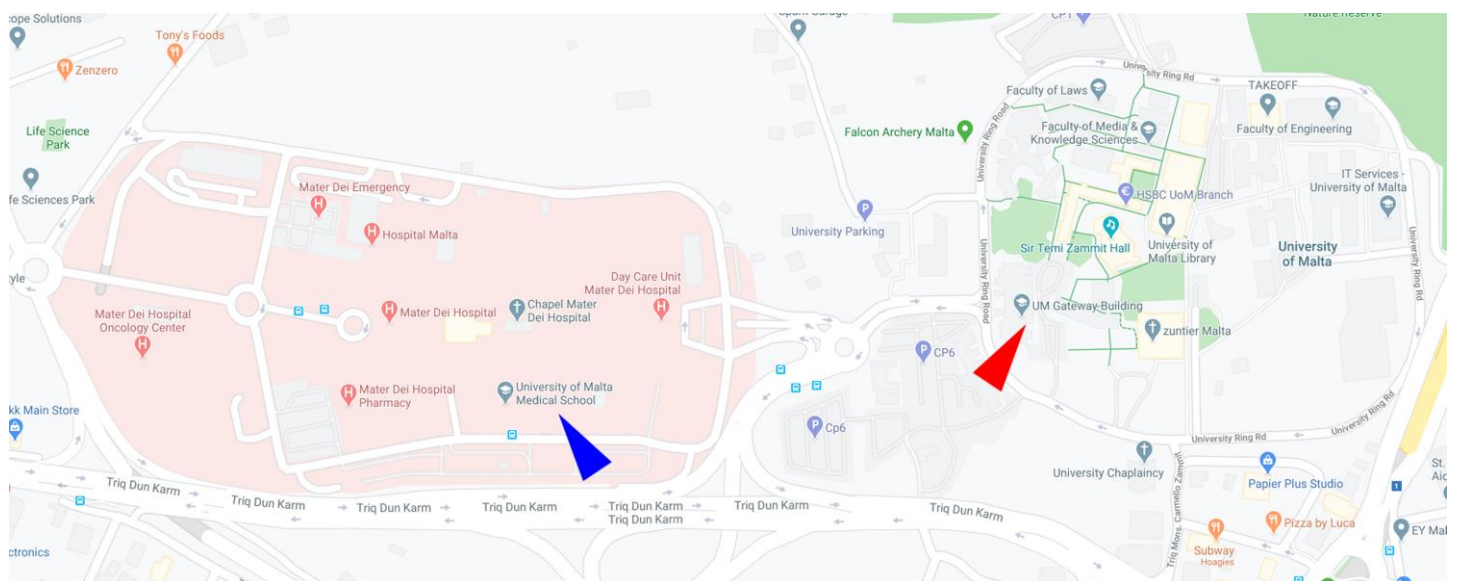
Both the Medical School as well as the University of Malta campus (which is just east of the hospital) have also sacrificed physical space to Malta's COVID-19 pandemic preparations. The University has been partially relieved of Gateway Building (figure 1 – red arrow) which is the building on campus closest to the hospital.<sup>14</sup>

Gateway now contain two wards that can take 42 patients. In addition, Medical Staff moved to temporary offices in Gateway in order make space at Medical School for a potential wave of patients.<sup>15</sup> Two thirds of the Medical School has been taken over (figure 1 – blue arrow).

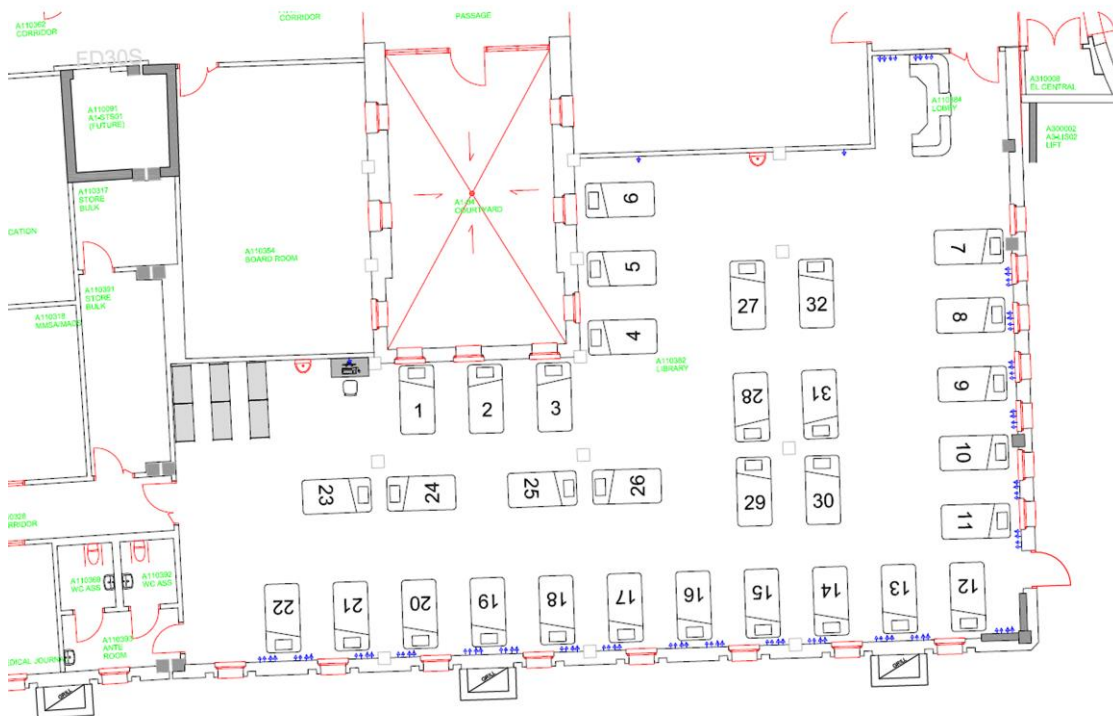
The library was gutted and converted into a 40 bed ward as can be seen in the engineering escalation plans (figure 2). Figures 3 and 4 show the work in progress and the final result. Figure 5 shows the plastic covered Medical School reception area, faced with a food trolley and extra beds (figure 6).

The adjacent board room was converted into a store room (figure 7) and the adjacent conference room was converted into a staff rest room (figure 8). The south corridor of Medical School along with the hospital's former VIP parking is now a COVID swabbing hub (figure 9). The larger lecture rooms have also been affected. The centre of the hospital housed 3 large overlying lecture halls and the ground floor has been split into two wards (figure 10). The benches are stacked outside, almost covering the hospital chapel entrance (figure 11).

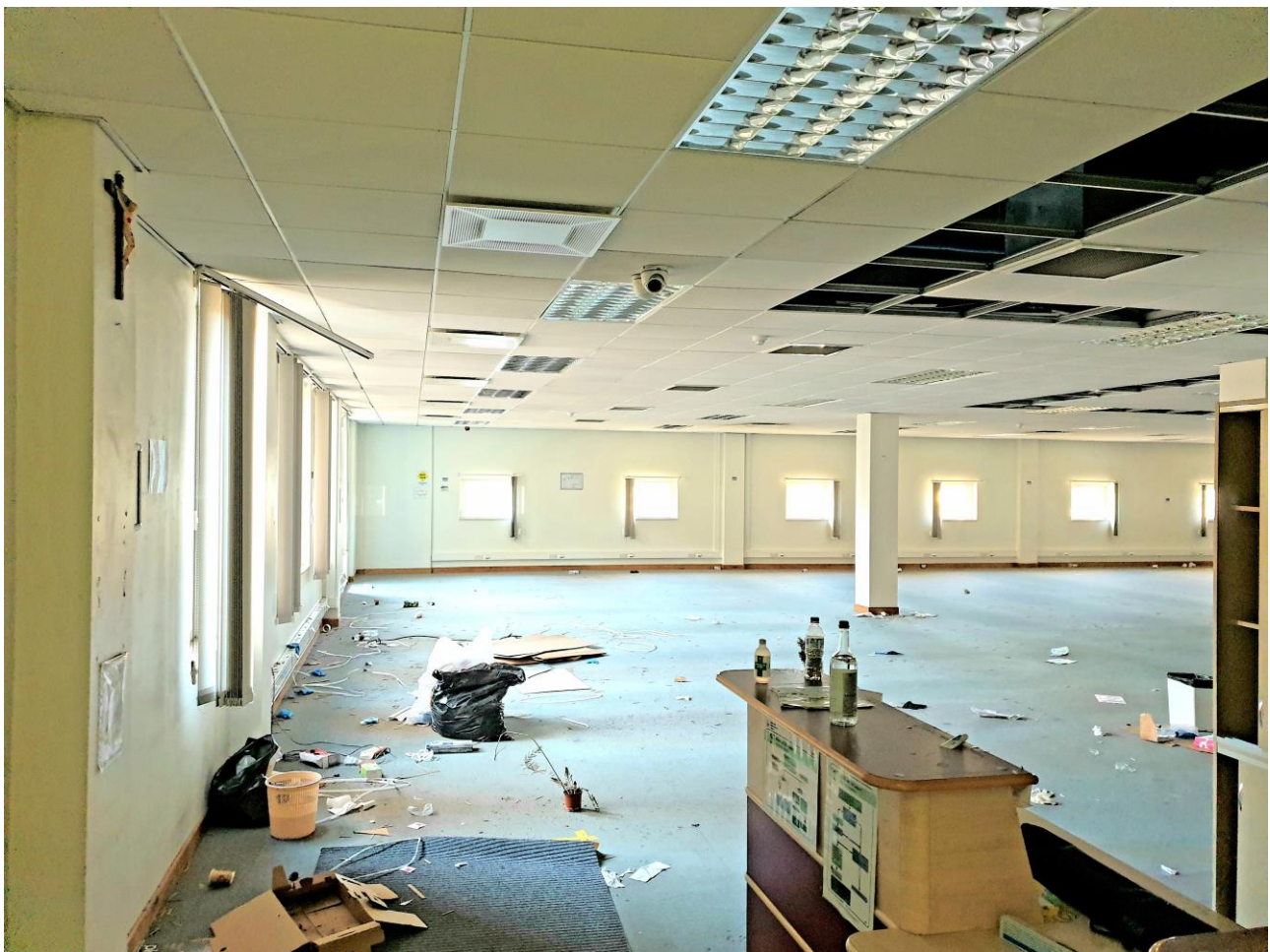
**Figure 1** Map showing location of Mater Dei Hospital, just west of the University of Malta campus.



**Figure 2** Escalation plans as implemented for the Medical School Library.



**Figure 3** The Medical School Library being gutted and converted into a ward.



**Figure 4** The Medical School Library after conversion into a ward.



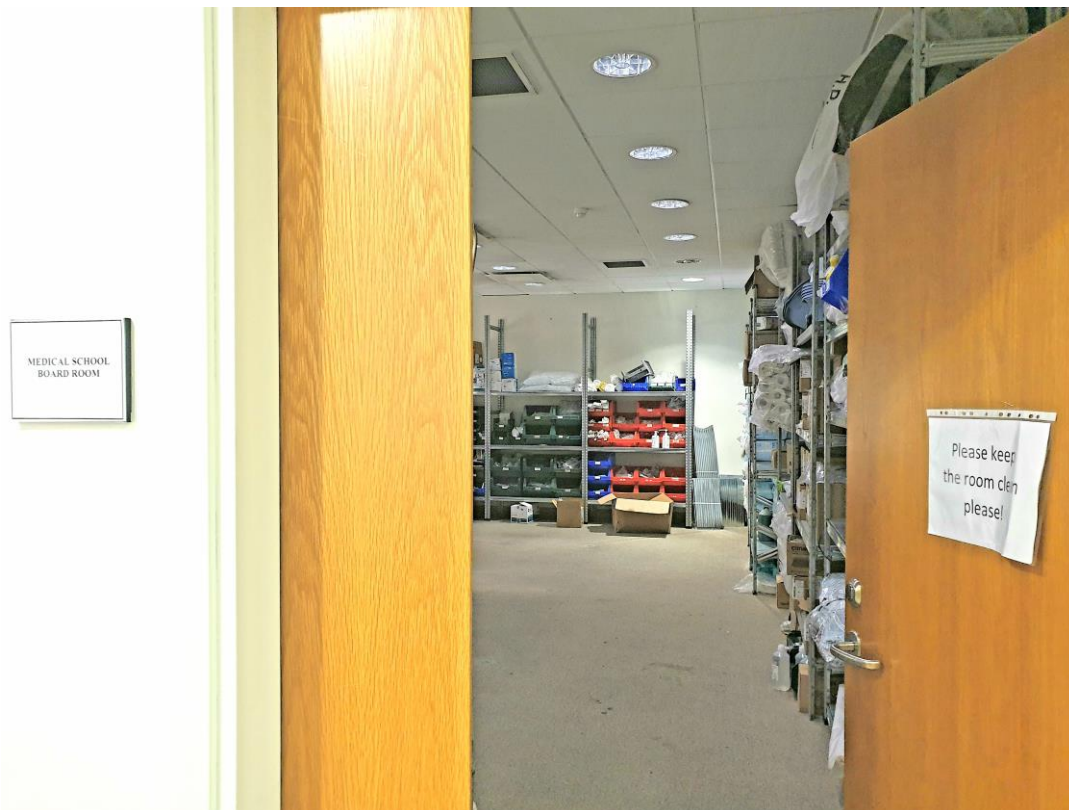
**Figure 5** The Medical School reception.



**Figure 6** The Medical School reception area complete with extra beds for the adjacent ward and a food trolley.



**Figure 7** The adjacent board room is now a store room.

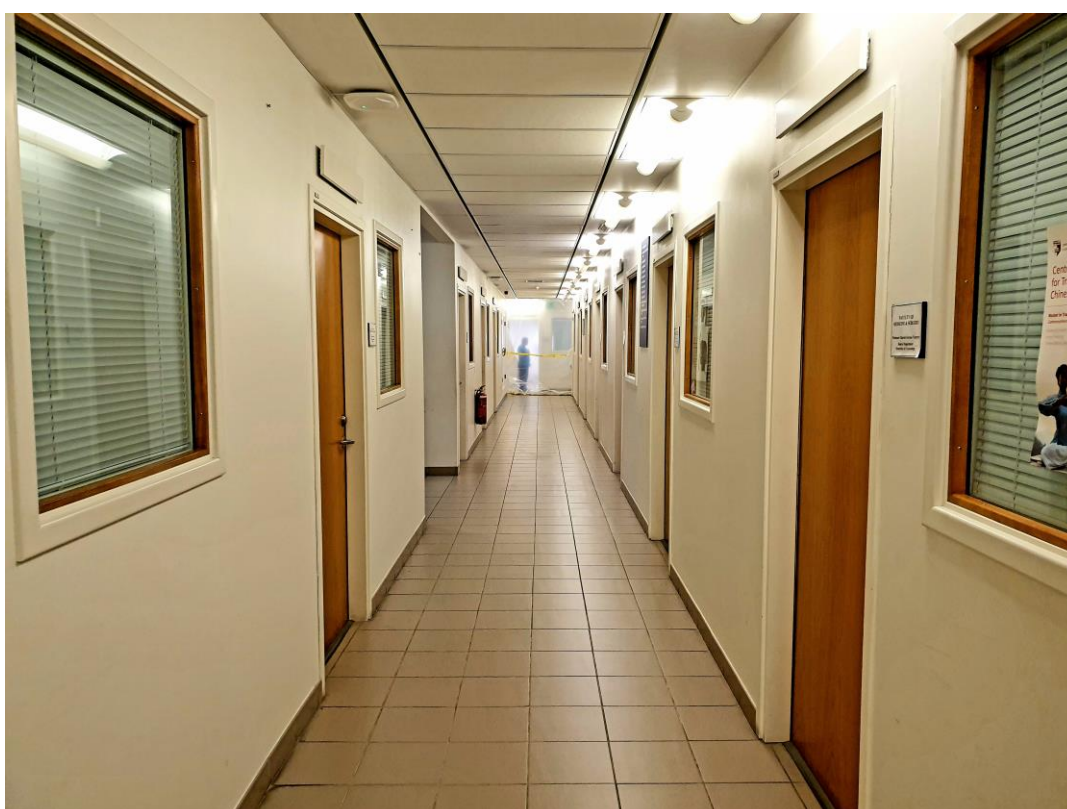




**Figure 8** The conference room is now a staff rest room.



**Figure 9** The south corridor is now a COVID swabbing hub.



**Figure 10** Lecture halls converted to wards.



**Figure 11** The benches from figure 10 stacked in front of the Hospital Chapel.



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## THE FUTURE

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Plans had already been laid for the Medical School and the Faculty of Health Sciences to move to a new building, an 8,000 square metre facility between University and Mater Dei Hospital (see figure 1). The space vacated from the existing facilities on the Hospital site will be converted into more wards and clinical areas to provide more services to patients.<sup>15</sup> There are certainly no plans to return the physical spaces to the Medical School as yet due to the possibility of the pandemic reappearing. The World Health Organisation has observed that past pandemics have been characterised by "waves of activity spread over

months".<sup>16</sup> In addition, the hospital will remain prepared not only for an increase in cases in the short term, but also potential co-infected patients with seasonal influenza and COVID-19 next winter,<sup>17</sup> and hence increased bed requirements.

In the interim, the 'old' offices have been re-populated by Medical School Administrative and Teaching staff. The disruption to University and to Medical School has been monumental but the team has rallied magnificently and, despite the unforeseen and unchartered circumstances the work of the Medical School and examination processes have taken place without any hitches.<sup>18</sup>

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