

When life hands you lemons, make lemonade: Adapting undergraduate clinical medical education to COVID-19 pandemic

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Adapting medical education to COVID-19 pandemic: Singapore's experience

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Ever since the first case of COVID-19 was reported in Singapore on 23 January 2020, the number of cases have increased dramatically. In view of the unpredictable nature of this unknown virus and having learnt valuable lessons from the SARS epidemic in 2003, Singapore authorities took the decision to raise the nation's Disease Outbreak Response System Condition (DORSCON) ¹ level from yellow to orange on 7 February 2020. This indicates that COVID-19 is considered a severe disease which spreads easily from person to person, but has not spread widely in Singapore, and is presently being contained. As of 13 March 2020, there was a total of 187 confirmed cases, with 91 active cases.² To ensure the timely containment of the disease and prevent uncontrolled spread within the community and amongst healthcare workers, strict measures have been taken to manage the flow of visitors entering any healthcare institution and also to restrict the movement of staff and patients between various healthcare institutions unless in extenuating circumstances. All non-essential meetings have been cancelled or moved online to further reduce risks.

Unsurprisingly, clinical postings for the medical students have also been suspended, much to the distress of the Lee Kong Chian School of Medicine (LKC) Year 4 students, who were about to start their clinical posting in Obstetrics and Gynaecology (OBGYN) on 10th February 2020 at KK Women's and Children's Hospital (KKH), Singapore. Fortunately, this distress was temporary as the curriculum planning committee promptly got together to find an alternative way of proceeding with the clinical posting without any direct patient contact whilst ensuring that all the learning objectives and the formative assessment criteria are met.

The traditional LKC OBGYN curriculum included core sessions that covered the theoretical part of the learning outcomes in an interactive manner. The students were then rotated through the outpatient/inpatient areas, labour ward (LW) and operating theatres (OT). They were expected to complete a list of workplace based assessments including case logs; partograms; direct observation of procedure skills (DOPS) evaluation for speculum examination and Mini-Clinical Evaluation Exercise (Mini-CEX). They were also expected to have observed at least one normal vaginal delivery and a few surgical procedures during their postings.

We explain here how we managed to achieve these learning objectives without the students' actual presence in KKH.

- An online virtual classroom (Google[©]) was created with all the students, administrators and the clinical leads to disseminate the schedules, clinical case scenarios and assignments. In order to ensure effective = and timely communication, a chat group consisting of the curriculum planning committee and LKC student representatives was set up. Detailed briefing was sent out to the tutors to inform them of the changes in curriculum delivery format.
- Core sessions: These were conducted through the web-based video conferencing tool (ZOOM[©]) that has the advantage of screen sharing and interaction between the tutors and students.
- “Clerking the expert patient”: Various clinical scenarios were posted on the virtual classroom on a regular basis. Standardised patient (SP) script for these scenarios were sent to the tutors. This allowed the medical students to elicit history from the clinician SPs following which case-based discussions were conducted through ZOOM[©]. This simulated patient encounter gave students the chance to practice targeted history taking, formulation of differentials and management plans and allowed an opportunity to complete their Mini-CEX evaluations.
- Virtual OT posting: Live surgery was streamed online through ZOOM[©] with patient’s consent along with voiceover by clinicians to allow the students to get a close-up view of the ongoing surgeries and enabling them to observe the required procedures.
- Virtual LW posting: Live video streaming of the LW showed the ward set-up to the students. The learning objectives for the LW posting were met through clinical scenarios discussion via ZOOM[©] and clinicians used videos to demonstrate various modes of delivery.
- The DOPS requirement was achieved by the students demonstrating their examination technique on mannequins at LKC premises with the tutors assessing this from KKH through ZOOM[©].
- Formative assessments of clinical knowledge was done through weekly single best answer assignments. These were published and completed online through the Google classroom platform.

Having successfully completed our first online OBGYN posting in the current COVID-19 environment, we have gathered feedback from our students to look at areas for improvement that could be applied to the next batch of medical students who will be embarking on their posting shortly. As much as we all agree that clinical postings and direct patient interaction could never be underestimated or replaced, in unique circumstances like this, we need to look into alternative methods like those described above to replace the traditional clinical teaching.

Novel portions of this curriculum such as the virtual OT experience has been very well received and the students have requested for it to be incorporated into the regular curriculum even after the clinical postings have resumed. This experience has allowed us to build a blueprint for medical education locally which can be applied to any extraordinary circumstances that requires suspension of clinical postings, like this COVID-19 pandemic. In addition, given the global spread of COVID-19, it is expected that medical schools worldwide will have to start suspending clinical postings as part of infection control measures. By publishing our team’s experience, we hope that educationists worldwide will be able to smoothly transit their clinical curriculum to online learning using ours as a reference.

There is no doubt that since the arrival of COVID-19 in Singapore and internationally, life as we know it has been thrown into disarray in some form or another. It is heartening to see the international healthcare community rallying together as we react rapidly on the frontline to institute precautionary measures, publish travel advisories, invent diagnostic kits and develop vaccines and treatment. However, we must not forget

that in times of pandemics, other aspects of life must go on. This includes the need for medical education to continue so that we can train our next generation of doctors well to equip them with the knowledge, skills and tenacity to deal with the next abominable pathogen which is lurking in the dark and waiting to strike. COVID-19 is not the first virus that has reached epidemic proportions and will not be the last³. What matters is as educationists, we have to balance the challenges of continuing medical education⁴ and strive to restore a certain degree of normalcy in our students' postings by harnessing technology widely used in social and business platforms to aid in their learning. In this way, learning can be maximised without compromising on student or patient safety.

As Mr Bill Gates expressed in his opening statement in "Responding to COVID-19- A Once-in-a-century pandemic?" published in the *New England Journal of Medicine*⁵, medical educationists share the "same responsibilities of solving the immediate problem and keeping it from happening again", albeit in a slightly different perspective. This pandemic has revealed the vulnerability of our clinical curriculum and the downstream impact it could potentially have on our medical students and healthcare community. It is imperative that educationists adapt quickly to provide alternatives to clinical postings and learn from these experiences to ensure that the next time something of comparable scale hits us, we will be equipped with a functional Plan B.

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