

### Clinical Medical Training during the First Wave of COVID-19 Pandemic: Universiti Tunku Abdul Rahman (UTAR), Malaysia Experience

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## ABSTRACT

**Introduction:** Clinical training forms the fundamental element in medical training in all medical schools. Unfortunately, most traditional face-to-face clinical teaching activities had to come to a halt during the COVID-19 pandemic and be replaced with online teaching learning (OTL) sessions. This paper aims to share our experience of implementing OTL sessions for our UTAR medical clinical years students during the first wave of COVID-19 pandemic and assess its outcome by collecting students' feedback. **Methods:** This was a cross-sectional questionnaire-based study conducted among MBBS clinical year students of Faculty of Medicine and Health Sciences, UTAR. The questionnaires survey feedback on OTL sessions, examinations conducted, and replacement classes. **Results:** A total of 113 medical students participated in the survey. The third to fifth year students' response rate were 93.0%, 59.2% and 100.0% respectively. More than 50% of the students scored 3 (good) for the components asked. It was found that 17.2% of fourth year students and 11.4% of fifth year students were in the opinion that replacement classes were not necessary and scored it 1 (poor). On the conduct of clinical exam, 17.5% of third year students, 37.9% of fourth year students and 25.0% of fifth year students graded it 4 (excellent). More than 60% of students preferred the traditional physical classes. **Conclusions:** The modifications of teaching done in this academic year 2020/2021 and the feedbacks gathered from the students will serve as a reflection to the faculty for future planning.

**KEYWORDS:** medical school; education; online teaching; COVID-19 pandemic

## INTRODUCTION

Clinical exposure and teaching are the core components to medical training. Activities like bedside teaching, outpatient's clinics teaching, daycare procedures teaching, and surgical skills hands-on teachings in operation theatres form the fundamental elements in medical training in all medical schools. Unfortunately, without any admonishment, the COVID-19 pandemic came and has crippled not only the healthcare system but also the medical education across the globe. Most clinical teaching activities had to come to a halt, almost instantaneously.

In Malaysia, the government announced its first movement control order (MCO) on 18th March 2020 to curb the spread of the Covid-19 infection. It was extended and eventually went through different phases to ease the MCO. During the MCO, many medical

institutions in Malaysia have suspended the traditional face-to-face classroom teaching and replaced with online teaching, including the Faculty of Medicine and Health Sciences (FMHS), Universiti Tunku Abdul Rahman (UTAR). Our academic year for 2020/2021, which was scheduled to begin on 15th June 2020 had to be modified to align with the MCO implementation as well as directives from respective authorities, including the Ministry of Higher Education (MoHE), Malaysian Medical Council (MMC) and Ministry of Health (MoH). Online teaching as a supplementary tool of medical teaching is not new to many universities but to adopt this method exclusively at that time was a daunting experience and posed as a challenge to many, both teachers and students.

The objective of this paper is to share our experience in implementing online teaching learning



(OTL) sessions for our UTAR medical clinical years students in the academic year 2020/2021 during the first wave of COVID-19 pandemic in Malaysia and assess its outcome by collecting students' feedback. Third to fifth year medical students were selected for the survey, as this cohort needs to spend more of their time in the clinical setting. Hence the OTL implementations were most impactful to them. We hope the learning points from our experience will help other medical schools to consider similar adjustment to the medical teaching in future challenging time, at the same time ensuring the validity and reliability of medical education. The following are some of the alterations we have adopted throughout the MCO in the country.

### **i) Adjustment to the Academic Calendar and Replacement Classes**

Firstly, the academic year calendar needs to be adjusted due to the barring of students entering teaching hospitals. The faculty has decided to extend its academic calendar from the usual May intake to September, allowing an extra of three months period for the affected cohort of students. Approval was obtained from the Senate. The extended period was meant for replacement classes with resumed clinical teachings to be delivered when situation in the country improved. Replacement classes with the total of hours to be covered were meticulously designed, in accordance with the guidelines set by the MMC. Lecturers conducted the replacement classes via face-to-face approach as much as possible with simulated patients, real patients, and mannequins in the campus. During the extended period from June to August 2021, students also had the opportunity to go back to the teaching hospitals i.e., Hospital Kuala Lumpur and Hospital Ampang with strict observation of guidelines from the hospital's directors and the MoHE.

Besides, throughout the MCO the academic year was divided into two phases – first phase was catered for full OTL sessions during the full lockdown of MCO, whilst the second phase was planned for face-to-face hybrid learning. This plan was made in the hope that situation would be better by the last quarter of 2020 and teaching hospitals would allow students' placement again.

### **ii) Online Teaching-Learning**

We have to adopt and adapt to online platforms as the tools to teach students. At UTAR we have an existing online learning environment, which is known as Web-Based Learning Environment (WBLE) as a platform for E-learning. Assignments, forums discussions, quizzes and lecture videos are uploaded in WBLE as e-learning materials for our students. Hence E-learning was not something new to most of us but the sudden change to full remote learning had caught most of us somewhat unprepared. During the pandemic, UTAR has adopted Microsoft Teams (MT) and Zoom as the platforms for online teaching learning. Trainings were conducted for both lecturers and students beforehand. Since then, virtual classrooms have become the new normal.

With the modification done to our teaching-learning format, we have to ensure that our students could still achieve the Miller's Pyramid of Clinical Competence of level 4, the level where they need to be able to show and demonstrate their knowledge and skills [1]. On 16 February 2021, MMC released its 2nd version of guidelines [2], which set the minimum requirement of 30% of clinical teaching learning using real patients, simulated patients with/without mannequins for clinical year students. With the new guidelines, we were able to consolidate our planning of teaching further. However, our faculty has decided to aim a minimum of 50% of physical patient-interaction instead, in the hope that our students could be given more exposure to real patients and more hands-on for history taking and physical examination. The extra 20% of teaching was carried out during the replacement class period.

### **iii) Modifications of Clinical Teaching Method**

Many simulation-based learning environments were designed to improve the quality of our medical teaching for the students. For example, bedside teaching (BST) was conducted virtually with history-taking sessions from simulated patients or real patients after consent was obtained. At times lecturers or students would become simulated patients during the history-taking process. Students would then examine each other to demonstrate clinical examination method to uphold the psychomotor skill training. Following that, the students

would be given photographs or videos of signs for recognition and investigation results for interpretation. Further discussion on management plan would then be carried out. Some have reported similarly on the modified approach in clinical medical teaching [3-5]. Patient video cases can increase student's exposure to a wider variety of patients and provide opportunities to practice clinical reasoning skills [6]. Besides this modification, some of our practicing lecturers also arranged for the students to get clinical exposure at their respective centers, for instance, private clinics, private hospitals, and a private dialysis center, due to limited access to our teaching hospitals.

For practical sessions, video demonstrations of simple procedures, for example suturing skill, percutaneous biopsy, peritoneal and pleural paracentesis were shown to students virtually, followed by debriefings. Under Radiology course, radiological reporting sessions were also conducted via MT by showing students the radiographic images of different modalities, from plain radiographs to computed tomography scan, and the step-by-step approach on how to report the findings.

As the students were also not allowed to enter operation theatres (OT), virtual OT sessions were also planned. Our surgical lecturers organized virtual OT sessions with colleagues from other centers to live streaming of operation procedures to students with live interaction with surgeons, after consent was obtained from patients. In this manner, the students were able to continue observe 'live' operations during the period of limitations. Besides the aforementioned, many other simulation-based learning environments were also designed and conducted, such as virtual ward-rounds, virtual clinic sessions, virtual visits to various health institutions, for instance Leprosarium Centre and Hospice Centre, as well as community virtual home visits under the Family Medicine posting.

#### **iv) Continuous Assessment**

To safeguard the quality of our graduating students during this trying time, online assessment formats were meticulously designed. For each academic year, the academicians have to carry out the End-of-Posting (EOP) examinations that are usually held at the end of

each posting rotation. All these assessments were successfully implemented after careful considerations for all parties involved, including the candidates, the examiners, the invigilators, the patients, and supporting staffs from the faculty. The venue set-up in the campus for the clinical exams was prudently planned to avoid over-crowding and to assure proper social distancing with good ventilation at the same time.

We also had backup and technical support from various trained personnel throughout the period from preparations to conduct of these assessments. Theory papers were exclusively carried out via online mode utilizing either the Google form or Word document. Students' briefing and mock sessions were held for the students for optimal conduct. On the other hand, clinical examinations were implemented at the university campus via hybrid mode with the recruitment of simulated patients and/or real patients supplemented with use of videos, photographs, and mannequins for demonstration and recognition of signs. These arrangements would ensure adequate assessment of the students' psychomotor competency besides the cognitive aspects.

#### **METHODOLOGY**

To assess the success of the OTL sessions conducted for that academic year, medical students in the third to fifth years were recruited to participate in the survey. This was a cross-sectional questionnaire-based study conducted among the clinical medical students of UTAR. The questionnaires survey feedback on OTL sessions, examinations conducted, and replacement classes. The questionnaires were sent to students via Google survey forms and feedback collection was done at the end of the academic year 2020/2021 between September and October 2021. The survey tool consisted of seven components: the first component of the questionnaire asked about the respondents' academic year of study. The second to sixth components assessed the respondents' opinions on five items – 1) Phase 1 teaching, 2) Phase 2 teaching, 3) Online Theory Exam, 4) Clinical Exam and 5) Replacement Classes. On a four-point Likert scale, the five items were graded accordingly. The scales were graded from 1 (poor), 2 (satisfactory), 3 (good) to 4 (excellent). In the last

component, students were allowed to write in their comments and suggestions for improvement.

## RESULTS

A total of 113 responses were collected. The third, fourth- and fifth-year medical students' response rate were 93.0%, 59.2% and 100.0% respectively (Table 1). From the survey, majority of the third to fifth year medical students (more than 50% respectively) scored 3 (good) for the five items asked. However, it was found that 17.2% of fourth year students and 11.4% of fifth year students were in the opinion that replacement classes were not necessary and scored it 1 (poor). For items on conduct of clinical exam, 17.5% of third year students, 37.9% of fourth year students and 25% of fifth year students graded it 4 (excellent). They felt that the clinical exam was conducted well with the recruitment of simulated patients and/or real patients supplemented with use of videos, photographs, and mannequins for demonstration and recognition of signs.

**Table 1** Total number of clinical students and their response rate

Clinical Years	No. of Students	Response rate, n (%)
Year 3	43	40 (93.0)
Year 4	49	29 (59.2)
Year 5	44	44 (100.0)

From the comments session, it was noted that more than 60% of total students were in the opinion that traditional physical classes were preferred as they felt online lectures and tutorials were less interactive. Internet connectivity disruption was one of the main issues faced during OTL sessions.

## DISCUSSION

With all the modifications of medical education taking place in the university during the lockdown, the outcomes need to be measured. The goal of the survey was to determine the clinical medical students' opinions on the modifications of teaching and OTL sessions conducted during the MCO period in Malaysia. The results of the survey showed that more than 50% of each clinical year students felt that the modifications done by the faculty were overall good. However, there were challenges that we faced during the OTL

implementation. The most common problem encountered by students and lecturers was internet connectivity. Despite the penetration in Malaysia is at 87.4%, lecturers and students still face the internet stability issue [7], which could be due to high number of Malaysians being online during the MCO period.

With all classes done remotely, lecturers have to spend more time in creating questions and preparing teaching materials for the online classes. Lessons taught via online platform were less interactive as compared to physical ones, as webcam lag was another often-encountered issue interfering with the teaching process. Lacking real patients' communication and exposure was the main setback during the entire academic year, of which simulation-based learning environments could never replace.

The EOP theory exam that was conducted online via either the Google form or Word document comprised of a variable of assessment formats. For the third-year students, their theory component consisted mainly of single best answers (SBA) and extended matching questions (EMQ). For the fourth- and fifth-year students, theirs were of SBA, objective structured practical examinations (OSPE) and short answer questions (SAQ). Invigilators were recruited for the proctoring of students during the conduct of the exam, with each invigilator overseeing a group of four students via the MT platform. The entire invigilation process was also recorded for future reference if needed. The survey on item 3) Online Theory Exam was scored satisfactory and above across the three years of participating medical students.

Splitting the academic year into Phase 1 and Phase 2 was an inevitable move during the MCO period, as students have no patients' exposure during the initial full lockdown. Recruiting simulated patients was also not possible. However, there was a mixture of opinion on its implementation. Lack of face-to-face interaction during Phase 1 was one chief complaint by the students. Besides, students find it difficult to correlate theories that they learned in Phase 1 into Phase 2 teachings.

The faculty was aware of these limitations during the conduct of OTL and was always in discussion on how to support the students and clinical staffs. Besides the academic modifications, the faculty has also ensured that online counseling platform was

available to support the mental health of students during the difficult time. A tele-consult platform to address any COVID-19 related queries from students and lecturers was also set up. Financial assistance to students, laptop loan and free-special data plan packages, were amongst other aids that were also introduced during MCO.

## CONCLUSION

To conduct effective OTL sessions is challenging to both lecturers and students. The modifications of teaching done in this academic year 2020/2021 and the feedbacks gathered from the students will serve as a reflection to the faculty for future planning if remote learning is again unavoidable. While the COVID-19 pandemic has changed our university medical education dramatically with the distinctive rise of E-learning, it also has taught us that borders no longer confine knowledge dissemination. Perhaps, it is incumbent on all of us to explore the full potential of OTL, while not to lose the “personal touch” in the process.

## Conflict of Interest

Author declares none.

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## Authors' contributions

LBS interpreted students' feedback and is the main contributor in writing the manuscript. All authors read, edited, and approved the final manuscript.

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