

Hybrid ZOOM ward classes for clinical learning during COVID 19 pandemic; is it feasible? experience from a university surgical Unit

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Abstract

With the rising numbers of COVID – 19 patients, universities are moving toward virtual teaching platforms. It is acceptable for lectures and discussions. But conducting ward classes in virtual platforms is practically difficult. We initiated hybrid ZOOM ward classes with a simple method of using mobile phones at the University Surgical Unit of the Colombo South Teaching Hospital. Feasibility and the student's perception of the effectiveness of such teaching were evaluated. Clinical teaching using hybrid ZOOM is feasible. Mobile phones provide satisfactory audio and video experience. The majority of the students are satisfied with the hybrid ZOOM ward classes.

Introduction

COVID 19 pandemic has taken the world by surprise. It has made people explore new entities to practice “new normals”. One key principle of COVID 19 preventive measures is adherence to social distancing. Most countries have been implementing restrictions on social gatherings in the form of lockdown or imposing curfew.

This has lead to significant compromising of both undergraduate and post-graduate education programs worldwide. Universities are moving into virtual teaching platforms and distance education in this difficult time. Distant education is defined as “institution-based, formal education where the learning group is separated, and where interactive telecommunications systems are used to connect learners, resources, and instructors” [1]. Virtual learning is defined as “learning that can functionally and effectively occur in the absence of traditional classroom environments” [1]. Kaup et al have discussed possible electronic resources and approaches that can be used in distant learning. Their main suggestions are virtual classrooms, e-seminars, case-based discussions, journal clubs, discussions on surgical techniques and webinars [2].

The feasibility and effectiveness of distance education are debatable. One study on distance education during COVID 19 outbreak among medical students in Jordan has shown that the majority preferred “traditional face-to-face teaching” over solo online teaching. Students are also recommended to convert online teaching into more integrated educational systems [3].

With the rising numbers of COVID 19 patients, health systems are going into a crisis. New adaptations have been made like cutting down routine surgeries. The number of routine patient admissions is dropping as well. Medical students cannot come towards during curfew and lockdown periods. Even when no travel restrictions are gathering a large number of students at a given time is not allowed. All these factors have noticeably led to the compromising of ward work and clinical learning [4]. Therefore solutions should be made to overcome this deficit by utilizing available limited resources.

It is more challenging when ward classes and bedside teachings are considered. It has been replaced by video demonstrations and case-based discussions in many universities [5]. But the soft skills and hands-on experience cannot be given with those methods.

The circumstances of Sri Lankan medical students are no different. Clinical appointments of medical students of the Faculty of Medical Sciences of the University of Sri Jayawardenepura were temporarily withheld during the curfew period. After the curfew, professorial appointments and other clinical appointments have been re-activated with adherence to the guidelines of minimal gatherings. One professorial appointment group was subdivided into 3 groups and are allowed to come towards at separate times. These groups are advised not to mix and to adhere to the concept of a bio-secure bubble. As an example, the surgical professorial unit receives about ten students per day.

Though few students from the group attended ward work daily, we aimed to conduct ward teachings for the entire group by initiating hybrid-ward classes using ZOOM software. Feasibility and the student's perception of the effectiveness of such teaching were evaluated.

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Methodology

Hybrid ward classes were conducted utilizing the ZOOM platform using smart phones. Few patients for short case discussions were selected. (Patient 1 – examination of a colostomy, Patient 2 – examination of an intercostal tube, Patient 3 – examination of an external fixator, Patient 4 – inguinal hernia examination). Patients were thoroughly explained about the process, and consent was obtained to take part in the class and for video transmission.

Ten students were present at the ward and 20 would join online. Zoom link was set up. One volunteer student was asked to examine the patient. Two mobile phones at the ward end were connected via ZOOM with the online students. Tutor's phone was used as the main connector for both audio and video transmissions. The tutor captured the video of the student examining the patient while sharing it with all online students. The tutor used hands free set/Bluetooth buds for better audio experience.

One ward student's phone was used as the second active phone. It was connected to ZOOM and kept with the students to connect them with the online group during the discussion. Only the audio was kept-on, in that phone and it was kept in speaker mode. The ward students and the online group communicated effectively through this zoom connection. Approximately 40 minutes were taken for a class. Image 1 shows a model setting of the hybrid bedside ward class.

Feedback form was developed to assess students' perception of the suitability of mobile phones for virtual ward classes, the quality of audio and video transmission, overall satisfaction of the experience and invite them to comment about the experience and suggestions. This form was distributed via Google Forms and responses were analyzed anonymously.



Figure 1. Model hybrid bedside ward teaching

Results

Ninety percentage [27/30] of the students were satisfied with the audio and video quality of the connection. Everyone agreed that using a mobile phone camera was effective. All students said the effects of background noise at the ward end was manageable. Ninety-six percent of these online students felt that they had actively participated in the sessions while 86.7 % were satisfied with the overall experience of the hybrid ZOOM class and the rest were neutral. All wanted to continue this hybrid method forward teachings.

When they were openly invited to comment, the following responses were recorded.

“Could not gain the 3D experience, but this was good”

“With two active mobile phones, better experience was gained as we heard the students' responses clearly”

“Please cover all short cases in this manner”

Discussion

Clinical learning is a key element in the undergraduate curriculum. It gives the students firsthand experience of ward work and clinical decision making while improving their soft skills and communication skills [6]. Therefore it is hard to substitute by formal classroom teaching.

As universities are moving into virtual platforms, many online teaching methods have been utilized during the recent past [2, 7] and new technology has been used innovatively [8]. Those can be effective to replace traditional classroom teachings [9]. Some institutes have planned to deliver the entire curriculum online during this pandemic [2, 5]. Conducting hybrid practical assessments in postgraduate exams are also described [10]. But it is difficult to replace clinical teaching with only online lectures for obvious reasons.

Andrew et al have described that to overcome this difficult time in medical education, educators will have to optimize available training experiences and introduce new technology [11].

Many studies have been done to assess the satisfaction and effectiveness of online lectures. One study conducted among medical students in South Korea had reported that the students were generally satisfied with the online courses and there was no change in the student satisfaction on individual lectures compared to previous years. According to the student responses, the strength of online learning was the schedule flexibility it provided; the ability to learn from anywhere, whenever they want [12]. But studies done on hybrid bedside ward teaching and clinical teaching are scarce.

Hybrid ward teaching which we adopted gave the online students the feeling of active participation. One objective of

this is to involve the entire group in a particular bedside teaching session. That is because with the limited numbers of patients coming to surgical wards during this pandemic and also the rostered attendance of students, each student will not get the opportunity to see the “regular number” of patients.

This method is simple and doesn't need hi-tech equipment. Two mobile phones with network connections are used with the ZOOM platform. Bluetooth buds or a microphone with a phone headset and a selfie stick or tripod are optional. We have even conducted few hybrid virtual ward rounds with the same technique. The same method has been currently utilized for postgraduate surgical teaching at our unit as well.

Though the ideal ward experience cannot be given with this method, the overall satisfaction of the students was high. They wanted this to be continued for all ward teachings. The effectiveness of this method of teaching with regards to gaining knowledge, skills and attitudes has not been evaluated in this study and is an opportunity for future studies.

Conclusions

Clinical teaching using the hybrid ZOOM method is feasible. Mobile phones provide a satisfactory audio and video experience. Using two mobile phones at the ward end – one for the tutor and the other for the students to respond – provides a better sense of student participation. The majority of the students are satisfied with the hybrid ZOOM ward classes.

All authors disclose no conflict of interest. The study was conducted in accordance with the ethical standards of the relevant institutional or national ethics committee and the Helsinki Declaration of 1975, as revised in 2000.

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