EDITORIAL

Pedagogical changes in undergraduate medicine in the new normal – what should remain and what should not?

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Before the COVID-19 pandemic most of the teaching, learning and assessments in undergraduate medicine happened as in-person or face to face activities. However, over the years online teaching, learning (e-learning) and assessments were making significant advancements. The COVID-19 pandemic posed an unimaginable threat to medical education due to the restrictions that happened with lockdowns, social distancing, isolation, quarantine procedures as well as restrictions to travel. A drastic change had to happen to sustain medical education during this period. Although the systems were not fully geared for such a change a dramatic change in the pedagogy of medical education including non-clinical and clinical teaching and training as well as assessments happened in many parts of the world.

There are certain advantages in the online teaching, learning as well as assessments. At the same time, there are distinct disadvantages as medical teaching is beyond mere acquisition of factual knowledge. As the COVID-19 pandemic has virtually come to an end the medical educationists and the educators need to critically analyse and select what is good in the newer methods while trying to overcome some of the weaknesses in them [1]. On the other hand, the age-old methods which were essential for clinical training and assessments may have to be re-introduced with necessary modifications to mold the medical graduates of the new normal to the future.

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Teaching and learning methods before the pandemic

The teaching and learning in undergraduate medicine mostly happened as in person or face to face lectures, tutorials, discussions, or practicals in settings such as classrooms, lecture rooms, laboratories or in hospital wards (patient bedside) especially in less resourceful countries. Even the assessments were mostly paper based structured essay, multiple choice questions, in person OSCEs (objectively structured clinical examinations) or clinical bed side examinations. These methods had their own advantages as well as disadvantages. They evolved over centuries and were very familiar to both teachers and students and were well established. The opportunities for cheating in assessments were minimal. The other advantages included the opportunity for both the teachers and students to engage and interact actively and lively. In addition, in person clinical teaching and learning helped development of generic skills such as verbal communication and presentation especially when students shifted to another language for undergraduate education from their mother tongue after secondary school education [2,3]. The disadvantages were that they were costly for institutions to repeatedly conduct the same activity in person. Costly and time consuming for students considering travel, having to live closer to the institution, expenditure on clothing and had higher chances of missing teaching activities even due to trivial illness or other reasons [4]. Teaching material were not commonly available online for repeated perusal for the learners to study at their own pace.

Methods used extensively during the pandemic

Several methods of teaching and e-learning became popular and were extensively used during the COVID -19 pandemic. They were either synchronous or asynchronous methods. Synchronous teaching-learning methods involves real time interaction and education through platforms such as Zoom, Skype, Microsoft teams,

GoToMeeting, Blackboard Collaborate and WebEx™. Asynchronous platforms allow the students to learn at their own pace through pre-recorded lectures, slides, videos, discussion forums and quizzes. Examples of such platforms include Google Classroom, Blackboard, Moodle and Schoology [5]. In addition, social media platforms such as YouTube and Telegram have also been used in medical education [6].

There had been many developments in clinical and other skills training using online and e-based methods. Virtual patient simulations have gained much attention. High-fidelity and virtual reality simulations that included live patient actors, facilitator interactions and real-time assessment of vital signs, labs, and imaging places the student in a realistic and dynamic environment to develop their clinical skills. In addition to learning, these simulations allow peers to assess the student's clinical skills and knowledge effectively [7,8]. Furthermore, virtual reality teaching methods and platforms such as Body Interact™ and DecisionSim™ are highly beneficial for medical students to improve their clinical skills and performance in safer environments [9,10]. In addition to teaching and learning online or e-platforms were used for both written examinations as well as skill-based examinations such as history taking during the COVID-19 pandemic.

Challenges for e-learning and teaching

There were several disadvantages of the newer online or e-based teaching and learning methods. The ill preparedness of the teachers, learners as well as the systems were a major problem especially at the beginning. However, we saw a rapid adaptation and successful overcome of many of these issues within a very short period.

While novel teaching and learning methods have proven effective and satisfactory in medical education, there remain several challenges and gaps that must be addressed to ensure the success of health education. Maintaining equity in accessibility, sustaining student engagement, difficulties in clinical skills training, maintaining patient confidentiality and assessment of student learning were major hurdles of e-teaching encountered by institutes. Likewise, students in the new normal faced several challenges such as limited access to digital resources and facilities, lack of teacher-student interactions, lack of exposure to the patients, lack of motivation and poor academic performance [11-13]. These challenges can have an impact on the students on achieving their academic goals and development of the necessary skills required to be a good doctor. In addition, ensuring honesty and prevention of cheating was also a problem for assessments especially when high tech resources were not available. Hence, it is crucial that peers and faculty staff adapt to the evolving circumstances, be innovative, deliver knowledge and assess the students in the most effective manner possible.

Overcoming and adapting to the global challenges of medical education

While the COVID-19 pandemic posed several challenges to both educators and students, by employing timely and effective strategies, medical education could adapt and thrive for successful continuation of the educational goals. In an era where technology is evolving rapidly and where surgical procedures are performed using 5G technology (telesurgery), it is a matter of time where tertiary care hospitals across the world would even adapt robotic surgery as a standard [14]. Therefore, medical schools should utilize the novel techniques and teaching methods to train their students and doctors to equip them so that one day they could not only remotely take the history and treat a patient but also perform surgeries and diagnostic procedures in different parts of the world. However, access to the technology and training especially in resource limited settings is a challenge.

With remote learning, students may struggle to communicate and keep themselves motivated as they may mostly be in isolation. The generic skills of verbal communication, physical examination, teamwork, and procedural and other skills would suffer with remote learning [1]. Therefore, medical schools could maintain the student engagement by incorporating interactive components to their curriculum through group projects, online discussions, and virtual simulations where students could interact and develop their communication skills and collaborate effectively.

However, as it is useless to train a pilot or a soldier only by simulation and e-learning methods, training of future doctors should not be only limited to novel methods. When we produce a medical doctor for the future, we produce a professional who can diagnose illness and treat such with compassion and care. The beneficial and proven age-old methods of clinical skills should be re-introduced with necessary modifications. A blend of time tested, and proven traditional methods coupled with useful novel methods (blended teaching and learning methods) should be used for teaching, learning and assessments for medical education in the new-normal.

Further, as proven during the COVID-19 pandemic it is very clear that medical education should be resilient and flexible to adapt to the rapidly changing circumstances and the success of such depends on the constant evaluation and improvement of teaching and assessment strategies, as well as student learning outcomes.

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