E-learning: a Modality of Medical Education in the Period of Crisis

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ABSTRACT

Delivery of medical education is challenged during the crisis like in pandemic. The purpose of this review is to explore the possible modality of medical education in pandemic condition. The modality depends on the availability of modality based resources, set curriculum and acceptance of modality. Blended learning and e-learning appear as the options of teaching-learning in crisis situation. Medical schools may adopt blended learning and e-learning modalities through curriculum that requires capacity building and availability of e-learning tools. Rescheduling the practical and clinical part in both training and evaluation are the immediate actions. Thus the existing method should be optimized by revision, replacement or postponement.

Keywords: Crisis; curriculum; e-learning; medical education; pandemic

INTRODUCTION

Crisis situation would be in many forms like natural calamities, economic depression, epidemic and pandemic condition or conflicts. All steps of life would be affected by it leading to detrimental effect on economy, society, development, health and education. There will be some restoration efforts like e-learning to address the crisis as the contingency plan to deliver medical education. However, it may not be perfect and sudden change of modality may not be smooth.[1,2] The aim of this scientific communication is to explore the possible e-learning modality of teaching-learning activity in compromised medical education during COVID-19 pandemic.

MEDICAL EDUCATION METHODS AND TOOLS

Education would be passive learning, active learning or programmed learning. It may consist of theoretical or practical or combined activities. By way of trainee's involvement, it would be with physical presence or distance learning that may also be real time or offline e-learning.[3,4]

Medical education is a mix of theoretical and practical; didactic, interactive and competency based; and active and programmed learning. If any component is missed, the education would be incomplete.[5]

Programmers and human subjects are required as the direct learning tool agents. Programmer will be institutions like University, academy, college, organization or school.[6] Human subject could be patients, teachers and facilitators. Multimedia, internet, simulators, screen, power source, web skill and software are the essential tools for successful e-learning process.[7]

Physical methods of active learning can lead to improved cognitive outcomes though it does not appear to have improved overall mastery of the subject.[8] To make any training cost effective the methods used would be blended learning with self learning of knowledge part followed by a period of directly supervised learning.[9]

E-LEARNING IN RESPONSE TO PANDEMIC

During Severe Acute Respiratory Syndrome (SARS) outbreak, some Chinese medical schools responded to SARS by shifting to online problem-based tutorial sessions, cancelled formal bedside teaching and postponed their exams.[10] Similarly, clinical clerkships and electives for students were suspended for up to six weeks in Canada.[11] To cope with the situation there should have a sense of urgency among faculty, medical school and students in order not to compromise the clinical competency; transition plan of training modality should be worked out; assessment of availability of e-learning tools; capacity building training for e-learning and level of intervention required in each level of trainees. Concerned authority of medical school should

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also prepare e-curriculum for practical class, simulation exercise, discussion forum and virtual assessment guidelines; and work for stress management, sustainable plan and validation of e-curriculum.[1,12,13]

The e-learning would be either computer-based or internet-based. Advantage of e-learning would be flexibility in time and place of delivery, easy access to huge amount of information, cost effective, and self pace learning in asynchronous model. Internet availability and cost, site hacking, misconduct during evaluation process, poor in knowledge and skill test, compromised practical skills, limited feedback, social isolation, theory focused, accreditation issue, users skill and loss of human touch are disadvantages.[14-16] However, a complete e-learning lacks the essential components of competency based training that is required in clinical setting.[17] Again there are technological, socio-economical and priority constraint of e-learning in rural areas. The biggest challenge in web-based learning is the rate of dropouts from the start with the content and then to continue to completion.[18]

There is a wide disparity in the frequency of use in e-learning resources across resource types and subjects, which indicates the need for improvements in the design and development of learning resources to better meet medical students' curricular needs and their learning styles.[19] The key barriers to e-learning in medical education include time constraints, poor technical skills, inadequate infrastructure, absence of institutional policy and negative attitudes of all involved. Solutions to these include validating online process, capacity building of teachers, incentives, institutional support and creating positive attitude.[20]

E-learning provides unlimited scope of learning throughout life without costly logistic management.[21] The e-learning presents numerous research opportunities, allows adaptive learning, enhances collaborative learning, and transforms the role of the teacher. The integration of e-learning into medical education boosts the adult learning and enables teachers to facilitate learning and assess competency.[22] The online learning is more effective over offline as it has advantages to enhance undergraduates' knowledge and skills.[23]

Even in institutions with limited resources to support small group problem based learning (PBL), the large group Integrated Learning Activity (ILA) might be managed by a web-based curriculum management system.[24] However, linking the e-learning program to existing course activities in basic science and thereby applying the basic science into the clinical context enhances the degree of integration to some extent. It requires continuously updating content and technology (when appropriate), and evaluating the integration contribute to the prolonged survival of the e-learning program.[25] All students do not choose to use an e-learning resource in the same way, so other supplementary learning approaches like PBL and lectures should be incorporated. Thus a blended approach would be the solution.[26]

CONCLUSIONS

During crisis like current COVID-19 pandemic e-learning is the option of delivery in medical education. The e-learning may bridge the gap to minimize delay in normal curriculum delivery. The contingency plans like supplementary e-curriculum and guidelines would help with the desired content..

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