UNDERGRADUATE MEDICAL EDUCATION THROUGH DISTANCE LEARNING – IS IT POSSIBLE?

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Abstract

Concept: Undergraduate medical students can be taught entirely through distance learning.

Background: Undergraduate medical education (UGME) is currently available predominantly to an elite minority of students with resources. There are probably many students who might have become excellent doctors, if only they had had an opportunity to undertake a flexible and less expensive course.

Proposal: In UGME, there is a tendency to underestimate the capabilities of medical students and overemphasize the importance of teachers. Educators of late consider medical students as adult learners capable of managing their learning needs; teachers are facilitators guiding them in the right direction. If there is one branch of study eminently suited to distance learning, it is probably UGME. The teaching program should be planned meticulously and executed with care. With the support of available resources in information technology, it is time to consider UGME through distance learning.

Why: A course in distance learning will be inexpensive. It will foster lifelong learning because self-directed learning was started in the beginning. A large number of students will benefit; they will hopefully serve their communities better than doctors from mainstream medical schools.

Discussion: Harden's CRISIS criteria for CME, suit the planning of this course. The advantages and disadvantages, educational strategies for teaching-learning and assessment, selection of students and faculty, mentoring and feedback for this course will be discussed.

Conclusion: With meticulous planning, IT support and help from medical schools of international standing, distance learning in UGME is an inexpensive, feasible option benefiting a large number of students.

Key words: undergraduate medical education, UGME, distance learning

INTRODUCTION

Can undergraduate medical students be taught entirely through distance learning? I believe they can be. I hope that after reading this article, you will be convinced.

I have a friend whom I have known since primary school. She was very keen on becoming a doctor.

She is very intelligent and has the attributes needed for an excellent doctor and teacher. However, due to family commitments, she could not pursue her dream. She eventually did a doctorate in economics and became a "real doctor".

There are probably many such people out there who might have become excellent doctors and served the community, if only they had an opportunity to undertake a flexible and less expensive course, at their own pace. UGME is currently available predominantly to an elite minority of students who have the resources. Not all of them may turn out to be "good" doctors or lifelong learners.

It is my observation that in UGME, there is a tendency to underestimate the capabilities of medical students and overemphasize the importance of teachers. It is gradually changing in some parts of the world. I believe that with or without the teachers and sometimes despite the teachers (!), committed medical students will be able to become "good" doctors by self-directed learning!

If there is one branch of study eminently suited to distance learning, it is probably UGME, provided it is planned meticulously and executed with care. Currently, distance learning is available only for postgraduate courses in medicine and medical education.

Over the past few decades, medical educators have started considering medical students as adult learners, capable of managing their own learning needs.[1] Medical teachers are now facilitators, guiding them in the right direction. Students are expected to become lifelong learners after completing the course. Medical educators have also started to believe that learning in ambulatory care settings in the community rather than in hospitals is probably better.[2, 3] With this in the background and with the support of ever increasing resources in information technology (IT), it is time to consider UGME through distance learning.

Why:

A course in distance learning is likely to be considerably less expensive than conventional courses. It will probably attract committed learners and an experienced and committed team of international faculty. It will foster lifelong learning,[4] having initiated truly self-directed learning right from the start. It will be available to a large number of students who will hopefully serve their communities better than doctors graduating from mainstream medical schools.

Disadvantages and solutions:

The initial planning and execution will be time consuming and expensive. However, once the basic IT infrastructure has been planned, changes may be easier to implement. Students may miss having direct contact with each other and the teachers. Telephone or web-conferences can provide the direct student-student and student-teacher interaction that is needed.

How:

Harden's CRISIS[5] (acronym for convenience, relevance, individualization, self-assessment, interest, speculation and systematic) criteria for CME may be used effectively for planning this course.

Prerequisites for students:

The students should have at least 12 years of education in school. A graduate degree may be an added advantage. Proficiency in academic English, basic mathematics, biology, physics and chemistry is required.

A screening test in academic English and premedical subjects may be administered online before the start of the course. A specific test score or percentile will be a prerequisite to joining the course. Psychological evaluation may be done through a web-conference. Once distance-learning in UGME in English is firmly established, medium of instruction in other languages can be offered.

Faculty:

Faculty may be able to work from their homes. Retired doctors and committed medical teachers may also be recruited from all over the world. All the faculty should go through the online staff development programme before they start functioning as facilitators for distance learning.

Educational strategies: [6, 7, 8, 9, 10, 11, 12, 13]

We could follow the SPICES model as shown below for an outcome-based education:

1. Phase 1 for predominantly basic medical sciences with a system-based approach, problem-based learning (PBL), and early clinical exposure, and
2. Phase 2 for predominantly clinical sciences in an ambulatory setting. It will be a spiral course with horizontal and vertical integration of basic and clinical sciences.
3. Elective study periods could be incorporated in both phases.

The course may be interspersed with integrated projects in both the phases. During Phase 1, one of the projects could be follow-up of a pregnant mother from the first booking through pregnancy and delivery and subsequently, following up the child till he/she is at least two years old. The pregnant mother could be a family member, neighbor or even themselves. Attending the ultrasound sessions and viewing the unborn fetus in varying stages of development will help the students to understand embryology better. Following up the mother will help them understand the physiology of pregnancy and labor. Following up the child later will help them understand the postnatal development of normal children. These projects will underscore the relevance of basic medical sciences to clinical practice.

The objectives of each course or module should be clearly spelt out. We should remember that we are not aiming to produce specialists such as anatomists, physiologists, pediatricians or surgeons, but generalists ("a basic doctor") who will be able to handle simple cases and recognize and refer serious problems on time to the specialists.

Online courses in communication skills, ethics, professionalism and research methodology should be introduced from the first year with inclusion of a simple research projects based in the community in both phases.

IT requirements would include a website with an extensive database of books and journals, virtual PBL rooms, access to triggers for basic and clinical science students, chat rooms for discussion between students and also with teachers, interactive video-lectures, online quizzes, online assessment for end of module and summative examinations and feedback, regular feedback and mentoring online, and a virtual tour of the facility with user-friendly instructions. With the IT resources available currently, the possibilities are endless.

Phase 1:

Students may be provided clinical, paper-triggers for which they work out their own learning needs online. Small groups of compatible students, in compatible time zones will come together during PBLs or study on their own. At the end of each system, they will appear for the examinations online, receive feedback, progress to the next system or repeat the modules and the examinations. They should

be directed to attach themselves to medical practitioners of their choice and have clinical exposure to cases relevant to the system of their study, for a specified number of hours each week. Almost all of us are exposed from childhood to maternal and child health (MCH) clinics, general practitioners (GPs), pediatricians and other healthcare professionals. We could leave the choice of venue for the clinical exposure to the students. They could choose them on their own or with the help of their families and or friends.

The students should also be exposed to videos on communication skills and have online sessions with facilitators and other students. At specified times, at three different time zones, lectures may be given online by content experts to introduce new or difficult concepts. The students could go into an online discussion room after the lectures, to clarify their queries with the teachers.

The students should be provided downloadable guidelines listing all the competencies required, for each of the modules which they should complete and submit before the comprehensive assessment. Facilitators should also have access to these guidelines.

Assessment:

Phase 1 students should submit a community project online at the end of the basic sciences course as part of their assessment. Assessment should be focused less on recall and more on analysis and problem solving skills. There should be a comprehensive assessment of all modules at the end of Phase 1 with feedback and progression or repetition of selected modules.

Phase 2:

The students proceed to Phase 2 after completing the individual and comprehensive assessments of Phase 1. Before exposure to actual patients, they should be taught history taking online through virtual cases, and patient-management-problems[14] using clinical scenarios. After mastering these, the students could choose their own clinical settings and teachers for the various branches of clinical medicine required for the course for the clinical clerkships. Clinical PBL sessions with basic science input should continue online all through the clinical years. Elective study periods should be included in both phases.

The students should be provided downloadable log books and portfolios listing all the competencies required, for all the preclinical and clinical clerkships which they should complete satisfactorily and submit before the comprehensive assessment. The clinical teachers chosen by the students should also be provided with this material for their reference. The logbooks should be notarized by the doctors, nurses and paramedical personnel. Submission of satisfactorily completed logbooks and portfolios should be a prerequisite to sit for the comprehensive, summative assessment.

Assessment:

Knowledge in theory and history-taking may be assessed online. Clinical examinations should be arranged using simulated or actual patients annually at specified centers. A final comprehensive clinical examination should also be organized at the end of the course in certain centers. The clinical examinations should include commonly seen patients from the wards and clinics. The examiners should keep in mind the fact that patients do not come to doctors with "standardized" symptoms or signs. The examiners could be an international panel or from the country of origin of the students.

Mentoring and support:

Throughout the course, students should be assigned to mentors online with whom they may maintain contact through email or chat rooms online at the website by prior

appointment. Mentoring is of paramount importance as the whole course is through distance learning and students would need support and counseling on many issues from the faculty.

FEEDBACK:

Feedback should be provided promptly after each assessment and also taken from students regarding all the courses to help improve future courses.

CONCLUSION:

It is my observation that it is difficult to introduce even minor changes in medical education.

Here, I have proposed a sea change! I believe that with the help of medical schools of international standing, distance learning in UGME could become a feasible venture at low cost, which would benefit a large number of committed students worldwide. It is possible that this may become the mainstream education for UGME eventually and expensive education in medical schools may become outdated.

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