Medical Education

Medical education in India: Time to make some changes

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ABSTRACT

India is in need of well-trained doctors. We highlight and analyse some of the problems affecting medical education in India and their possible solutions. The medical education system can be reviewed under four heads: selection of students, medical training, evaluation, and the development and accreditation of faculty.

In India, students enter medical colleges without receiving sufficient orientation about the profession. If students were given some exposure to various professions in the final years of school, it would help address this issue. Medical students are selected on the basis of pre-medical tests consisting of multiple-choice questions, the validity of which is being questioned increasingly.

There is no coordination between the scheduling of lectures on various diseases and their management and the clinical exposure of the students. Active involvement in treatment is limited to the final year, called internship, which is hampered by preparation for postgraduate entrance examinations. Efforts should be made to provide hands-on experience at an earlier time in the course.

A systematic and reliable programme for evaluation is a must. There is a need for a shift in the focus of evaluation, which should assess the application of knowledge rather than the ability to recall facts. The replacement of the traditional long-/short-case examinations with more valid and reliable instruments for the assessment of clinical skills should be considered.

‘Vision 2015’, a document developed by the Medical Council of India, contains many notable recommendations for the improvement of the current system. If these are implemented effectively, the impact of improvement in Indian medical education will be felt globally.

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INTRODUCTION

India has the largest number of recognized and functional medical colleges in the world. The number of medical colleges has more than doubled in the past 10 years. Currently, 335 medical colleges are recognized by the Medical Council of India (MCI). In spite of this increase, the doctor-to-population ratio continues to remain low in rural areas owing to the large population size and skewed distribution of doctors in rural and urban areas. While there is a dire need for more doctors, it is also imperative to improve the quality of medical education to ensure optimum standards of healthcare. The orientation of the curriculum is very theoretical and not much stress is laid on hands-on experience. As a result, a large number of graduating students do not have sufficient skills in managing common conditions and performing simple procedures and techniques.

It is noteworthy that 60 000 Indian physicians practise in the USA, the UK, Canada and Australia, making doctors trained in India the largest emigrating physician workforce in the world.

Undergraduate medical education in India lasts for over five-and-a-half years. The first two-and-a-half years include preclinical and paraclinical studies that focus on basic science subjects relevant to the practice of medicine. The next 2 years are devoted to clinical disciplines and finally, there is 1 year of internship. Clinical training, in the form of clinical postings to various departments, begins at the end of the first year. The regulations for medical education were revised substantially in 1997 in an attempt to promote problem-based learning approaches and incorporate integrated teaching at various levels, as well as to place greater emphasis on health and the community.

The Board of Governors of the MCI had announced a fresh set of curricular changes entitled ‘Vision 2015’. The Indian medical education system can be reviewed under four heads: the selection of medical students, medical training, evaluation and faculty development.

RECIPROCAL SELECTION OF STUDENTS AND PROFESSION

In India, medical students are selected on the basis of pre-medical tests (PMTs), held by each state for its residents. The tests, which take place once a year and are open to those who have graduated from high school, consist of multiple-choice questions (MCQs) covering physics, biology and chemistry. There is also a national examination which allows students from the states, while 15% are made on the basis of the ‘all-India’ entrance test.

There are two issues involved here: selection of the profession by the students and selection of students by medical colleges. In many countries, for example the USA, students are required to complete a pre-medical undergraduate course to become eligible for applying for medicine. In Australia and the UK, a number of universities offer a 3- or 4-year Bachelor of Medical Science, Bachelor of Health Sciences or Biomedical Science degree, which is similar in content and aim to the pre-
medical courses in the USA. While completing these courses, the student has an opportunity to observe the life of medical professionals and to evaluate his own suitability for the profession. Some students go into medicine even later, after experimenting with other professions. In India, students often choose medicine (or their parents do it for them) just because it is considered to be the safest profession in terms of economic security. As a result, they enter the profession without understanding what it entails by way of commitment. This contributes, at least partly, to stress and depression, the prevalence of which has been shown to be high among Indian medical students.\textsuperscript{11,12} This problem could be addressed to some extent by the introduction of programmes that allow students applying to various courses to gain experience in professional institutions for a reasonable duration. Medical schools in the USA, the UK and Australia give consideration to the work experience that a student applying for the course has in the medical and related fields.

The validity of MCQ-based tests as the only tool for selecting students is being questioned. Someone who is good at problem-solving or recalling facts may not become a good doctor. Qualities such as compassion for human life, a caring attitude towards the sick and communication skills are equally important, but are not assessed. In the absence of any objective means to assess these qualities, we continue to rely on the present system. Making students aware of the qualities they are expected to possess as healthcare professionals would be helpful.

**MEDICAL TRAINING**

Teaching is based mainly on the traditional didactic pedagogic method and case discussions during clinical postings. The lack of coordinated teaching hampers learning to some extent. If students attached with the different subspecialties of a department had tutorials and group discussions on topics pertinent to only those subspecialties, the discussions would become more interesting and effective. Also, this would keep the groups small, thus making for a better learning opportunity. The inclusion of the relevant radiological and laboratory findings of the diseases under discussion could help to develop a systematic scheme by which the students could evaluate the results by themselves. Since students are exposed to these investigative modalities during their rotations through these specialties, they would be able to participate actively in the discussions making the learning experience more effective than one characterized by didactic lectures. Vertical integration is another method that is increasingly being introduced with classes on relevant pre- and paraclinical topics during a clinical rotation being held independent of the clinical classes. Coordinated teaching can be introduced as early as the first year, with the same systems being covered under all three subjects during the same period—‘horizontal integration’.

While the objectives of the curriculum often refer to areas that need to be stressed, it has been recognized that these topics are best taught in a setting of clinical relevance and hands-on experience.\textsuperscript{9} Medical schools in the USA introduced models for early community-based training for longitudinal clinical experiences. The outcomes indicated that community experiences contribute positively to the education, critical thinking and problem-solving skills of students.\textsuperscript{13} Students value early clinical experiences, which help them acquire important clinical skills and knowledge.\textsuperscript{14} In India, it is only during the final year of medical school that medical students are involved actively in the management of patients, through compulsory rotating internship in various departments. This opportunity to obtain clinical skills is hampered by the compulsion to utilize this time to prepare for the highly competitive postgraduate entrance examinations.\textsuperscript{15}

The effectiveness of clinical postings during the preceding years is also questionable. The student’s task is limited to working up of the patient, followed by a bedside discussion on the relevant findings and the management of the patient. In other countries, students are active members of a healthcare team. They follow-up patients in the wards and are expected to be up-to-date on their patients’ status—their well-being, the investigations and management plans. In addition to following up patients in the ward, students also work-up patients in clinics and write orders under supervision, similar to what an intern does in India. The training focuses more on the practical aspects of management, which would stimulate the student to read and gain theoretical knowledge. In India, there has been a lot of concern about the identification of the core content of the undergraduate medical curriculum that every student must learn and content that is useful but does not need the same emphasis. Early involvement of students as integral members of the healthcare team would ensure that they become familiar with the common conditions and the content which is considered useful. Simulation laboratories need to be introduced to give students hands-on training in various skills. It has been shown that the introduction of a curriculum emphasizing technical skills facilitates the learning of specific skills and encourages students to practise the skills taught and assessed.\textsuperscript{16}

Evidence-based medicine should be emphasized throughout the training. The aim should be to stimulate the student to independently explore and assess various modalities of investigation or management in terms of their relative merits or demerits. Involving students in the care of patients would facilitate this process.

In many countries, it is mandatory for students to have publications to their credit before they can apply for the final degree. Students should be encouraged to attend workshops and seminars as these help them remain up-to-date with the current developments and expose them to potential areas of research. Students should be provided incentives, including financial ones, to undertake research. Programmes such as the ‘Short-term studentship’ of the Indian Council of Medical Research are a step in this direction.

Many countries have programmes in which a student can choose a preceptor or a mentor under whose supervision he can do clinical rotations. By choosing a preceptor, a student is able to obtain better exposure to various specialties of interest, which can later help her/him make informed decisions regarding specialization.

**EVALUATION**

Perhaps the biggest hindrance in the way of improving our training system is the present evaluation system. Since performance in examinations is considered the most important indicator of a student’s progress, a medical student’s life revolves around performing well in examinations. The two major drawbacks of our system—lack of coordination in medical training and the fact that training is limited to discussions, giving little importance to hands-on experience, when compounded with the enormous stress related to examinations, have the result of encouraging students to memorize things without applying them.
As in the case of training, the focus of evaluation should also shift to the practical aspects. Students need to be assessed continuously for an evaluation of their interest and involvement in healthcare, and provided feedback regarding the same. When students are actively involved in the care of patients, they are likely to learn better and assessments then involve a recollection of what they have been doing every day rather than a matter of merely spewing out facts memorized from textbooks. The frequency of tests also needs to be reduced to the minimum to reduce stress and facilitate training. It would also be useful to replace the traditional long-/short-case examinations with more valid and reliable instruments for the assessment of clinical skills, such as objectively structured clinical examination (OSCE). Subjective assessment of knowledge by the faculty has been shown to correlate only weakly with objective performance.

The MCI guidelines contain an elaborate description of the distribution of marks for various subjects, but there is nothing on the standardization of evaluation methods. It would be useful to adopt a system similar to the United States Medical License Examination (USMLE), which assesses the student’s ability to apply his knowledge in three parts: Step 1 for pre- and paraclinical fundamentals, Step 2 for clinical knowledge and skills, and Step 3 for comprehensive evaluation of case management ability. However, the introduction of such a system in India would require time because of the general rigidity of the system, as well as resource limitations.

Systematic and reliable programmes for evaluation are a must to prevent curricular changes from drifting away from the intended path. It is imperative to revise the evaluation methods to permit other changes to be made without increasing the stress on students.

**FACULTY DEVELOPMENT AND ACCREDITATION**

Any reform should begin with the systematic development of medical educators. The MCI has recommended the establishment of medical education units/departments in all medical colleges. These units can be utilized for the development of the faculty and for the provision of learning resource material to teachers. The development of faculty for medical education in India has been supported by the Foundation for Advancement of International Medical Education and Research (FAIMER), USA. This is a non-profit foundation designed to support programmes and research that improve medical education and healthcare worldwide.

The term ‘accreditation’ can be defined as a process by which a designated authority reviews and evaluates an educational institution, using a set of clearly defined criteria and procedures. Differences in the use of the term have given rise to considerable confusion, especially in India, where the word accreditation is often used to describe a process of rank-ordering of institutions, while the words inspection and recognition are generally used to refer to quality assurance procedures. Despite these variations, India has a well-established policy on quality assurance of medical education. Mandatory accreditation is conducted by the MCI. As an outcome of the recommendations of the National Policy in Education, an autonomous body called the National Assessment and Accreditation Council (NAAC) was established in 1994. However, it is not mandatory to seek accreditation from the NAAC. Accreditation of medical colleges by the MCI is compulsory, but the requested information emphasizes documentation of infrastructure and human resources rather than measures of the quality of medical education and outcomes.

**CONCLUSION**

The challenges facing medical education in India include the questionable validity of the policies for the selection of students, curriculum goals that do not focus adequately on healthcare needs with a deficiency in the internship year and a lack of development of the faculty. The Board of Governors of the MCI recently came out with ‘Vision 2015’, which has some notable elements, including the introduction of a short foundation course to orient medical students to medical education, introduction of the student–doctor method of clinical training in which the student is involved as an active member of the healthcare team, and adoption of new technologies such as simulation laboratories. Considering the role of evaluation in driving medical education, reorientation of medical education would require a corresponding restructuring of the evaluation system too.

The reform and development of medical education has to cover all aspects (selection, training, evaluation and faculty development) in a coordinated manner. Changes made in an isolated fashion without coordination are likely to prove ineffective. The process demands immense commitment and cooperation from all the stakeholders. Care has to be taken to ensure that students and teachers are properly oriented and provided adequate training to adopt any changes.

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**REFERENCES**


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