MEDICAL EDUCATION

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Summary

Course of study requirers to educate a legally qualified and licensed practitioner of medicine, concerned with maintaining or restoring human health through the study, diagnosis and treatment of disease and injury, through the science of medicine and the applied practice of that science. Medical education and envisions the production of physicians sensitive to the health needs of their country, capable of ministering to those needs, and aware of the necessity of continuing their own education. It also develops the methods and objectives appropriate to the study of the still unknown factors that produce disease or favour well-being. Although there may be basic elements common to all, the details should vary from place to place and from time to time. Whatever forms the curriculum takes, ideally it will be flexible enough to allow modification as circumstances alter, and medical knowledge grows, and needs change. It therefore follows that the plan of education, the medical curriculum, should not be the same in all countries.

History of Medical Education

Although it is difficult to identify the origin of medical education, authorities usually consider that it began with the ancient Greeks' method of rational inquiry, which introduced the practice of observation and reasoning regarding disease. Rational interpretation and discussion, it is theorized, led to teaching and thus to the formation of schools, where the Greek physician Hippocrates is said to have taught in the 5th century B.C. and originated the oath that became a credo (statement of belief) for practitioners through the ages.

Later, the Christian religion greatly contributed to both the learning and the teaching of medicine in the West Apprenticeship training in monastic infirmaries and hospitals dominated medical education during the early Middle Ages. A medical school in anything like its present form did not evolve until between the 9th and 11th centuries. During the same period, medicine and medical education were flourishing in the Muslim world at such centres as Baghdad, Cairo, and Córdoba.

With the rise of the universities in Italy and later in Cracow, Prague, Paris, Oxford, and elsewhere in western Europe, the teachers of medicine were in some measure drawn away from the life of the hospitals and were offered the attractions and prestige of university professorships and lectureships. As a result, the study of medicine led more often to a familiarity with theories about disease than with actual sick persons. However, the establishment in 1518 of the Royal College of Physicians of London, produced a system that called for examination of medical practitioners.

Gradually, in the 17th and 18th centuries, the value of hospital experience and the training of the students' sight, hearing, and touch in studying disease were reasserted. In Europe, medical education began slowly to assume its modern character in the application of an increasing knowledge of natural science to the actual care of patients. There was also encouragement of the systematic study of anatomy, botany, and chemistry, sciences at that time considered to be the basis of medicine.

It was not until the mid-19th century, however, that an ordered pattern of science-oriented teaching was established. This pattern, the traditional medical curriculum, was generally adopted by Western medical schools. It was based upon teaching, where the student mostly listens, rather than learning, where the student is more investigative. The clinical component, largely confined to hospitals (charitable institutions staffed by unpaid consultants), was not well organized. The new direction in medical education was aided in Britain by the passage of the Medical Act of 1858, which has been termed the most important event in British medicine. It established the General Medical Council, which thenceforth controlled admission to the medical register and thus had great powers over medical education and examinations.

In the United States, medical education was greatly influenced by the example set in 1893 by the Johns Hopkins Medical School in Baltimore. It admitted only college graduates with a year's training in the natural sciences. The adequacy of medical schools in

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the United States was improved after the Carnegie Foundation for the Advancement of Teaching published in 1910 a report by the educator Abraham Flexner. In the report, he pointed out that medical education actually is a form of education rather than a mysterious process of professional initiation or apprenticeship. As such, it needs an academic staff, working full-time in their departments, whose whole responsibility is to their professed subject and to the students studying it. Medical education, the report further stated, needs laboratories, libraries, teaching rooms, and ready access to a large hospital, the administration of which should reflect the presence and influence of the academic staff. Thus the nature of the teaching hospital was also influenced.

Modern patterns of medical education

As medical education developed after the Flexner report was published, the distinctive feature was the thoroughness with which theoretical and scientific knowledge were fused with what experience teaches in the practical responsibility of taking care of human beings. Medical education eventually developed into a process that involved four generally recognized stages: premedical, undergraduate, postgraduate, and continuing education.

Premedical education and admission to medical school

In the United States, Britain, and the Commonwealth countries, generally, medical schools are inclined to limit the number of students admitted so as to increase the opportunities for each student. In Western Europe, South America, and most other countries, no exact limitation of numbers of students is in effect, though there is a trend toward such limitation in some of the western European schools. Some medical schools in North America have developed ratios of teaching staff to students as high as 1 to 1 or 1 to 2, in contrast with 1 teacher to 20 or even 100 students in certain universities in other countries. The number of students applying to medical school greatly exceeds the number finally selected in most countries.

Requirements to enter medical school vary from country to country and from university to university. Generally there is a requirement for a specified number of years of undergraduate work and passing of a test, possibly state regulated, and a transcript of grades. Usually entry into medical school is highly competitive, measures aptitude in medically related subjects. Other requirements may include letters of recommendation and a personal interview. A specific minimum grade point average is not required, but most students entering medical school have between an A and a B average.

The premedical courses required in most countries emphasize physics, chemistry, and biology in order to make subsequently courses in anatomy, physiology, biochemistry, and pharmacology with precision in scientific method and content. Each of the required courses includes laboratory periods throughout the full academic year.

Undergraduate education

The medical curriculum also varies from country to country. Most U.S. curriculums cover four years; in Britain five years is normal. The early part of the medical school program is sometimes called the preclinical phase. Medical schools usually begin their work with the study of the structure of the body and its formation: anatomy, histology, and embryology. Concurrently, or soon thereafter, come studies related to function-i.e., physiology, biochemistry, pharmacology, and, in many schools, biophysics. After the microscopic study of normal tissues (histology) has begun, the student is usually introduced to pathological anatomy, bacteriology, immunology, parasitology-in short, to the agents of disease and the changes that they cause in the structure and function of the tissues. Courses in medical psychology, biostatistics, public health, alcoholism, biomedical engineering, emergency medicine, ethical problems, and other less traditional courses are becoming more common in the first years of the medical curriculum.

The two or more clinical years of an effective curriculum are characterized by active student participation in small group conferences and discussions, a decrease in the number of formal lectures and an increase in the amount of contact with patients in teaching hospitals and clinics.

Clinical work begins with general medicine and surgery and goes on to include the major clinical specialties, including obstetrics and gynecology, pediatrics, disorders of the eye, ear, nose, throat, and skin, and psychiatry. The student works in the hospital's outpatient, emergency, and radiology departments, diagnostic laboratories, and surgical theatres. The student also studies sciences closely related to medicine, such as pathology, microbiology, hematology, immunology, and clinical chemistry and becomes familiar with epidemiology and the methods of community medicine. Some knowledge of forensic (legal) medicine is also expected. During the clinical curriculum many students have an opportunity to pursue a particular interest of their own or to enlarge their clinical experience by working in a different environment, perhaps even in a foreign country-the so-called elective period. Most students find clinical work demanding, usually requiring long hours of continuous duty and personal commitment.

After satisfactory completion of a course of study in an accredited medical school the degree is conferred. In Britain and some of the other Commonwealth countries the academic degree conferred after undergraduate studies are completed is bachelor of medicine and of surgery (or chirurgery), M.B., B.S. or M.B., CHb, in USA doctor of medicine (M.D.) or doctor of osteopathy (D.O.) Only after further study is the M.D. degree given. Similar degrees are conferred in other countries.

Postgraduate education

On completion of medical school, the physician usually seeks graduate training and experience in a hospital under the supervision of competent clinicians and other teachers. In Britain a year of resident hospital work is required after qualification and before admission to the medical register. In North America, the first year of such training has been known as an internship, but it is no longer distinguished in most hospitals from the total postgraduate period, called residency. After the first year physicians usually seek further graduate education and training to qualify themselves as specialists or to fulfill requirements for a higher academic degree. Physicians seeking special postgraduate degrees are sometimes called fellows.

Continuing education

The process by which physicians keep themselves up-to-date is called continuing education. It consists of courses and training opportunities of from a few days to several months in duration, designed to enable physicians to learn of new developments within their special areas of concern. Physicians also attend medical and scientific meetings, national and international conferences, discussion groups, and clinical meetings, and they read medical journals and other materials, all of which serve to keep them aware of progress in their chosen field. Although continuing education is not a formal process, organizations designed to promote continuing education have become common. In the United States the Accreditation Council for Continuing Medical Education was formed in 1985, and some certifying boards of medical specialties have stringent requirements for continuing education.

The quality of medical education is supervised in many countries by councils appointed by the profession as a whole. In the United States these include the Council on Medical Education and the Liaison Committee on Medical Education, both affiliates of the American Medical Association, and the American Osteopathic Association. In Britain the statutory body is the General Medical Council, most of whose members are from the profession, although only a minority of the members is appointed by it. In other countries medical education may be regulated by an office or ministry of public instruction with, in some cases, the help of special professional councils.

Medical school faculty

As applied to clinical teachers the term full-time originally implied an educational ideal: that a clinician's salary from a university should be large enough to relieve him of any reason for seeing private patients for the sake of supplementing his salary by professional fees. Full-time came to be applied, however, to a variety of modifications; it could mean that a clinical professor might supplement his salary as a teacher up to a defined maximum, might see private patients only at his hospital office, or might see such patients only a certain number of hours per week. The intent of full-time has always been to place the teacher's capacities and strength entirely at the service of his students and the patients entrusted to his care as a teacher and investigator.

Courses in the medical sciences have commonly followed the formula of three hours of lectures and six to nine hours of laboratory work per week for a three-, six-, or nine-month course. Instruction in clinical subjects, though retaining the formal lecture, have tended to diminish the time and emphasis allowed to lectures in favour of experience with and attendance on patients.

Medical education in Bangladesh

Medical education in Bangladesh began with the establishment of the Dhaka Medical School present Sir Salimullah Medical College in 1875. The medical education system inherited an education of the traditional lecture-based, teacher-centred, discipline-based, examination-driven and hospital-oriented pattern. The movement for a reorientation on need-based and community-oriented medical education started early in the 1980s. To promote this concept, the Centre for Medical Education (CME) was established Dhaka in 1983 under a UNDP-funded project. A national community-oriented and competency-based curriculum, developed for the undergraduates in 1988, was later introduced in all the medical colleges of the country. Under the project, the centre for Medical Education gave reorientation training medical teachers on the science of medical education and teaching methodology. Medical education units (MEU), established in eight medical colleges, were equipped with books, journals and audio-visual equipment. A number of teachers were sent to overseas institutes to be acquainted with need-based and community-oriented medical teaching.

In 1992, the Further Improvement of Medical Colleges Project was established under the Fourth Health and Population Project, supported by the World Bank with Overseas Development Administration and International Development Association components to re-orient and strengthen medical education in Bangladesh. The objective was to strengthen undergraduate teaching with stress on community-orientation in medical education, integrated MCH/FP training, upgrading physical facilities for better academic environment, logistic support for students and teachers and resource development in medical education. Under the project for further improvement of medical colleges, programme was taken for the re-orientation of the curriculum to increase the extent of community-oriented teaching in three priority disciplines of paediatrics, obstetrics and gynaecology and community medicine besides in other areas. Under it, a need-based internship training programme was developed, mother and child health and family planning training programmes were promoted through model clinics, and residential field-site training programmes were developed for rural areas. For urban demonstration areas, primary health care teaching programme was developed in the medical college hospitals. Innovative teaching methods followed by newly established medical skills centres encouraged community-orientation and skills development. A teaching module was developed on communication skills and lesson plans for psychomotor skills. Study guides were prepared and published on obstetrics and gynaecology, paediatrics, and community medicine. Community-based teaching sites were established for residential field site training in rural and urban demonstration areas. To improve the quality of medical education, a National Quality Assurance Body (QAB), a Project. Implementation Committee, course committees, MEU Faculty, FST Implementation Committees and curriculum development committees were established. Performance-based assessment methods were introduced to assess the students' competence in relation to community health needs.

A faculty development programme was also created, under the project for further improvement of medical colleges, to provide opportunities for developing skills in community-oriented teaching by extra-regional long-term training on medical education, regional fellowship on community-oriented teaching, in-country short-courses on educational science, instructional media development, quality assurance in medical education, medical ethics and educational research methodology. About 100 medical teachers received diploma, masters or PhD degrees on medical education from overseas institutions.

For undertaking a number of reforms, in collaboration with international agencies, the 1980s and 1990s can be considered as the "golden age" of medical education in Bangladesh. No other country in south or South-East Asia could do this at that time. The programmes and reforms, based on the centres for medical education, were very successful. But it is unfortunate that Bangladesh could not consolidate or sustain the achievements. No big reforms were taken afterwards for further improvement of medical colleges. Only routine activities were carried out on "ad-hoc" basis sponsored by other agencies and the centres for medical education ceased to be key players. The Health and Population Sector Programme (HPSP) for human resource development through pre-service education and in-service training was designed to foil the declared objective of bringing changes in the medical education in Bangladesh.

The enormous challenge ahead for improving the standard of medical education in Bangladesh needs political commitment and leadership in the arena of medical education together with allocation of enough funds and resources. Many countries around the world opted for the reorientation of medical education. In Bangladesh, no single organization has the specific mandate to oversee medical education as a whole. And no one is ready to take full responsibility to improve the medical education in the country. There should be a separate and independent medical education body responsible for training and development of human resources in medical, dental, pharmacy, nursing, paramedical and other health disciplines. The roles and responsibilities of various authorities need to be defined in relation to medical education. It should be clear that all the organizations have different but complementary roles in medical education.

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