CHAPTER 2
DEVELOPMENT OF MEDICAL AND DENTAL EDUCATION IN INDIA

The most common objective of any educational system is to first identify and acquire socially and scientifically beneficial knowledge before endeavouring to disseminate it. The aim of medical education is to impart medical knowledge and skills to the learner so that it helps in the prevention and treatment of diseases. According to the Royal Commission on Medical Education (1965-68) "the aim of medical education should be to produce at graduation a person with two essential qualifications. He should have, first, a knowledge of the medical and behavioural sciences sufficient for him to understand the scientific basis of his profession..., and secondly, a general introduction to clinical method and patient care in the main branches of medicine and surgery, together with an introduction to social and preventive medicine."

From early primitive times to modern day the history of medicine has been the story of man’s efforts to effectively tackle human illness and disease. From a basic cure of illness, medical science has developed into a complex form of treatment. Our civilization being one of the most ancient, the medical tradition in India had its origin several centuries before the Christian Western tradition. In the earlier times, the art of healing was practised by the priests. They combined observation with the religious tenets. Later, medicine developed into a more rational process. For the benefit of the disciples, the physicians recorded their medical experiences. This legacy of recording and sharing was handed down from generation to generation.
India's medical practices are directly connected with its political history. For this reason, one studies the history of medicine in India through its political history.

**THE VEDIC PERIOD**

Indian system of medicine has an ancient history. The actual study of the human body and the diseases begins with the Vedic times. Its early concepts are found in the Vedas, especially in the *Atharvaveda* (approx. 2nd millennium B.C.) which is the last of the Vedas, containing the earliest written reference to medical ideas and practice after the Aryan invasion.

*Ayurveda* is considered to be the *Upaveda* of the *Atharvaveda*. *Ayurveda* developed between 700 and 1000 B.C.² *Ayurveda* consists of two words—*Ayur* and *Veda*, which when combined mean 'Science of Life'. *Ayurveda* was fully developed into two prominent schools:

1. *Atreya Sampradaya* (School of Physicians)
2. *Dhanvantara Sampradaya* (School of Surgeons)

In *Atreya Sampradaya* Atreya was a prominent figure. He established a school and also periodically arranged seminars on various topics of medicine. He had six disciples who compiled six separate Samhitas on medicine. *Carak-Samhita* is a very well known treatise on Ayurvedic medicine.

The School of Surgeons, *Dhanvantara Sampradaya*, was started by Lord Dhanvantari, who was said to be a disciple of Lord Indra. The word Dhanvantari also means 'expert in surgery', and hence an apt reason for the school to be named after him. Susrata was the foremost disciple of Dhanvatari. He wrote many treatises. The most
famous treatise written by him is known as *Susrata Samhita*, considered to be an authentic book on Ayurvedic surgery.

There was also a school of paediatrics and a school of ophthalmology. *Ayurveda* was divided into eight prominent branches with arrangements for regular teaching in its different disciplines at Takshila, Nalanda, Kashi, Ujjain and other universities of that time.

During this period there was yet another system of medicine in practice in South India. This system is known as Siddha School of Medicine. Some siddhas who wrote in Tamil language were Pulastiar, Thirumovar, Chattamuni, Kapilar and Perinakanar. Two systems of instruction in practice were the Brahamanical and the Monastic. The admission to the courses was through admission test. These tests were very tough and meant to admit only the best students. The final test for graduation was also very difficult and ingenious.

About 12th century A.D. foreign invasions resulted in the loss of many established traditions, and gradually Ayurveda too lost its state patronage. By the 16th century, when the British arrived in India Ayurveda schools were closed down as they did not have the support of the new rulers. The British did not understand or patronise the indigenous systems. But inspite of the indifference of the State, Ayurveda remained quite popular with the masses.

**THE MEDIEVAL PERIOD**

From 600 B.C. to 200 A.D. in the post-Vedic period, Buddhism provided an added stimulus to the development of medicine and medical education. King Ashoka and other Buddhist kings established public hospitals, to which were attached schools of medicine.
In the later half of the medieval period, Unani system of medicine was introduced by the Muslim invaders. The Unani system was in essence the Arabic system which had already been influenced by the Greek and Indian medicines. It was propagated and practised by hakims who first settled in Punjab, Delhi and Sind. Allaudin Khilji set up a chain of Unani institutions which were run by several learned hakims. By the time of Tughlaq, there were almost 70 hospitals in the Delhi region itself. However, after the reign of Jehangir, the Europeans came to India and gradually the growth of the Unani system of medicine declined. Apart from this, no significant development took place in the medieval period.

**MODERN PERIOD**

Modern medicine i.e. allopathy was first introduced by the Portuguese in the sixteenth century. After conquering Goa in 1510, they built a Royal Hospital there. The Portuguese Missions organised hospitals of European style at Calicut and Madras also. In 1703, an elementary form of medical teaching was introduced in these hospitals.

Allopathy was properly introduced and consolidated by the European doctors of East India Company. In 1833, Lord William Bentinck appointed a committee to work out the principles on which medical education should be established in India. The committee declared that the proposed medical curriculum should be “ample, comprehensive, worthy of a great government, not intended merely to supply the wants of a state, but of the people and to become a moral engine of great utility and power”.

The first medical school (Native Medical School) was started at Calcutta in 1824. In 1833, the Governor-General Lord Bentinck ordered the revision of medical education in Bengal and the school was abolished; in its place the Medical College, Calcutta was
established in 1835. The college was affiliated to the Calcutta University in 1857. Another school the Madras Military Medical School was established in 1835, with the aim of training subordinates for service in the army. The first batch of students comprised of 11 locals and 11 Eurasians who were put through a four year course at the school. As the need for medical education rapidly grew all over the presidency, this school started to admit civilian students. The school was upgraded to the status of a college in 1852. In 1857 with the establishment of the Madras University, the college was affiliated to it. An interesting fact in the history of medical education in India is that women were admitted to the college for the first time in 1875. It occurred at a time when women were barred from other medical colleges in India. In 1916, the Lady Hardinge Medical College was opened in New Delhi exclusively for the education of women.

The early medical teaching institutions founded in India between 1845 and 1900 were:

Grant Medical College, Bombay (now Mumbai) 1845

Hyderabad Medical School, Hyderabad 1846

King Edward Medical School, Indore 1848

Agra Medical School, Agra 1854

Medical School, Amritsar 1864

Campbell Medical School, Calcutta (Kolkata) 1873

Temple Medical School, Patna 1874

Orissa Medical School, Cuttack 1875

B.J. Medical School, Poona (Pune) 1878

Ahmedabad Medical School, Ahmedabad 1879
Calcutta School of Medicine, Calcutta 1886
Christian Medical College, Ludhiana 1894
Haffkine Institute of India, Bombay 1899
Berry White Medical School, Dibrugarh 1900

By 1930, several more schools and colleges were set up. As universities came into being, the medical schools were gradually converted into full-fledged colleges. Due to increase in the number of medical institutions and colleges a need was felt for central organising and controlling bodies. For this purpose Indian Council of Medical Research and the Medical Council of India were established in 1911 and 1933 respectively. The Medical Council of India was set up by a Central Act. The Council was given power to recommend government recognition to medical institutions which imparted medical qualifications of the standard considered satisfactory by the Council. The Council was empowered to solicit information from medical institutions and also to send inspection teams to the medical colleges to enquire and assess how they were being run.

**POST INDEPENDENCE PERIOD**

After India attained independence educating the masses was one of the major tasks for the government. There was a rapid increase in educational institutions in all streams. Many new medical colleges were opened under the auspices of Five-Year Plans.

**MEDICAL EDUCATION & FIVE YEAR PLANS**

In 1947 there were only 25 medical colleges with an annual admission of 1983 students in the country. At present the number stands at 271 (in which 138 are government colleges and the remaining 133 are private) with admission capacity of 31,172 students per year. The number of Post Graduate Institutes of Medical Sciences stands at 43.
The Indian government was keen to improve the standard of medical education in the country and to pursue this aim, a conference was held in 1949 at Madras on Postgraduate Medical Education. On its recommendations, the Government of India constituted an All India Council of Post Graduate Medical Education in the same year. The council was to prescribe standards for all those who wished to undergo any postgraduate degree course in the field of Medicine, Surgery, Obstetrics and Gynaecology and in other specialities.

In 1956, Parliament enacted legislation on medical education in the form of Indian Medical Council Act. By this legislation the Indian Medical Council Act, 1933 was repealed, the Medical Council of India was set up and a Medical Register for India instituted. This Act was further amended by the Indian Medical Council (Amendment) Act 1964, 1994 and then in 2001, the latest legislation on Medical education in India. Similar Acts were passed in the Parliament to streamline education in dental, nursing and pharmacy colleges. These were the Indian Nursing Council Act, The Dentist Act and the Pharmacy Council Act which created Nursing, Dental and Pharmacy Councils similar to the Medical Council of India.

The All India Institute of Medical Sciences (AIIMS) was established in 1956 as per the recommendations of the Bshore Committee (1946). In the following years many more institutes for medical research and higher education were established. A Postgraduate Institute of Medical Education and Research was established both in Pondicherry and Chandigarh. Many new medical colleges were opened and new postgraduate courses introduced. In 1978-79, the number of colleges increased to 106, with annual admission rising to 10658. With time, many private trusts and societies too
started to establish educational institutes of various streams. This has been a very positive development and there is a dual benefit. The states that are not in a position to financially, or otherwise cater to the needs of the students reap as much benefit as do the students in these private institutions. These medical colleges and institutions need to follow the standards laid down by MCI.

The Medical Education Review Committee in 1983 in its report emphasised the need for National Education Policy (NEP) in Health Sciences. In 1986 the Expert Committee on Health Manpower, Planning, Production and Management too recommended for NEP in Health Sciences. A draft National Education Policy in Health Sciences was prepared by a consultative group under the Chairmanship of Prof. J. S. Bajaj. The policy was adopted in the meeting of the Central Council of Health and Family Welfare in 1993. The Council recommended urgent action with respect "to the establishment of the Education Commission in Health Sciences on the lines of the UGC to provide requisite financial and technical support for professional and para-professional education in Health Sciences."

The Ninth Plan had envisaged establishing one or more universities of Health Sciences in all States/regions. Despite so much growth in the field of medical education one can still see discrepancies in the provision of medical education in the country. Just four states i.e. Karnataka, Andhra Pradesh, Tamil Nadu and Maharashtra have 81 out of 271 medical colleges. On the other hand populous states like Bihar and Uttar Pradesh have only 11 and 13 medical colleges respectively.
The Tenth Plan also reiterated the recommendation of the 9th Plan to encourage all states of the country to establish a University of Health Sciences in their respective states.\textsuperscript{13}

Currently there are 271 (2006) medical colleges that admit 31,172 students to the 1\textsuperscript{st} year MBBS course. In 2001 the number was 179. The increase has been phenomenal. The primary factor responsible for this increase is due to the coming up of numerous private medical colleges. In 1995 these were 47 in number whereas by 2006 this number rose to 131. During the same period, government run medical colleges have increased from 109 to 140.\textsuperscript{14}

Keeping in view the large scale expansion of medical colleges, a number of statutory and other bodies were established from time to time to streamline medical education and research in the country. A brief outline of some of these is given below:

**INDIAN COUNCIL OF MEDICAL RESEARCH (ICMR)**

The Indian Council of Medical Research is one of the oldest medical research bodies in the world. It is the apex body in India and is responsible for looking after the formulation, coordination and promotion of bio-medical research. In 1911 it was set up as the Indian Research Fund Association with the objective of sponsoring and coordinating medical research in the country. It was re-designated as ICMR in 1949 with expanded scope of its functions. The ICMR is funded by the Government of India through the Ministry of Health & Family Welfare.

The council promotes biomedical research through intramural as well as extramural research. Intramural research is carried out through the council’s 21 permanent research institutes located in different parts of India and 6 Regional Medical
Research Centres which address regional health problems and also aim to strengthen or generate research capabilities in different geographic areas of the country. Extramural research is promoted by ICMR through (1) setting up Centres for Advanced Research in different research areas in selected departments of medical colleges, universities and other non-ICMR research institutes, (2) task force studies and (3) open-ended research on the basis of applications for grant-in-aid received from scientists in non-ICMR Research institutes, medical colleges and universities in different parts of the country.

The ICMR encourages human resource development in biomedical research through research fellowships, short term visiting fellowships, various training programmes and workshops.

MEDICAL COUNCIL OF INDIA

As the number of teaching institutions and universities increased, the Government considered it imperative to provide uniform and improved standards of medical education in the country. This led to the creation of the Medical Council of India by a Central Act in 1933 (amended in 1956, 1964, 1993 & 2001). It is a statutory recommending body with the following responsibilities and objectives:

a) To coordinate and determine standards of medical education in India at all levels;

b) To regulate the practice of medicine in India, by persons possessing recognized medical qualifications;

c) To maintain the Indian Medical Register;

d) To advise the Central Government in matters relating to the requirements of manpower in the field of medicine;
e) To improve the standards of medical education at all levels and to undertake review of such standards; and

f) To advise the Central and State Governments on matters pertaining to financial needs of medical colleges.

NATIONAL ACADEMY OF MEDICAL SCIENCES (NAMS)

The National Academy of Medical Sciences was established in 1961 as a registered society with the objective of promoting the growth of medical sciences. NAMS is also implementing continuing Medical Education Programme. In 2008 the number of Fellows in NAMS stood at 28 and it also had 37 executive members on its rolls.\(^{15}\)

INDIAN MEDICAL ASSOCIATION (IMA)

The Indian Medical Association (IMA), the national organization of doctors of modern system of medicine, was established in 1928 and currently it has around 1,00,000 members belonging to different branches of medical profession. The organization functions through a network of more than 1700 local branches located in different parts of India. The major objectives of the Indian Medical Association include:

1. Promotion and advancement of medical and all related sciences;

2. Improving the public health and medical education in India; and

3. Maintaining the honor and dignity of the medical profession.\(^{16}\)

All these efforts on the part of the government to develop medical education in the country are reflected in the development of dental education too. A brief outline of the historical development of dentistry is given below.
HISTORY OF DENTAL EDUCATION

Dentistry has been defined as "evaluation, diagnosis, prevention and/or treatment (non-surgical, surgical or related procedures) of diseases, disorders and/or conditions of the oral cavity, maxillofacial area and/or the adjacent and associated structures and their impact on the human body." Evidence of dentistry has been found in teeth dating from around 5500 B.C. to 7000 B.C. Teeth, showing evidence of holes from dental drill were found in the people of the Indus Valley Civilisation too. During the Middle Ages and through the 19th century, dentistry was not a profession in itself and often dental procedures were undertaken by barbers or general physicians. Instruments used for dental extractions date back several centuries. In the 14th century, Guy de Chauliac invented the dental pelican which was used till the late 18th century. The pelican was replaced by the dental key which, in turn, was replaced by modern forceps in the 20th century.

Formal education in dentistry started in 1580. The French physician of the 17th century, Pierre Fauchard, is known as the "father of modern dentistry" because he started dental science as it is known today. The students of dentistry were admitted for the first time in the University of France. During 1830s attempts were made to establish dental schools in Kentucky and New York City but the first school opened in 1840 in Baltimore. It was named Baltimore College of Dental Surgery. Harvard Dental School was the first dental school to be affiliated to a University.

The Odontological Society of London opened first dental school in the UK in 1858. The second school in England came up in 1859. Both of these schools were private. The first Dentist Act was passed in 1878 in the UK.
The first book written on dentistry was “Artzney Buchlein” in 1530 and the first dental textbook written in English was “Operator for the Teeth” by Charles Allen in 1685. During 18th century three textbooks were published one each in French, German and English. After that the volume of books published in dentistry has increased manifold. Dr. Andres Weber placed the total of books exclusively, published between 1530-1920, a span of 390 years at 12,555, including 4,701 academic theses. The Index to Dental Literature lists some 2400 books. It is an incomplete picture because it does not include books written in languages other than English.

The history of dental periodical literature began in 1839 when the first dental journal, the American Journal of Dental Science was published. The number of periodicals published since then is not known but the current titles are indexed in Index to Dental Literature.

Dental libraries came into existence in third decade of the nineteenth century as private libraries. The private collectors like Jonathan Taft, E.C. Mills, William Trueman, Kalman Klein have done great service in preserving large amount of material that would have been otherwise lost to the world. The libraries as part of an institution appeared in the end of the nineteenth century. In the present times, the library has become an integral part of every institution.

DENTISTRY IN INDIA

The first dental college of India was established in the year 1924 in Kolkata. It was then called Calcutta Dental College & Hospital. It was built by Dr. Rafiuddin Ahmed without any government aid. Incidentally, this was the first dental college established in Asia. The college was named after Dr. Ahmed after his death in 1965. Second dental college to
come up in the region was De Montmorency College of Dentistry in 1934 at Lahore. At present there are 142 (113 private) recognised/approved dental colleges in India with 8,900 BDS admissions every year. There are 48 institutions providing post graduate training.  

Modern Indian dentists must earn the Bachelor of Dental Surgery degree which is overseen by the Dental Council of India. Post graduate courses are also offered in different specialities. Many institutions are offering other short or long term courses in Dental Implantology and Aesthetic Dentistry but these are yet to be regularised by the council.

As in the case of medical colleges, there are regional imbalances in the distribution of dental colleges. The Tenth Plan intended “to assess the state-wise demand for dental professionals and district-wise need for dental para professionals and also to take steps to meet the requirements.”

The regulatory authority for dental studies in the country is the Dental Council of India.

**DENTAL COUNCIL OF INDIA**

The Dental Council of India is a statutory body. It was constituted on 12th April 1949, under an Act of Parliament—the Dentists Act, 1948. The Act was amended through an ordinance in 1993 to restrict the mushroom growth of dental colleges, keep a check on the increase of seats in any of the courses and starting of new higher courses without the prior permission of the Central Government, Ministry of Health & Family Welfare.

The Council is financed by grants from Govt of India, Ministry of Health & Family Welfare. It also receives 1/4th share of fees realized every year by various state dental councils under section 53 of the Dentists Act. In addition to this it also gets
inspection fees from various dental institutions for inspecting them under section 15 of the Dentists Act, 1948 and application fee from the organization to apply for permission to set up a new dental college, opening of higher courses of study and increase of admission capacity in the colleges.

The medical and dental education is progressing in leaps and bounds. Every year the number of students is increasing considerably. The libraries of these colleges have to keep pace with the advances in various fields and provide the required information support. To meet such challenges information technology has made a great impact on the processing and dissemination of services in the libraries.
REFERENCES


3. Ibid. 30

4. Ibid. 30.


7. Ibid. p. 52-56


10. Ibid. 46


