

**CHAPTER-3**  
**MEDICAL AND PARAMEDICAL SCIENCE**  
**EDUCATION IN INDIA**

## CHAPTER-3

### MEDICAL AND PARAMEDICAL SCIENCE

#### EDUCATION IN INDIA

The profession of medicine has been a concern of man since the beginning of time. The physician, the medicine man, and the healer, have always been looked upon with great respect through the centuries. Medical library has played an important role in the great advances of medical knowledge. It is the link between the past and the present. The history of medical library is closely related to the history of medicine. Indian medical library is the product of the scientific renaissance. In India, Portuguese brought with them doctors to look after their shipmen, soldiers and civil employees. Gradually the Dutch, Danes, French and English trading companies brought with them doctors and started imparting medical knowledge to the Vaidis and Hakims who were recruited in the army to look after the wounded soldiers. India, however, had her own ancient indigenous system of medicine such as Ayurveda and Unani and finally Allopathy. The first is Ayurveda medicine which has been dated to be the oldest and is believed to have been initiated and practiced between 2000 and 5000 BC. The first books on medicine written in India are Charak Samhita and Susruth Samhita, are still available in the old libraries. Medical education during this period was imparted through the Brahmanical system wherein individual training of pupils was done by skilled practitioners in the Guru-Shishhya parampara.

The next phase of Indian medicine and medical education have been linked with the post Vedic period (600 B.C to 200 A.D.). Asoka and other Buddhist kings established public hospitals, and schools of medicine were attached to them. In ancient time world

renowned universities of Nalanda, Takshashila and Vikramshila, the teaching of medicine was one of the disciplines. It is because of the records available of these universities that the history of medical libraries can be traced back to this period.

With the advent of Muslim rule, the Unani system came to be introduced into the country. It had an extensive sphere of influence in India during the 13<sup>th</sup> century AD. Much of the literature on this system of practicing medicine was produced during this period.

Homeopathy emerged as an important therapeutic system during the later half of 19<sup>th</sup> century in Europe and America. It was introduced in 1810 by a German doctor named Samuel Hahnemann. It has undergone periods of expansion and decline over the years. In the present times there is an increasing interest in the homeopathy. There are over hundred homeopathy journals worldwide and an International Congress meets yearly. India and Mexico are the only countries that maintain Homeopathic colleges.

The allopathic system of medicine was first introduced in India in the 16<sup>th</sup> century with the arrival of European missionaries. The Portuguese missions organised European style hospitals at Calicut, Madras and Goa.

The advent of British rule in the country paved the way for the establishment of medical colleges and libraries and also the first allopathic medical school – Native Medical School- was started in Kolkata in 1824 followed by another in Chennai. In 1845, a college was started in Bombay followed by the opening of two more medical colleges in Hyderabad and Indore. After the establishment of the universities at Kolkata, Chennai and Mumbai in 1857, a few medical schools were upgraded into colleges, and medical education was brought within their purview.

Any increase in number or quantity, more often than not, brings in a dilution of the quality. With the increase in the number of medical institutions, there arose the problem of maintenance of standards. A study was undertaken by Norman Walker and Col Nudham and they submitted a report recommending the need to establish a central coordinating agency in India. It was mainly as a consequence of this report that in 1933, the Medical Council of India (MCI) came into existence.

Since Independence in 1947 there has been a rapid expansion of educational institutions at all levels and as such, a rapid growth of medical colleges has been observed during this period. The high growth of medical institutes can be gauged by the fact that eight medical colleges were established between 1947 and 1950, and another eleven were opened in the next five years, 1951-55. It has been observed that since 1951, when the first five year plan was launched a great momentum has taken place in the establishment of medical libraries. In 2005-10 the total figure has reached 171 and on 31<sup>st</sup> March 2014 the figure has increased to 176 with admission capacity of 17,000 students per year. This is in addition to a large number of institutions in the related disciplines of dentistry, nursing, pharmacy and paramedical sciences.

In 1956 prestigious All India Institute of Medical Sciences (AIIMS) was established. In addition to this, a number of other institutes for medical research and higher education were established under the Indian Council of Medical Research. To keep pace with the rapid growth of colleges and institutions and to meet information needs of the users, there had been a corresponding development in the number of medical college libraries.

### **3.1 MEDICAL AND PARAMEDICAL SCIENCE EDUCATION IN ASSAM**

The roots of medical education in Assam were imparted in the year 1900, a medical school was established at Dibrugarh of Assam during the rule of Imperial Government of British India, under the provision of the Medical act 1886, the name of the medical school was “ Berry White Medical School”. The school provided non graduate course on Medical and Home science, to establish this school British doctor Dr. John Berry White had donated Rs. 50,000/- .This school remained as one of the chief centre of surgery as well as for medical education for the next half of the century.

In 1933, original medical council act had been enacted. Due to the efforts of local and in collaboration with World Health Organisation (WHO) the Berry White Medical School of Dibrugarh was converted into full fledged post graduate medical institute and now available upto various master degree courses and research facilities. This Institute has been renamed and “Assam Medical College” which is founded in 3<sup>rd</sup> November , 1947 at Dibrugarh of Assam. It was the first medical college in north-eastern India. It is the tertiary medical referral centre for upper Assam and areas in neighbouring states, including Arunachal Pradesh. Gradually, the number of these colleges started increasing. Later on five medical colleges were emerged at Guwahati, Silchar, Jorhat, Barpeta and Tezpur. Like Assam Medical College, Dibrugarh these five medical colleges also provide the graduate degree, master degree (PG) and the facilities for research in Medical Science. These Institutions are the main institutions for study of medical science in North East India and students come from the various parts of North East India as well as from the various parts of India. With the development of these medical colleges the libraries were developed with these institutions. These libraries were established with these medical colleges with a view to help the students in various

aspects of their studies and research. With the main library there are various branches for proper planning and management of the library and there are also other seminar libraries to provide up-to-date literature in the respective fields to students.

In 1984, the Directorate of Medical Education, Assam, Training and Research was established under the control of Health & Family Welfare Department, Government of Assam.

### **Function of the Directorate**

- To promote expertise in medical science in different streams like *Allopathic*, *Ayurvedic* and *Homoeopathic medicine* and *Paramedical science*.
- To promote health care facilities to the people of Assam through different hospitals under the Directorate.
- To develop and sustain the medical education through proper planning.
- To promote research in the field of medical science in the state of Assam.
- To develop human resources in medical science through different institutions under it.
- To control the Undergraduate, Post-graduate & Diploma admission into the various courses of Medical Colleges, Nursing Colleges, Pharmacy Institutes, Institutes of Paramedical Sciences & Medical Institute.
- Administrative control over all the Medical and Paramedical colleges and hospital under it.

A landmark in medical education in Assam is the establishment of Srimanta Sankaradeva University of Health Sciences (SSUHS) at Bhangagarh, Guwahati in 2009 as per Act "The Srimanta Sankaradeva University of Health Sciences, Act, 2007". It is the only Health University in the North Eastern Region with its jurisdiction to the whole of Assam. The Mission of the University is:

➤ to create, uphold and develop an intellectual, philosophical, academic and physical environment which shall be conducive to free flow of ideas and exchange of information amongst various faculty members of the University

➤ to develop collaborative as well as autonomous institutions, between Srimanta Sankaradeva University of Health Sciences and other Universities of Health Sciences, and other centres of excellence in the country and abroad, thereby opening a window to the world for the health professionals, health planners, health managers, health policy makers, bio-medical and social scientists, educators and academicians in Health Sciences of the country.

Given below is the list of Medical and Paramedical colleges in Assam affiliated under Srimanta Shankardeva University of Health Sciences along with the year in which they were established.

**Table -3.1 Affiliated Colleges/Institutes under SSUHS (Government)**

<b>Sl. No.</b>	<b>Name of the College/ Institute</b>	<b>Year of Establishment</b>	<b>Name of the College/ Institute Library</b>	<b>Year of Establishment</b>
1	Assam Homeopathic Medical College, Nagaon	1968	Central Library, Assam Homeopathic Medical College	1968
2	Assam Medical College, Dibrugarh	1947	Central Library, Assam Medical College	1947
3	B.Sc Nursing College, Dibrugarh	2010	B.Sc Nursing College Library	2010
4	B.Sc Nursing College, Silchar	2012	B.Sc Nursing College Library	2012
5	Dr. J.K. Saikia Homeopathic medical college, Jorhat	1975	Central Library,Dr. J.K. Saikia Homeopathic medical college	1975
6	Fakhruddin Ali Ahmed Medical College, Barpeta	2006	Central Library ,Fakhruddin Ali Ahmed Medical College	2011
7	Govt. Ayurvedic College, Guwahati	1948	Central Library,Govt Ayurvedic College	1948
8	Gauhati Medical College, Guwahati	1960	Central Library Gauhati Medical College	1961
9	Institute of Paramedical Sciences, Dibrugarh	2008	Institute of Paramedical Sciences Library	2008
10	Institute of Paramedical Sciences, Guwahati	2008	Institute of Paramedical Sciences, Guwahati	2008

**Contd. Table 3.1 Affiliated Colleges /Institutes under SSUHS (GOVERNMENT)**

11	Institute of Paramedical Sciences, Jorhat	2011	Institute of Paramedical Sciences, Jorhat	2011
12	Institute of Paramedical Sciences, Silchar	2008	Institute of Paramedical Sciences, Silchar	2008
13	Institute of Pharmacy, Dibrugarh	1947	Pharmacy Institute Library	1947
14	Institute of Pharmacy, Guwahati	1986	Pharmacy Institute Library	1986
15	Institute of Pharmacy, Silchar	1968	Pharmacy Institute Library	1968
16	Jorhat Medical College, Jorhat	2010	Central Library, Jorhat Medical College	2010
17	Medical Institute, Jorhat	1985	Medical Institute	1985
18	Regional College of Nursing, Guwahati	1977	Regional College of Nursing Library	1978
19	Regional Dental College, Guwahati	1982	Regional Dental College Library	1982
20	Regional Medical Research Centre, Dibrugarh	1982	Regional Medical Research Library	1982
21	Silchar Medical College, Silchar	1968	Central Library, Silchar Medical College	1969
22	Swahid Jadav Nath Govt. Homeopathic Medical College Hospital, Guwahati	1976	Central Library, Swahid Jadav Nath Govt. Homeopathic Medical College Hospital	1976
23	Tezpur Medical College, Tezpur	2011	Tezpur Medical College, Tezpur	(under process)

**Table No 3.2 Affiliated Colleges/Institutes under SSUHS(Private)**

<b>Sl. No.</b>	<b>Name of the College/ Institute</b>	<b>Year of Establishment</b>	<b>Name of the College/ Institute Library</b>	<b>Year of Establishment</b>
1	Army Institute of Nursing, Guwahati	2006	Army Institute of Nursing Library	2006
2	Arya Nursing College, Guwahati	2007	Arya Nursing College Library	2007
3	Assam institute of Advanced Studies, Guwahati	2008	Assam institute of Advanced Studies Library	2008
4	Asian Institute of Nursing Education	2004	Asian Institute of Nursing Education	2004
5	Asian Institute of Paramedical Sciences, Guwahati	2010	Asian Institute of Paramedical Sciences Library	2010
6	CPMS College of Nursing, Guwahati	2007	CPMS Library	2007
7	College of Physiotherapy and Medical Sciences(CPMS), Guwahati	2005	CPMS Library	2005
8	Down Town College of Allied Health Science	2005	Harinarayan Dutta Baruah Central Library	2005
9	Dr. B. Borooah Cancer Institute, Guwahati	1973	Dr. B. Borooah Cancer Institute Library	1973
10	Regional Institute of Paramedical Technology	2009	Regional Institute of Paramedical Technology	2009
11	Sankar Madhab College of Nursing, Panikhaity	2005	Harinarayan Dutta Baruah Central Library	2005
12	Swagat Academy of Medical sciences, Guwahati	2012	Swagat Academy of Medical sciences Library	2012
13	Ramesh Chandra Saharia Institute of Paramedical Courses, Tangla	2012	Ramesh Chandra Saharia Institute of Paramedical Courses , Library	2012
14	Ridley College of Optometry, Jorhat	2011	Ridley College of Optometry, Library	2011
15	Sri Shankardev Netralaya, Guwahati	2002	K.N. Das memorial Library	2002

## 3.2 BRANCES OF MEDICAL SCIENCE

### 3.2.1 Ayurveda

Ayurveda is a comprehensive system of Medicine. It is considered as the Upaveda of the Atharvaveda . Ayurveda was fully developed between 700 and 1000 B.C. Ayurveda means “Science of Life”. Ayurveda says that life is the combination of Sharira (Body), Indriya (Perceptory organs), Satwa (Mind) and Atma (Soul). Ayurveda was developed into two main schools namely:

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

According to the ancient theory of cosmology, on which Ayurveda is based, the “five great elements” (panchamahabhuta); combine in different proportions to form the material world. Each element possesses different amounts of the above mentioned gunas; thus each element has its unique qualitative nature. The elements are : Akasha-aether, Vayu or Pavan – air or wind , Agni or Tejas – fire , Ap or Jala-water, Prithvi or Bhumi – earth.

About 12<sup>th</sup> century A.D. certain invasions took place and gradually Ayurveda lost its state patronage. Under the centralised governmental systems established by the mughals and subsequent British rule in India, many Ayurvedic physicians were paid small stipends. But when the British government in India began to established hospitals and organised state wide healthcare institutions, Ayurveda was not included. In the early 20<sup>th</sup> century, Ayurvedic physicians began to organize into professional associations and to promote their case for national recognition and funding. This began to become a reality after constitution of the statutory body Central Council of Indian

Medicine under the Indian Medicine Central Council Act, 1970 .Since its establishment in 1971, the Central Council has been framing on and implementing various regulations including the curricula and syllabii in Indian systems of medicine viz. Ayurved, Siddha and Unani at Under-graduate and Post-graduate level.

Now all the Colleges of Indian systems of medicine are affiliated to various Universities in the Country. These Colleges are following the minimum standards of education and Curricula and Syllabii, prescribed by Central Council.

The main objectives of the Central Council are as under:

- To prescribe minimum standards of education in Indian systems of medicine viz. Ayurved, Unani and Siddha.
- To advise Central Government in matters relating to recognition (inclusion/ withdrawal) of medical qualification.
- Standards of Professional Conduct, Etiquette and Code of Ethics to be observed by the practitioners.

There are all total 249 Ayurvedic Colleges are available in India till 2013. In Assam the Government Ayurvedic College, Guwahati is the pioneer institute of Indian system of medicine, in the entire North East India. It was established in the year 1948. The college is situated at Jalukbari, previously the College was affiliated by Gauhati University. After establishment of Health University in the state, the teaching, research and examination etc. of the college have been brought under Srimanta Sankaradeva University of Health Sciences (SSUHS), Assam with effect from 2010 and the syllabus & curriculum prescribed by the Central Council of Indian Medicine, the statutory body of Indian System of Medicine, adopted by the

University. At present, four Professional final examinations are being held annually maintaining duration of 4 years of Bachelors of Medicine and Surgery (BAMS) course under Srimanta Sankaradeva University of Health Sciences, then one year compulsory rotatory internship is necessary to complete the 5 year degree BAMS course with following subjects:

- i) Kaya Chikitsa (Medicine)
- ii) Shalya (General Surgery)
- iii) Shalakya (ENT & Ophthalmology)
- iv) Sanskrit, Samhita and Siddhanta (Basic Principles)
- v) Prasuti Tantra & Striroga (Obstetrics & Gynaecology)
- vi) Bala Roga (Pediatrics)
- vii) Panchakarma (Physiotherapy)
- viii) Swasthavritta (Preventive & Social Medicine)
- ix) Dravyaguna (Pharmacology)
- x) Rasashastra & Bhaisajya Kalpana (Rejuvenative & Pharmaceutical Science)
- xi) Agada tantra & Vidhi Shastra (Toxicology & Forensic Medicine)
- xii) Roga Nidan & Vikriti Vigyan (Diagnostic & Pathological Science)
- xiii) Rachana Sarir (Anatomy)
- xiv) Kriya Sarir (Physiology)

Government Ayurvedic College, Assam also provides Post Graduation Course in Ayurvedic Medicine and Diploma Course in Ayurvedic Pharmacy.

### 3.2.2 Unani System of Medicine

Unani System of Medicine originated in Greece. It was further enriched and developed by Arabs and Persians. Hippocrates explained that the disease was a normal process and its symptoms were the reaction of the body to the disease. He also laid emphasis on diet and drugs of Plant, Animal and Mineral origin for cure of the disease.

A galaxy of Unani medical luminaries have come to the forefront after Hippocrates, and contributed a lot to this Unani system of medicine such as Aristotle, Herrophillus, Ibn Sina, Dioscorides, Galen, Al-Mamun Ibn Masawayh, Rhazes, Ibn Ishaq, Ibn Al Baitar et.al. These eminent bright scientist and scholars of India during this century have contributed a lot which cannot be forgotten. The Unani system of medicine is based on the Humoural theory, Humoural pathology which presupposes of four humours namely- Blood (Dam), Phlegm (Balgham), Yellow bile (Safra) and Black bile (Sauda) in the body.

The Unani System of diagnosis of disease and treatment restoring health revolves round the concept of temperament. The humours also have specific temperament. Changes in temperament are related to changes in the balance of humours. Any change in temperament brings about a change in the health of the individual. Thus imbalance of the harmony of humours and temperament causes disease.

In India there are all total 40 Unani Medical Colleges where Unani system of medicine is taught. After five and half year courses, the graduates are awarded BUMS (Bachelor of Medicine and Surgery). There are about eight Unani Medical Colleges where a postgraduate degree (Mahir-e-Tib and Mahir Jarahat) is being awarded to BUMS doctors. All these colleges are affiliated to reputed universities and recognised by government. In Assam there is no Unani College available.

### **3.2.3 Siddha System of Medicine**

Siddha is one of the ancient medical systems of the World. It was founded by Siddhars (Saints) who were highly talented Scientists and who perfectly understood the human mind and body during health and illness from embryonic life to death. The founders, who were known as Siddhars, lived in various parts of India in general and Southern India in particular, specifically around Tamil Nadu. This system of Medicine developed within the Dravidian Culture which is of the pre-vedic period. The Siddha System is largely therapeutic in nature. But Siddha has lost its popularity as a scientific medical system even in Tamilnadu after modern medicine was introduced even in Tamil Nadu.

The medical literatures of Siddha which are mostly in the form of cudjan leaves in Tamil language and scientifically and systematically codified into various subjects starting from embryology paediatrics to Geriatrics including the intermediary subjects like Ophthalmology, Gynaecology etc . This is only system which deals leprosy under separate topic. This system also deals with the concept of salvation in life. The exponents of this system consider achievement of this state is possible by medicines and meditation.

The Tamil Nadu state runs a 5.5-year course in Siddha medicine (BSMS: Bachelor in Siddha Medicine and Surgery). The Indian Government also gives its focus on Siddha, by starting up medical colleges and research centers like National Institute of Siddha and Central Council for Research in Siddha. In Assam, course in Siddha could not trace out in any medical or paramedical colleges.

### 3.2.4 Homeopathy

Homeopathy is a system of medicine which involves treating the individual with highly diluted substances, given mainly in tablet form, with the aim of triggering the body's natural system of healing. Based on their specific symptoms, a homeopath will match the most appropriate medicine to each patient.

Homoeopathy (also spelled homoeopathy or homoeopathy) derived from the Greek words, homoios (similar) and, pathos (suffering). Homeopathy is based on the principle that you can treat 'like with like', that is, a substance which causes symptoms when taken in large doses, can be used in small amounts to treat those same symptoms. For example, drinking too much coffee can cause sleeplessness and agitation, so according to this principle, when made into a homeopathic medicine, it could be used to treat people with these symptoms. This concept is sometimes used in conventional medicine, for example, the stimulant Ritalin is used to treat patients with ADHD, or small doses of allergens such as pollen are sometimes used to de-sensitise allergic patients. However, one major difference with homeopathic medicines is that substances are used in ultra high dilutions, which makes them non-toxic.

The term "homoeopathy" was coined by the Saxon physician Samuel Hahnemann (1755-1843) in 1796. He recorded his findings in his *Materia Medica Pura*. Kent's *Lectures on Homoeopathic Materia Medica* (1905) list 217 remedies and new substances are being added continually to contemporary versions. Homeopathy uses many animal, plant, mineral, and chemical substances of natural or synthetic origin.

Today, about 3000 remedies are used in homoeopathy; about 300 are based on comprehensive *Materia Medica* information, about 1500 on relatively fragmentary

knowledge, and the rests are used experimentally in difficult clinical situations based on the law of similars, either without knowledge of their Homeopathic properties or through knowledge independent of the law of similars.

In 1973 the Indian Parliament passed Homeopathic Central Council bill and accordingly Homeopathic Central Council was established in 1974. This council is the controlling authority of the educational and practice of Homoeopathy in India.

In Assam, there are three government medical colleges are functioning. Assam Homeopathic Medical College, Nagaon, Dr. J.K. Saikia Homeopathic medical college, Jorhat, Swahid Jadav Nath Govt. Homeopathic Medical College Hospital, Guwahati provide five and half years (5 ½) Bachelors of Homeopathic Medicine and Surgery (BHMS) course. Subjects for study and examination for the B.H.M.S. (Degree) course are as under:-

- i) Anatomy
- ii) Physiology including Biochemistry
- iii) Organon of Medicine, Principles of Homeopathic Philosophy and Psychology.
- iv) Homeopathic Pharmacy.
- v) Homeopathic Materia Medica & Therapeutics
- vi) Pathology and Microbiology
- vii) Forensic medicine and Toxicology
- viii) Practice of Medicine.
- ix) Surgery.
- x) Obstetrics and Gynaecology.
- xi) Community Medicine.
- xii) Case taking and repertory

### **3.2.5 Allopathy (Modern Medicine)**

The term “allopathy” was coined in 1842 by C.F.S. Hahnemann to designate the usual practice of medicine (allopathy) as opposed to homeopathy , the system of therapy that he founded based on the concept that disease can be treated with drugs (in minute doses) though capable of producing the same symptoms in healthy people as the disease itself.

The Medical Council of India was established in 1934 under the Indian Medical Council Act, 1933, now repealed, with the main function of establishing uniform standards of higher qualifications in allopathic medicine and recognition of medical qualifications in India and abroad. The number of medical colleges had increased steadily during the years after Independence. It was felt that the provisions of Indian Medical Council Act were not adequate to meet with the challenges posed by the very fast development and the progress of medical education in the country. As a result, in 1956, the old Act was repealed and a new one was enacted. This was further modified in 1964, 1993 and 2001.

**The objectives of the Council are as follows:-**

1. Maintenance of uniform standards of medical education, both undergraduate and postgraduate.
2. Recommendation for recognition/de-recognition of medical qualifications of medical institutions of India or foreign countries.
3. Permanent registration/provisional registration of doctors with recognised medical qualifications,

4. Reciprocity with foreign countries in the matter of mutual recognition of medical qualifications.

There are six medical colleges (Allopathic) affiliated under Srimanta Shankardeva University of Health and Medical Sciences in Assam. Among these colleges five are in running condition viz. Assam Medical College(Dibrugath), Gauhati Medical College (Guwahati), Fakaruddin Ali Ahmed Medical College(Barpeta), Jorhat Medical College(Jorhat),Silchar Medical College (Silchar) and newly established Tezpur Medical College(Tezpur),which is under construction during the data collection period. These five colleges provide *Graduate Education Course* (M.B.B.S.) of five years which include one year internship. Major subjects are:

- i. Anatomy
- ii. Physiology
- iii. Biochemistry
- iv. Pharmacology
- v. Pathology
- vi. Microbiology
- vii. Forensic & State Medicine,
- viii. Community Medicine,
- ix. Medicine
- x. Surgery (which includes Orthopedics)
- xi. Pediatrics
- xii. Obstetrics & Gynecology
- xiii. Ophthalmology & Otorhinolaryngology.

The above mentioned medical colleges also provide three (03) years Post Graduate (PG) Education, two (02) years Diploma course and Post Doctoral (MCh) Education course.

### **3.2.6 Pharmacy**

The word *pharmacy* is derived from its root word *pharma* which was a term used since the 15th–17th centuries. Pharmacy is the science and technique of preparing as well as dispensing drugs and medicines. It is a health profession that links health sciences with chemical sciences and aims to ensure the safe and effective use of pharmaceutical drugs.

The Pharmacy Council of India (PCI) is the statutory body of government of India constituted under the Pharmacy Act, 1948. The Council was first constituted on 4 March 1948. The objectives of the PCI are to regulate the pharmacy education in the Country for the purpose of registration as a pharmacist under the Pharmacy Act. They also regulate the Profession and Practice of Pharmacy.

The main functions of the Pharmacy Council of India are:

- To prescribe minimum standard of education required for qualifying as a pharmacist.
- Framing of Education Regulations prescribing the conditions to be fulfilled by the institutions seeking approval of the Pharmacy Council of India for imparting education in pharmacy. (Ref.: section 10 of the Pharmacy Act)
- To ensure uniform implementation of the educational standards throughout the country. (Ref. : section 10 of the Pharmacy Act)

- Inspection of Pharmacy Institutions seeking approval under the Pharmacy Act to verify availability of the prescribed norms. (Ref.: section 16 of the Pharmacy Act)
- To approve the course of study and examination for pharmacists i.e. approval of the academic training institutions providing pharmacy courses. (Ref. : section 12 of the Pharmacy Act)
- To withdraw approval, if the approved course of study or an approved examination does not continue to be in conformity with the educational standards prescribed by the Pharmacy Council of India. (Ref.: section 13 of the Pharmacy Act)
- To approve qualifications granted outside the territories to which the Pharmacy Act extends i.e. the approval of foreign qualification. (Ref. : section 14 of the Pharmacy Act)
- To maintain Central Register of Pharmacists. (Ref. : section 15 A of the Pharmacy Act)

In Assam, Institute of Pharmacy located in Guwahati, Dibrugarh and Silchar provide two (02) years Diploma in Pharmacy which includes following subjects:

- **D. Pharm. Part-I**
  - Pharmaceutics-I
  - Pharm.Chemistry-I
  - Human Physiology & Anatomy

- Pharmacognosy
  - Health Education & Community Pharmacy
  - Biochemistry and Clinical Pathology
- **D. Pharm. Part-II**
    - Pharmaceutics-II
    - Pharmacology
    - Pharm. Chemistry-II
    - Pharm. Jurisprudence
    - Drug Store and Business Management
    - Hospital and Clinical Pharmacy

### **3.2.7 Nursing**

Nursing is a discipline focused on assisting individuals, families and communities in attaining, re-attaining and maintaining optimal health and functioning. Modern definitions of nursing define it as a science and an art that focuses on promoting quality of life as defined by persons and families, throughout their life experiences from birth to care at the end of life.

In pre-modern times, nuns often provided nursing services. The religious and military roots of modern nursing remain in evidence today. Florence Nightingale is regarded as the founder of modern nursing, which flourished in response to the Crimean War; New

Zealand was the first country to regulate nurses nationally, with adoption of the Nurses Registration Act on 12 September 1901.

Nurses acknowledge that the nursing profession is an essential part of the society from which it has grown. The practice of nursing involves altruistic behaviour is guided by nursing research and it is governed by a code of ethics.

Nursing continues to develop a wide body of knowledge and associated skills. There are a number of educational paths to becoming a professional nurse but all involve extensive study of nursing theory and practice and training in clinical skills.

Nursing may be divided into different specialities or classifications.

- i) Nursing
- ii) Midwifery
- iii) Special Community Public Health Nurse (which includes health visitors)

The Indian Nursing Council(INC) is a national regulatory body for nurses and nurse education in India. It is an autonomous body under the Government of India, Ministry of Health & Family Welfare, constituted by the Central Government under section 3(1) of the Indian Nursing Council Act, 1947 of Indian parliament. The main functions of the Indian Nursing Council are:

- To establish and monitor a uniform standard of nursing education for nurses midwife, Midwives and health visitors by doing inspection of the institutions.
- To establish and monitor a uniform standard of nursing education for nurses midwife, and health visitors by doing inspection of the institutions.

- To recognize the qualifications for the purpose of registration and employment in India and abroad.
- To give approval for registration of Indian and Foreign Nurses possessing foreign qualification.
- To prescribe minimum standards of education and training in various nursing programmes and prescribe the syllabus & regulations for nursing programs.
- Power to withdraw the recognition of qualification in case the institution fails to maintain its standards that an institution recognised by a State Council for the training of nurses, midwives, Midwives or health visitors does not satisfy the requirements of the Council.
- To advise the State Nursing Councils, Examining Boards, State Governments and Central Government in various important items regarding Nursing Education in the Country.
- To regulate the training policies and programmes in the field of Nursing.
- To recognise Institutions/Organisations/Universities imparting Master's Degree/ Bachelor's Degree/P.G. Diploma/ Diploma/Certificate Courses in the field of Nursing.
- To Recognise Degree/Diploma/Certificate awarded by Foreign Universities/ Institutions on reciprocal basis.
- To promote research in Nursing.

- To maintain Indian Nurses Register for registration of Nursing Personnel.
- Prescribe code of ethics and professional conduct.
- To improve the quality of nursing education.

The Subjects basically teach in Nursing education are:

- i. Medical Surgical Nursing
- ii. Obstetrics and Gynaecology
- iii. Child Health (Paediatric Nursing)
- iv. Mental Health (Psychiatric Nursing)
- v. Community Health Nursing

There are three government and six private Nursing colleges are available in Assam. All of them provide BSc Nursing Course (4 years), Auxiliary Nursing Midwifery (2 years diploma), General Nursing Midwifery (1.5 year diploma) course. But nine colleges, only three colleges provide MSc. Nursing course(2 years) namely Regional College of Nursing(RNC), Guwahati, Asian Institute of Nursing Education, Guwahati and Sankar Madhab College of Nursing, Panikhaity.

### **3.2.8 Paramedical**

Paramedical personnel, also called Paramedics, health-care workers who provide clinical services to patients under the supervision of a physician. The term generally encompasses nurses, therapists, laboratory technicians, and other ancillary personnel involved in medical care but is frequently applied specifically to highly trained persons who share with physicians the direct responsibility for patient care. This category

includes nurse practitioners, physician's assistants, and emergency medical technicians. These paramedical workers perform routine diagnostic procedures, such as the taking of blood samples, X-rays, ECG, CT scan dialysis and therapeutic procedures, such as administering injections or suturing wounds; they also relieve physicians of making routine health assessments and taking medical histories. Paramedical training generally prepares individuals to fill specific health-care roles and is considerably less comprehensive than the education required of physicians. Paramedical Sciences has served as a lateral aid to the medical science, in terms of diagnosis and treatment of diseases. Beside it that is not only difficult but quite impossible to diagnose a patient and test the diseases without technical assistance. So there is a great demand of medical technicians in various medical fields in India and abroad at present

In view of Public interest for root level need to Para Medics, the Para Medical council of India - Delhi (the Para Medical Division of PMS& EHRDO of India) was established.

#### **Aims and Objectives of Paramedical Council of India**

- To promote and develop the Para Medical Sciences all over India & abroad.
- To establish hospitals, research centres all over India & abroad. Promoting Para medical Sciences for diffusal of useful literary and scientific knowledge.
- To conduct training programmes & camps on various aspects such as health education and social aspects.

- To enlist and accord registration on experience basis to deserving qualified persons; Students and those Possessing adequate experience in Para Medical courses of studies.
- To prepare Students in prescribed courses in Para Medical Science.
- To provide latest modern and advance knowledge, technologies to Paramedical Students. To open dispensaries, hospitals, medical pathologies; labs, diagnostic centers on charitable basis in rural & urban areas of India & abroad.

There are different types of Paramedical Courses in other parts of India but in the Institutes of Paramedical Sciences, Guwahati ; Institutes of Paramedical Sciences, Dibrugarh and Institutes of Paramedical Sciences , Silchar and in some private paramedical colleges the following (two years duration ) courses are available:

- Diploma in Medical Laboratory Technology (DMLT)
- Diploma in Medical Radiographic Technology (DMRT)
- Diploma in Cardiac Care Technology (DCCT)
- Diploma in Physiotherapy (DPT)
- Diploma in MRI Technology
- Diploma in CT Scan Technology
- Diploma in ICU Technology
- Diploma in Physicians Assistant Course
- Diploma in Emergency and First Aid
- Diploma in O.T. Technician Course
- Diploma in Anaesthesia Technician Course
- Diploma in Dialysis Technician Course