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“Critical Analysis of Under Graduate Medical Colleges in India”

A Dissertation Proposal for

Post Graduate Diploma in Health and Hospital Management

By

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A dissertation submitted in partial fulfillment of the requirements for the award of

Post-Graduate Diploma in Health and Hospital Management

by

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International Institute of Health Management Research

New Delhi -110075

May, 2013

May, 2013

Certificate of Internship Completion

Date: 1/5/2013

TO WHOM IT MAY CONCERN

This is to certify that Dr. Anushree Pandit (PT) has successfully completed her 3 months internship in our organization from January 01, 2013 to April 01, 2013. During this intern she has worked on **Critical Analysis of Under Graduate Medical Colleges in India** under the guidance of me and my team at National Board of Examinations.

We wish her good luck for her future assignments.

(Signature) R.Khatri

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Designation

Certificate of Approval

The following dissertation titled **"Critical Analysis of Under Graduate Medical Colleges in India"** is hereby approved as a certified study in management carried out and presented in a manner satisfactory to warrant its acceptance as a prerequisite for the award of **Post- Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation

Name	Signature
Dr. SHER SINGH KASHYOTIA	
Dr. VINAY TRIPATHI	

Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Anushree Pandit (PT),** a graduate student of the **Post- Graduate Diploma in Health and Hospital Management**, has worked under our guidance and supervision. She is submitting this dissertation titled **"Critical Analysis of Under Graduate Medical Colleges in India"** in partial fulfillment of the requirements for the award of the **Post-Graduate Diploma in Health and Hospital Management.**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

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Dr. Anushree Pandit (PT)

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ABSTRACT

Medical Colleges in India are growing every year. The number of medical colleges has more than doubled in the past decade. Since 1994-5 to 2011-12, the number of Under Graduate Medical colleges have increased from 152 medical colleges to 355 Medical colleges. The Medical Council of India (MCI) is the statutory body for establishing uniform and high standards of medical education in India. The Council grants recognition of medical qualifications, gives accreditation to medical colleges, grants registration to medical practitioners, and monitors medical practice in India. There is lack of consistent and regulated standards in medical education with many of the colleges having questionable training capacities and infrastructure. There is lack of appropriate regulation and that further compounds the problem. This study aims to determine the common deficiencies in the physical infrastructure, clinical and academic facilities of various MCI recognized medical colleges across India based on the guidelines prescribed by Medical Council of India.

A cross sectional/ Descriptive study was done on 47 MCI recognized Medical Colleges from 6 states of India. One state from each zone of India (North zone, East zone, West zone, South zone, Central zone & North East zone) was selected based on convenience. Delhi from North, West Bengal from East, Rajasthan from West, Pondicherry from South, Madhya Pradesh from Central and Assam from North East India were selected. All MCI recognized medical colleges from these 6 states were analyzed for various findings. Medical College Inspection forms of Year 2012 for 47 from Medical colleges along with guidelines on "Minimum Standard Requirements for Medical Colleges were obtained from MCI. Only medical colleges which are recognized by MCI are included in the study. Analysis was done by using SPSS Software.

Out of all the colleges studied, majority of colleges (23) had an annual intake between 101-150 students. 16 medical colleges had an annual intake between 50-100 students. Around 8 colleges had an annual intake between 151-250 students.

In M P & Rajasthan, majority of colleges (6 & 7 respectively) had an annual Intake between 101-150 students. In West Bengal, majority of medical colleges (6) give admissions to 50-100 students annually. More than half (58.3%) medical colleges with an annual UG intake of 150 students did not have the required number (i.e. 5) of lecture theaters. Medical colleges with an annual intake of 100 seats showed a similar result where more than 53% of the colleges did not have the required number (i.e. 4) of lecture theaters. Only 38% Medical colleges with an annual intake between 200-250 students were found to be deficient. Majority of medical colleges were providing accommodation facilities for the candidates as well as the staff. About 14.8% of the medical colleges were not providing accommodation facilities to 75% of the students. 12.7% of the medical colleges were deficient in providing residential accommodation for the staff members. In 21.2% & 8.5% of the medical colleges, the central laboratories are deficient in staff and Equipments respectively. 8.5% of the colleges did not have a central workshop. Only about 25.6% of medical colleges had all 21 departments. Majority of medical colleges (32%) had 20 departments. 23.4% of the medical colleges had 19 departments. Only 19.1 % had 18 departments. 42.8% & 30.7 % of medical colleges with annual intake of 150 & 100 respectively, did not have the required number of teaching beds. The study also shows that the medical colleges with an annual intake of 250 students had adequate number of teaching beds. More than half of the medical colleges did not have adequate number of teaching beds in the departments of ophthalmology and psychiatry. About 31.2% & 39% of colleges had adequate number of teaching beds in department of General Surgery & pediatrics respectively. About 52.7% of the colleges had adequate number of teaching beds in department of orthopedics.

In order to improve the standards of Medical Colleges, more vigilance and monitoring is required. Operational definitions for each standard are to be developed along with obtaining documentary evidences for the same. Denial or withdrawal of accreditation must be the decision, if many criteria or standards are not fulfilled, signifying severe deficiency in the quality of the college. An external organization instead of the officials from MCI can be delegated the responsibility of inspecting the Medical Colleges.

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Abbreviations

CET: Centralized Entrance Test

CME: Continuous Medical Education

DNB: Diplomate of National Board

ICU: Intensive Care Unit

ICCU: Intensive Cardiac Care Unit

IMCA: Indian Medical council Act

MCI: Medical Council of India

MoHFW: Ministry of Health & Family Welfare

NAAC: National Assessment and Accreditation Council

NAMS: National Academy of Medical Sciences

NBE: National Board of Examinations

NICU: Neonatal Intensive Care Unit

OSCE: Objectively Structured Clinical Examination

OT : Operation Theater

PICU: Pediatric Intensive Care Unit

RHTC: Rural health Training Centre

UGC: University Grant Commission

UHTC: Urban Health Training Centre

Part I

Internship Report

National Board of Examinations

The National Board of Examinations was established in 1975 on the basis of the Report of a Working Group set up by the then Prime Minister Smt. Indira Gandhi. Since 1982 the Board has been functioning as an independent autonomous body established under Societies Registration Act.

The Board conducts following activities:

1. EXAMINATIONS : The National Board of Examinations conducts examinations in a planned and scientific manner in regard to evaluation, assessment.
The following exams are conducted by NBE:

a) CENTRALIZED ENTRANCE TEST (CET) : There is a common CET for all Broad specialties . Candidates who have completed their compulsory internship after graduation are eligible to take the CET examination Centralized Entrance Test (Super- Specialities) and Centralized Entrance Test (Post-Diploma) (Conducted twice a year).

b) FINAL THEORY EXAMINATION consists of 4 papers of 3hours duration on each consisting of 10 short answer/essay type questions. A total 3056 and 4324 candidates appeared and 1011 and 1743 passed in the DNB-Final Examination during the year 2009-2010 and 2010-2011 respectively (exam conducted twice a year at exam centers all across country).

c) POST DOCTORAL FELLOWSHIP PROGRAMMES India has the expertise in various sub-specialty areas, with centers having high tech equipment and trained man power performing exceptional quality work. There are many young medical post graduates with aptitude for higher learning. Considering the need to increase man power that can render highest degree of profession work , the National Board has started Postdoctoral Fellowship courses in 16 specialties.

d) SCREENING TEST FOR FOREIGN MEDICAL GRADUATES -The Government of India has entrusted the conduct of screening test under Screening Test Regulations 2002 for the candidates who have undergone medical training aboard to the National Board. The purpose of screening test is to qualify for registration as medical practitioner with the Medical Council of India or any State Medical Council. Exam inducted twice a year since year 2002.

2. ACCREDITATION

The Board is the prime national level organization that has set a mechanism for imparting post graduate teaching and training in the sphere of higher medical education. Leading centers of excellence and in public, private and defense institutes all over the country that have been accredited by NBE for imparting training based on the defined accreditation criteria.

3. CONTINUING MEDICAL EDUCATION PROGRAMME/WORKSHOPS.

The trainers as well as the trainees are given adequate exposure to the fundamentals of the education system and advances in medical sciences.

4. SPECIALITY ADVISORY BOARDS - NBE has constituted Specialty Advisory Boards for various disciplines in which the examinations are conducted. The experts from all over the country drawn for various institutes in various disciplines are member of these Boards.

5. Diplomate qualifications (DNB) awarded by the National Board of Examinations have been equated with post graduate degree and postdoctoral level qualifications of universities by the Government of India Ministry of Health and Family Welfare. The holders of Board's qualifications awarded after an examination are eligible to be considered for specialist's posts in any hospital and teaching institutions.

Till date, NBE has certified approx 30,000 distinguished professionals as Diplomate of National Board (DNB). 4521 candidates have been declared successful during the year 2010-11 in the DNB Final Examinations. Successful candidates are conferred with DNB qualification at convocation conducted by NBE. NBE has conducted 16 convocation a till date. 17th Convocation is scheduled to be held on 1st Feb,2012 at New Delhi.

6. The Board sustains its activities through following means:

i. Income from examination fees etc (Operational activities) - Examination fees and accreditation fees are charged from applicant institute/candidates to cover the recurrent operational expenditure. Any income more than expenditure, is any, is utilized for capital expenditure and creation of infrastructure of NBE such as regional offices and extending the activities of NBE.

ii. Plan development/capital expenditure capital expenditure and planed development are supported by Ministry of Health by giving bulk grant. In the past five years, MOHFW granted 7.1 crores to NBE for creation of offices building.

iii. During the previous year NBE income including grant-in-aid was 28.31 crores and expenditure including out standing liabilities of 27.34 crores.

7. The National Board of Examinations has following employees:

Group A (Assistant Director's and Above).	- 15
Group B.	- 56
Group C.	- 10

In addition , 22 contractual employees are working in NBE.

Non Core activities as Housekeeping, Operations of Call Center Logistics etc. are outsourced.

Areas of Engagement

1. Research work Related to Accreditation and Registration Sections
2. Operations: Communication
3. Revamping and operationalizing the website for accreditation section, Organizing communication support
4. Academics
    a. Work related to Specialty Advisory Boards of NBE (12 Specialties)
    b. Coordinating meetings related to introduction of BSc. (Community Health) Programme,
    c. Coordinating in preparation of Curriculum for BSc. (Community Health) Programme,
5. Any other Task Assigned from time to time

Managerial Tasks

1. Coordinated meetings for following:
    a. Uniform Learning Resources
    b. Emergency Medicine
    c. Medical Genetics Programme
    d. OSCE Workshop
2. Coordinated CME ON "Evolving Paradigms In Diabetes Management"
3. Analysis / Preparation of Result Reports
4. Assisted in preparation of Post Doctoral Fellowship Programme in various Specialty
5. Follow up with faculties for Fellowship curriculum
6. Mapping of Existing Status of Medicine in India
7. Revision of curriculum for DNB Family Medicine
8. Revision of Inspection Forms
9. Revision of counseling Schedule

10. Preparation of Quarterly Newsletter
11. Preparation of Handbook for Policies & Procedures

Reflective Learning

1. Conducting meetings
2. Organizing CME'S
3. Analysis & Preparation of Results
4. Preparation of Inspection Forms
5. Systematic Review of Curriculums
6. Preparation of comprehensive competency based curriculums
7. Preparation of Official Documents
8. Prioritization of work
9. Time Management

Part II:

Dissertation Report

"Critical Analysis of Under Graduate Medical Colleges in India.

Chapter 1 Introduction

Health is a basic need of a human being and access to healthcare a basic human right. Assuring a minimal level of health care to the population is a critical constituent of the development process. While medical education in India has expanded in the last 60 years, it continues to remain inadequate given the needs of the country. India has the largest number of recognized and functional medical colleges in the world. Twenty years previously, there were 106 medical colleges admitting 11,561 students. [(1)] The number of medical colleges has more than doubled in the past 10 years. . In 1994-5, there were just 152 medical colleges admitting 12,249 students. Currently, 355 Medical colleges are recognized by the Medical Council of India. The increase in private medical colleges has been primarily responsible for the change. In 1995 these were 47 in number where as by 2006, there were 131 private medical colleges. In the same period, government run medical colleges have also increased from 109 to 131. 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. [(2)] 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.

A plethora of bodies exist to control medical education. Authorities involved include Ministry of Health, Medical Council of India (MCI), UGC, State Medical Education Departments and Councils, Medical Colleges/Institutes, NAMS and NBE (National Board of Examinations). The Medical Council of India (MCI) was established in 1933 and as per Indian Medical Council Act 1933 is the statutory recommending body.[(3)] The MCI only recognizes institutions to start a course and expand it according to laid down criteria under the MCI Act of 1956. With the prior permission of the Government of India, it has no regulatory powers; it is only a recommendatory body.

Chapter 2- Problem Statement

Related to the increase in number of medical schools is the issue of their accreditation. Modest accreditation standards may have also facilitated the rapid growth in the number of schools. 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. Information comes solely from the medical school administration; information from other sources, such as faculty, students, or patients, is not used in the accreditation process. [(4)] Brief site visits have recently been added to the process. In addition to accreditation by the MCI, voluntary accreditation is offered by the National Assessment and Accreditation Council (NAAC) to provide schools with an opportunity for additional recognition and status. NAAC is an autonomous body established by the University Grants Commission of India to assess and accredit institutions of higher education in the country. The process of NAAC institutional assessment includes submission of a self-study report and a site visit by the peer-evaluation team. Less than 10% of medical schools, however, have been accredited by NAAC. [(5)]

The challenges in medical education in India include the rapid, uneven growth of medical schools, the questionable validity of student-selection policies, curriculum goals that are weakly focused on health care needs with significant deficiency in the internship year, and a lack of faculty development to meet the needs of the expanding number of medical schools. It is believe that constraints created by detailed national regulations from the MCI as well as state regulations from individual states, examination requirements of the parent university, and the pre residency examination make reform of medical education difficult, despite the changes advocated by the revised 1997 MCI regulations.[(6)]

However, although structural changes in national and state assessment and accreditation are needed to make improvements in medical education, reforms at the medical school level are still possible. It is recommended that curriculum redesign should

emphasize on social and clinical context, including a greater focus on bedside teaching. Improved vertical integration through problem-based organ system design of the curriculum can also help address this issue. Formative student assessment should be added to the predominantly summative examinations. Objective, structured practical and clinical examinations, with criterion-referenced standards, should augment the current multiple choice– dominated assessment design. [7] Internships must be used for skill oriented training and should include meaningful supervision and assessment.

There is lack of consistent and regulated standards in medical education with many of the colleges having questionable training capacities and no accreditation system. Medical graduates are often not assessed for clinical skills in accordance with national and international standards. There is lack of appropriate regulation and that further compounds the problem. State governments can grant license to practice general specialty, sub-specialty or super-specialty medicine with no assessment of clinical skills. MCI has neither the power nor the infrastructure to continuously monitor the quality of medical colleges. [8]

Major reforms at each level are needed in order to elevate the present condition of medical education in India to international standards.

2.1 Rationale

There are many studies done previously to determine the number and distribution of medical colleges in India but no study has been done which critically analyzes the extent to which these medical colleges follow the guidelines given by MCI. This study aims to determine the common deficiencies in various medical colleges across. This study can be used by the national education and health authorities, institutions and organizations with responsibility for medical education, in their endeavors to achieve quality assurance and improvement in medical education throughout India.

Chapter 3- Review of Literature

Medical education occupies a crucial position as it involves a close and deep study of life itself and its vital processes. In India, there is a growing awareness of the role of health development as a vital component of socio-economic development. Various committees of experts like the Bhore Committee (1946), Mudaliar Committee (1962), Chadah Committee (1963), Mukherjee Committee, (1965 &1966), Jungalwalla Committee (1967), Kartar Singh Committee (1973), Shrivastav Committee, (1975) have been appointed by the Government of India from time to time to render advice on different health problems. The reports of these committees have formed an important basis for health planning in India. [(9)]

The governance of Medical Education in India is routed through various councils in respective systems. Every year the respective councils primarily monitor and timely inspect all universities or colleges that give medical education. They allow colleges or universities to grant various degree or diploma provided they are strictly adhering to the standards set by the respective councils. In a nutshell the councils prescribe and recognize all standards of education in Modern and Indian Systems of Medicine.[(10)] The Medical Council of India (MCI) is a statutory body with the responsibility of establishing and maintaining high standards of medical education and recognition of medical qualifications in India. It registers doctors to practice in India, in order to protect and promote the health and safety of the public by ensuring proper standards in the practice of medicine.

In recent years, India has been through an expansion in the number of medical colleges due to the growth of private colleges. India, with a population in excess of 1.1 billion, has the largest number of medical schools within one country (365), with an admission capacity in undergraduate medical courses (MBBS) measuring 31,298 per year. In 1980, there were 112 medical schools in India, whereas in 1994–95 there were 152, admitting 12,249 students. [(1)]

Accreditation is a process whereby officially appointed external regulatory bodies, accountable at government level, evaluate educational institutions using established criteria, standards and procedures. It entails gathering data on various aspects of the educational institution and making decisions regarding compliance with the standards. This is done primarily to ensure the quality of education required to produce competent graduates. A Study data (Boelen & Boyer, 2001) indicate that up to two-thirds of the more than 1600 medical schools currently listed in the World Health Organization (WHO) World Directory of Medical Schools (World Health Organization, 2000) are externally accredited. Explicit criteria are readily available in industrialized countries, e.g. USA (Association of American Medical Colleges and American Medical Association, 2003) and Australia (Australian Medical Council, 2002) but published data comparing accreditation practices in developing countries are sparse. [11]

The deficiencies in our medical education system have been identified and documented. They are related to factors within the curriculum as well as factors beyond the curriculum. The biggest concern expressed is that the medical curriculum is not in tune with the health needs of the society.[1] Overemphasis on the acquisition of knowledge as against development of skills and attitudes, especially, communication and managerial skills, lack of integrated approach to the teaching learning, and outmoded assessment system that lacks validity, reliability and transparency are other factors responsible for the deficiency. The issues beyond the framework of curriculum highlighted relate to student admission, curricular reforms and accreditation, and gap between health care needs and medical education, and shortage of teaching faculty.[12] The 'inspection' approach by the MCI also puts constraint on 'remedial and developmental' approach required for promoting quality in medical education.

Faculty development is perhaps one of the foremost issues among the factors influencing the quality of medical education. It is increasingly recognized that capacity building of teachers is not only a cost effective intervention, but also a long-term strategy to link medical education with the national health needs. [13]

A number of high-profile issues confront undergraduate medical education in India, a country with a long history of medicine. They include curriculum reform (including the structure of the internship year, which constitutes the last year of medical school), proliferation of new medical schools, accreditation standards for all medical schools, selection of medical students, and faculty development.

3.1 The Indian Medical Council Act, 1956 [14]

1. In this Act, unless the context otherwise requires:-
   a. "Approved institution" means a hospital, health centre or other such institution recognised
   a) By a university as an institution in which a person may undergo the training, if any, required by his course of study before the award of any medical qualification to him.
   b) "Council" means the Medical Council of India constituted under this Act.
   c) "Indian Medical Register" means the medical register maintained by the Council.
   d) "Medical Institution" means any institution, within or without India, which grants degrees, diplomas or licences in medicine.
   e) "Medicine" means modern scientific medicine in all its branches and includes surgery and obstetrics, but does not include veterinary medicine and surgery;
   f) "Prescribed" means prescribed by regulations.

   g) "Recognised medical qualification" means any of the medical qualifications included in the Schedules.
   h) "Regulation" means a regulation made under section 33;

i) "State Medical Council" means a medical council constituted under any law for the time being in force in any State regulating the registration of practitioners of medicine

j) "State Medical Register" means a register maintained under any law for the time being in force in any State regulating the registration of practitioners of medicine.

k) "University" means any University in India established by law and having a medical faculty.

3.11 Constitution & Composition of the Council

The Central Government shall cause to be constituted a council consisting of the following members, namely:-

a) One member from each State other than a Union Territory to be nominated by the Central Government in consultation with the State Government concerned.

b) One member from each University to be elected from amongst the members of the medical faculty of the University by members of the Senate of the University or in case the University has no Senate, by members of the Court.

c) One member from each State in which a State Medical Register is maintained, to be elected from amongst themselves by persons enrolled on such register who possess the medical qualifications included in the First or the Second Schedule or in Part II of the Third Schedule.

d) Seven members to be elected from amongst themselves by persons enrolled on any of the State Medical Registers who possess the medical qualifications included in Part I of the Third Schedule.

e) Eight members to be nominated by the Central Govt.

2. The President and Vice-President of the Council shall be elected by the members of the Council from amongst themselves.
3. No act done by the Council shall be questioned on the ground merely of the existence

of any vacancy in, or any defect in the constitution of the Council.

3.12 Permission for Establishment of New Medical College, 10 A

1. Notwithstanding anything contained in this Act or any other law for the time being in force:-

   a. No person shall establish a medical college (or)

   b. No medical college shall:-

      i. Open a new or higher course of study or training (including a postgraduate course of study or training) which would enable a student of such course or training to quali fy himself for the award of any recognised medical qualification; or

      ii. Increase its admission capacity in any course of study or training (including a postgraduate course of study or training), except with the previous permission of the Central Government obtained in accordance with the provisions of this section.

Explanation 1 - For the purposes of this section, "person" includes any University or a trust but does not include the Central Government.

Explanation 2 - For the purposes of this section "admission capacity" in relation to any course of study or training (including postgraduate course of study or training) in a medical college, means the maximum number of students that may be fixed by the Council from time to time for being admitted to such course or training.

2.

a. Every person or medical college shall, for the purpose of obtaining permission under sub-section (1), submit to the Central Government a scheme in accordance with the provisions of clause (b) and the central Government shall refer the scheme to the Council for its recommendations.

b. The Scheme referred to in clause (a) shall be in such form and contain such particulars and be preferred in such manner and be accompanied with such fee as may be prescribed.

3. On receipt of a scheme by the Council under sub-section (2) the Council may obtain such other particulars as may be considered necessary by it from the person or the medical college concerned, and thereafter, it may -

   a. If the scheme is defective and does not contain any necessary particulars, give a reasonable opportunity to the p erson or college concerned for making a written representation and it shall be open to such person or medical college to rectify the defects, if any, specified by the Council.

   b. Consider the scheme, having regard to the factors referred to in sub-section (7) and submit the scheme together with its recommendations thereon to the Central Government.

4. The Central Govt. may after considering the scheme and the recommendations of the Council under sub-section (3) and after obtaining, where necessary, such other particulars as may be considered necessary by it from the person or c ollege concerned, and having regard to the factors referred to in sub-section (7), either approve (with such conditions, if any, as it may consider necessary) or disapprove the scheme, and any such approval shall be a permission under sub-section (1):Provided that no scheme shall be disapproved by the Central Government except after giving the person or college concerned a reasonable opportunity of being heard; Provided further that nothing in this sub section shall prevent any person or medical college whose scheme has not been approved by the Central Government to submit a fresh scheme and the provisions of this section shall apply to such scheme, as if such scheme has been submitted for the first time under sub-section (1).

5. Where, within a period of one year from the date of submission of the scheme to the Central Government under sub-section (1), no order passed by the Central Government has been communicated to the person or college submitting the scheme, such scheme shall be deemed to have been approved by the Central Government in the form in which it had been submitted, and accordingly, the permission of the Central Government required under sub-section (1) shall also be deemed to have been granted.
6. In computing the time-limit specified in sub-section (5), the time taken by the person or college concerned submitting the scheme, in furnishing any particulars called for by the Council, or by the Central Government, shall be excluded.

7. The Council, while making its recommendations under clause (b) of sub-section (3) and the Central Government, while passing an order, either approving or disapproving the scheme under sub-section (4), shall have due regard to the foll owing factors, namely:-

    a. Whether the proposed medical college or the existing medical college seeking to open a new or higher course of study or training, would be in a position to offer the minimum standards of medical education as prescribed by the Council under section 19A or, as the case may be under section 20 in the case of postgraduate medical education.

    b. Whether the person seeking to establish a medic al college or the existing medical college seeking to open a new or higher course of study or training or to increase it admission capacity has adequate financial resources;

    c. Whether necessary facilities in respect of staff, equipment, accommodation, training and other facilities to ensure proper functioning of the medical college or conducting the new course or study or training or accommodating the increased admission capacity, have been provided or would be provided within the time-limit specified in the scheme.

d. Whether adequate hospital facilities, having regard to the number or students likely to attend such medical college or course of study or training or as a result of the increased admission capacity, have been provided or would be provided within the time-limit specified in the scheme;

e. Whether any arrangement has been made or programme drawn to impart proper training to students likely to attend such medical college or course of study or training by persons having the recognised medical qualifications;

f. The requirement of manpower in the field of practice of medicine; and any other factors as may be prescribed.

g. Where the Central Government passes an order either approving or disapproving a scheme under thi s section, a copy of the order shall be communicated to the person or college concerned.

3.13 Non-Recognition of Medical Qualifications in Certain Cases 10 B

1. Where any medical college is established except with the previous permission of the Central Government in accordance with the provisions of section 10A, no medical qualification granted to any student of such medical college shall a recognised medical qualification for the purposes of this Act.
2. Where any medical college opens a new or higher course of study or training (including a postgraduate course of study or training) except with the previous permission of the Central Government in accordance with the provisions of section 10A, no medical qualification granted to any student of such medical college on the basis of such study or training shall be a recognised medical qualification for the purposes of this Act.
3. Where any medical college increases its admission capacity in any course of study or training except with the previous permission of the Central Government in

accordance with the provisions of section 10A, no medical qualification granted to any student of such medical college on the basis of the increase in its admission capacity shall be a recognised medical qualification for the purposes of this Act.

Explanation - For the purposes of this section, the criteria for identifying a student who has been granted a medical qualification on the basis of such increase in the admission capacity shall be such as may be prescribed.

3.14 Time for Seeking Permission for Certain Existing Medical Colleges, Etc. 10C

1. If, after, the 1st day of June, 1992 and on and before the commencement of the Indian Medical Council (Amendment) Act, 1993 any person has established a medical college or any medical college has opened a new or higher course of study or training or increased the admission capacity, such person or medical college, as the case may be, shall seek, within a period of one year from the commencement of the Indian Medical Council (Amendment) Act, 1993 the permission of the Central Government in accordance with the provisions of section 10A.
2. If any person or medical college, as the case may be fails to seek the permission under sub section (1) the provisions of section 10B shall apply, so far as may be as if, permission of the Central Government under section 10A has been refused;

3.15 Recognition of Medical Qualification Granted By Universities or Medical Institutions in India. 11.

1. The medical qualifications granted by any university or medical Institution in India which are included in the first Schedule shall be recognised medical qualifications for the purposes of this Act.

2. Any university or medical Institution in India which grants a medical qualification not included in the First Schedule may apply to the Central Govt., to have such qualification recognized, and the Central Government, after consulting the Council, may, by notification in t he official Gazette, amend the First Schedule so as to include such qualification therein, and any such notification may also direct that an entry shall be made in the last column of the First Schedule against such medical qualification declaring that it shall be a recognised medical qualification only when granted after a specified date.

3.16 Recognition of Medical Qualifications Granted By Medical Institutions in Countries with Which There Is a Scheme of Reciprocity 12.

1. The medical qualifications granted by medical institutions outside India which are included in the Second Schedule shall be recognized medical qualifications for the purposes of this Act.
2. The Council may enter into negotiations with the Authority in any country outside India which by the law of such country is en trusted with the maintenance of a register of medical practitioners, for the settling of a scheme of reciprocity for the recognition of medical qualifications and in pursuance of any such scheme, the Central Government may, by notification in the official Gazette, amend the Second Schedule so as to include therein the medical qualification which the Council has decided should be recognised and any such notification may also direct that an entry shall be made in the last column of the Second Schedule against such medical qualification declaring that it shall be a recognised medical qualification only when granted after a specified date.
3. The Central Government, after consultation with the Council, may, by notification in the Official Gazette, amend the Second Schedule by directing that an entry be made therein in respect of any medical qualification declaring that it shall be recognised medical qualification only when granted before a specified date.
4. Where the Council has refused to recommend any medical qualification which has been proposed for recognition by any Authority referred to in sub-section (2) and

that Authority applies to the Central Government in this behalf, the Central Government, after considering such application and after obtaining from the council a report, if any, as to the reasons for any such refusal, may by notification in the Official Gazette, amend the Second Schedule so as to include such qualification therein and the provisions of sub-section (2) shall apply to such notification.

3.17 Recognition Of Medical Qualification Granted By Certain Medical Institutions Whose Qualifications Are Not Included In The First Or Second Schedule 13.

1. The medical qualifications granted by medical institutions in India which are not included in the First Schedule and which are included in Part I of the Third Schedule shall also be recognised medical qualifications for the purposes of this Act.

2. The medical qualifications granted to a citizen of India:-

    a. Before the 15th day of August, 1947, by medical institutions in the territories now forming part of Pakistan, and,

    b. Before the 1st day of April, 1937, by medical institutions in the territories now forming part of Burma, which are included in part 1of the Third Schedule shall also be recognised medical qualifications for the purposes of this Act.

3. The medical qualifications granted by medical institutions outside India, before such date as the Central Government may, by notification in the Official Gazette, specify which are included in Part IInd of the Third Schedule shall also be recognised medical qualifications for the purposes of this Act, but no person possessing any such qualification shall be entitled to enrolment on any State Medical Register unless he is a citizen of India and has undergone such practical training after obtaining that qualification as may be required by the rules or

regulations in force in the country granting the qualification, or if he has not undergone any practical training in that country he has undergone such practical training as may be prescribed.

4. The Central Government, after consulting the Council, may, by notification in the Official Gazette, amend Part II of the Third Schedule so as to include therein any qualification granted by a medical institution outside India, which is not included in the Second Schedule. Provided that after the commencement of the Indian Medical Council (Amendment) Act, 2001, no such amendment shall be made in Part II of the Third Schedule to include any primary medical qualification granted by any medical institution outside India:

   Provided further that nothing contained in the first proviso shall apply to inclusion in Part II of the Third Schedule any primary medical qualification granted by any medical institution outside India to any person who se name is entered in the Indian Medical Register.

5. Any medical institution in India which is desirous of getting a medical qualification granted by it included in Part I of the Third Schedule may apply to the Central Government to have such qualification recognised and the Central Government, after consulting the Council, may by notification in the Official Gazette, amend PartI of the Third Schedule so as to include such qualification therein, and any such notification may also direct that an entry shall be made in the last column of Part-I of the Third Schedule against such medical qualification declaring that it shall be a recognised medical qualification only when granted after a specified date.

3.18 Special Provision in Certain Cases for Recognition of Medical Qualifications Granted By Medical Institutions in Countries with Which There Is No Scheme of Reciprocity.

1. The Central Government after consultation with the Council, may, by notification in the Official Gazette, direct that medical qualifications granted by medical

institutions in any country out-side India in respect of which a scheme of reciprocity for the recognition of medical qualifications is not in force, shall be recognised medical qualification for the purposes of this Act or shall be so only when granted after a specified date:

Provided that medical practice by persons possessing such qualifications: -

a. Shall be permitted only if such persons are enrolled as medical practitioners in accordance with the law regulating the registration of medical practitioners for the time being in force in that country;

b. Shall be limited to the institution to which they are attached for the time being for the purposes of teaching, research or charitable work ; and

c. Shall be limited to the period specified in this behalf by the Central Government by general or special order.

2. In respect of any such medical qualification the Central Government, after consultation with the Council may, by notification in the Official Gazette direct that it shall be a recognized medical qualification only when granted before a specified date.

3.19 Inspection of Examinations

1. The Committee shall appoint such number of medical inspectors as it may deem requisite to inspect any medical institution, college, hospital or ot her institution where medical education is given, or to attend any examination held by any University or medical institution for the propose of recommending to the Central Government recognition of medical qualifications granted by the University or medical institution.
2. The medical inspectors shall not interfere with the conduct of any training or examination, but shall report to the committee on the adequacy of the standards of medical education including staff, equipment, accommodation,

training facilities prescribed for giving medical education or on the sufficiency of every examination which they attend.

3. The Committee shall forward a copy of any such report to the university or medical institution concerned and shall also forward a copy with the remarks of the University or institution thereon, to the Central Government

3.20 Withdrawal of Recognition

1. When upon report by the Committee or the visitor it appear to the Council:-
   a. That the courses of study and examination to be undergone in, or the proficiency required from candidates at any examination held by any University or medical institution,
   b. That the staff, equipment accommodation, training and other facilities for instruction and training provided in such University or medical institution or in any college or other institution affiliated to that University, do not conform to the standards prescribed by the Council, the Council shall make a representation to that effect to the Central Government.
2. After considering such representation, the Central Govt. may send it to the State Government of the State in which the University or medical Institution is situated and the State Government shall forward it along with such remarks as it may choose to make to the University or Medical Institution, with an intimation of the period within which the University or medical institution may submit its explanation to the State Government.
3. On the receipt of the explanation or, where no explanation is submitted within the period fixed, then on the expiry of that period, the State Government shall make its recommendations to the Central Government
4. The Central Government, after making such further inquiry, if any, as it may think fit, may by notification in the official Gazette, direct that an entry shall be made in the appropriate Schedule against the said medical qualification declaring that it shall be a recognised medical qualification, only when granted before a specified date or that the said medical qualification if granted to students of a specified

college or institution affiliated to any university shall be a recognised medical qualification only when granted before a specified date or, as the case may be, that the said medical qualification shall be a recognised medical qualification in relation to a specified college or institution affiliated to any University only when granted after a specified date.

Minimum Standards of Medical Education

The Council may prescribe the minimum standards of medical education required for granting recognized medical qualifications (other than postgraduate medical qualifications) by universities or medical institutions in India.

1. Copies of the draft regulations and of all subsequent amendments thereof shall be furnished by the Council to all State Governments and the Council shall before submitting the regulations or any amendment thereof, as the case may be, to the Central Government for sanction, take into consideration the comments of any State Government received within three months from the furnishing of the copies as aforesaid.
2. The Committee shall from time to time report to the Council on the efficacy of the regulations and may recommend to the Council such amendments thereof as it may think fit.

3. 2 Competencies of the MBBS Graduate [15]

On completion of the MBBS program including one year of compulsory rotating internship the Medical Graduate, who is to be registered by the NMC as Medical Practitioner, must be competent to:

1. Take relevant medical history and conduct clinical examination appropriately;
2. Demonstrate understanding of the principles and practices of modern medicine with sound knowledge of structure and functions of human body in health and disease;
3. Communicate with patients and their families, colleagues and other members of health care team with respect, politeness and compassion;

4. Carry out professional responsibilities related to the individual, family, community and society at large with concern and care;
5. Manage life threatening medical emergencies;
6. Manage common medical problems appropriately;
7. Recognize clinical conditions that require referral, give initial treatment and refer to appropriate health care institutions;
8. Recognize the biological and the social determinants of health of an individual as well as the population;
9. Plan and manage preventive, promotive and rehabilitative health programs;
10. Function as a member of the health care team;
11. Identify and carry out necessary medico-legal procedures;
12. Practice the principles of medical ethics;
13. Acquire new knowledge and skills through continuous professional development;
14. Appraise published scientific literature critically and engage in research work;
15. Use medical informatics effectively.

3.3 Quality Assurance of the MBBS Graduate [16]

Since safeguarding the health of the public through ensuring the proper quality assurance of the medical education is its fundamental duty, the NMC takes following measures to achieve that goal by:

1. Defining the criteria for accreditation of undergraduate medical education program.
2. Executing periodic on site inspection of the medical colleges to ensure that the defined criteria (as relates to 3.1) are adequately met with and assess the quality of the program being implemented.
3. Administering Licensing Examination to all medical graduates from within and outside India.

The MBBS program consists of a minimum of five and a half year academic course followed by one year of compulsory rotating internship.

1. The core curriculum for the MBBS program shall be composed of Basic Medical Sciences (Human Anatomy, Physiology, Biochemistry Microbiology, Pathology and Pharmacology) Community Medicine/Community Health Sciences, Forensic Medicine, Internal Medicine, General Surgery, Obstetrics and Gynecology, Pediatrics, Orthopedics, Psychiatry, Dermatology, Ophthalmology, Otorhinolarynology, Anesthesiology, Radiodiagnosis, Dental Surgery, Emergency and General Practice.
2. The Compulsory Rotating Internship shall be of one calendar year as per the MCI guidelines. However, all medical colleges should make necessary arrangements to implement rotation in the rural health institutions in a well supervised setting conducive for teaching - learning activities.

3.4 Research Articles

In an article called "**Accreditation of Undergraduate Medical Training Programs: Practices in Nine Developing Countries as Compared with the United States"** by Cueto et al. compared medical training program accreditation systems in nine developing countries, and compared these with accreditation practices in the United States of America (USA). Medical program accreditation practices in nine developing countries were systematically analyzed using all available published documents. Findings were compared to USA accreditation practices. Accreditation systems with explicitly defined criteria, standards and procedures exist in all nine countries studied: Argentina, India, Kenya, Malaysia, Mongolia, Nigeria, Pakistan, Philippines and South Africa. Introduction of accreditation processes is relatively recent, starting in 1957 in India to 2001 in Malaysia. Accrediting agencies were set up in these countries predominantly by their respective governments as a result of legislation and acts of Parliament, involving Ministries of Education and Health. As in the USA, accreditation: (1) serves as a quality assurance mechanism promoting professional and public confidence in the quality of medical education, (2) assists medical schools in attaining desired standards, and (3) ensures that graduates' performance complies with national norms. All nine countries follow similar accreditation procedures. Where mandatory accreditation is practiced, non-

compliant institutions may be placed on probation, student enrollment suspended or accreditation withdrawn. Accreditation systems in several developing countries are similar to those in the developed world. Data suggest the trend towards instituting quality assurance mechanisms in medical education is spreading to some developing countries, although generalization to other areas of the world is difficult to ascertain. [17]

Another study called "**Medical Education In India: Time To Make Some Changes**" by Jayakrishnan et al. highlighted and analyzed some of the problems affecting medical education in India and their possible solutions. The medical education system was 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. [18]

An article called "**Faculty Development and Medical Education Units in India: A Survey"** by B. V. Adkoli, Rita Sood studied principals and faculty of medical colleges to understand the status of faculty development programmes and medical education units in medical colleges in India. Questionnaires were sent to principals of medical colleges by surface mail and to faculty through a web-based programme to elicit information on

various aspects of faculty development programmes and medical education units. The responses of both groups were analysed. The number of medical education units has increased rapidly after regulations have been revised in 1997 by the Medical Council of India. The main activities of medical education units were to conduct workshops targeted at medical teachers. The frequently covered topics were teaching–learning, media and student assessment. Lectures dominated the methodology of imparting information. Evaluation was done mainly by feedback questionnaires and pre-test/post-test questionnaires. Projects and follow up were rarely used. The responses from both groups were strikingly similar. The major strengths of medical education units were perceived as availability of trained and motivated faculty, good infrastructure and supportive leadership. The shortcomings were lack of infrastructure, funding and full-time faculty, besides time constraints and resistance to change. The respondents suggested strengthening of infrastructure, appointment of full-time faculty and staff, incentives and recognition of contributions to faculty development, making participation a mandatory requirement, extending the scope of faculty development programmes to include research and networking at the national level. The study reveals the need for policy decisions that support functioning of medical education units in India besides active participation of the faculty. [19]

Another study on "**Recent Trends in Medical Education**" by vyas et al. recommends that some of the critical areas where reforms are needed and being attempted are Curricular Strategies; Teaching and Learning; Student Assessment; Faculty Development; Medical Education Research; and Developing Health Professions Education as a Recognized Field. The need of the hour is a socially accountable medical education in India directed towards linking it with the health care needs of the country. This is in alignment with the global needs also. Many medical colleges have tried innovations in the above areas as well as in other areas such as in teaching and learning, assessment, curricular strategies and technology. Faculty development is slowly gaining momentum and importance with support from the Medical Council of India. However faculty development should be directed towards supporting medical colleges to implement educational reforms. It is recommended to review the undergraduate

curriculum, develop well stated learning objectives in alignment with the health needs which are informed to the students, teachers and the examiners. All these initiatives will help move towards linking medical education with health care needs. [20]

Chapter 4 Objectives

4. 1 General Objective

To determine the common deficiencies in the physical infrastructure, clinical and academic facilities of various MCI recognized medical colleges across India based on the guidelines prescribed by Medical Council of India.

4.2 Specific Objectives

1. To determine the common deficiencies in the Physical Infrastructure of Medical colleges across India
2. To determine the common deficiencies in the Academic facilities provided by Medical colleges across India
3. To determine the common deficiencies in the Clinical facilities for training in Medical colleges across India
4. To give recommendations for effective monitoring of standards prescribed in MCI Guidelines.

Chapter 5- Methodology

5.1 Study Design

Cross sectional Study/Descriptive

5.2 Study Population

All MCI Recognized under graduate medical colleges in India.

5.3 Sampling

All 6 Zones of India were selected. One state from each zone of India (North zone, East zone, West zone, South zone, Central zone & North East zone) was selected based on convenience. Delhi from North, West Bengal from East, Rajasthan from West, Pondicherry from South, Madhya Pradesh from Central and Assam from North East India were selected. All MCI recognized medical colleges from these 6 states were analyzed for various findings. A total of 47 medical colleges were included in the study.

5.4 Tools & Techniques of Data Collection

Medical College Inspection forms of Year 2012 for 47 from Medical colleges were obtained from MCI.

Guidelines on "Minimum Standard Requirements for Medical Colleges" were also obtained from MCI.

5.5 Inclusion Criteria

Only medical colleges which are recognized by MCI are included in the study.

5.6 Exclusion Criteria

Medical colleges not recognized by MCI were not included.

Medical colleges whose inspection forms for the year 2012 were not available were excluded

5.7 Data Management and Statistical Analysis

Analysis was done by using SPSS Software.

5.8 Validity and Reliability of the study

The study was conducted in guidance of the research guide

The regular review of the literature was done

Researcher was directly engaged in data gathering, , data entry, processing and analysis.

Chapter 6- Variables

6.1 Physical Infrastructure & Facilities

- Land Area
- No. of Lecture Theater
- Auditorium Accommodation
- No. of Common Rooms
- Hostel Facilities
- Residential Accommodation
- Central Lab Facilities
    - Staff
    - Equipment
- Library
    - Layout
    - Reading Rooms
- Number of Rural & Urban Health Centre
- Distance Of RHTC & UHTC from College
- Transportation Facilities
- Hostel Facilities At RHTC/UHTC
- Workshop For Equipment & Instrument Repair
- Autopsy Blocks
- Central Sterilization Services

- Central Laundry
- Sports & Recreational Facilities
- Availability of Incinerators

6.2 Academic Facilities

- Department
- Teaching Staff
- Department Cum Seminar Rooms/ Demo Rooms
- No. of Labs
- Departmental Research Laboratory
- Departmental Libraries
- Museums
- Curriculum
- Teaching Methods
    - Didactic Teaching
    - Demonstrations
    - Tutorials
    - Seminars
    - Practical Training
- Central Research Laboratory

6.3 Clinical Training Facilities

- No. of Teaching Beds
- Department Wise Distribution of Beds
- Clinical Material
- Central Casualty Services
- Resuscitation Service/ Facilities
- Departmental Laboratories
- Ward Side Teaching
- Equipment In Clinical Laboratories
- Number of OT
- Equipment In OT
- Intensive Care Facilities: ICCU,ICU,PICU,NICU
- Number of Labour Room
- Radiological Facilities
- Protective Gearing

Chapter 7 - Study Findings

7.1 General Information

Table 7.11 Number of Medical Colleges Studied

Total Number of Medical Colleges Assessed	47
State wise	
Assam	4
Delhi	6
Madhya Pradesh	8
Pondicherry	8
West Bengal	11
Rajasthan	10

A total of 47 medical colleges from 5 states were included in the study. 4 colleges were from Assam. 6 colleges were from Delhi. 8 colleges each were from Pondicherry and MP. 11 colleges were from West Bengal and 10 were from Rajasthan.

Table 7.12 Under Graduate Annual Seat Intake

State	**Number of Under Graduate Seats**			
	50-100	101-150	151-200	201-250
Assam	2	-	2	1
Delhi	2	2	1	-
Madhya Pradesh	2	6	-	-
Pondicherry	2	5	1	-
West Bengal	6	3	-	2
Rajasthan	2	7	-	1
Total	16	23	4	4

Out of all the colleges studied, majority of colleges (23) had an annual intake between 101-150 students. 16 medical colleges had an annual intake between 50-100 students. Around 8 colleges had an annual intake between 151-250 students.

In M P & Rajasthan, majority of colleges (6 & 7 respectively) had an annual Intake between 101-150 students. In West Bengal, majority of medical colleges (6) give admissions to 50-100 students annually.

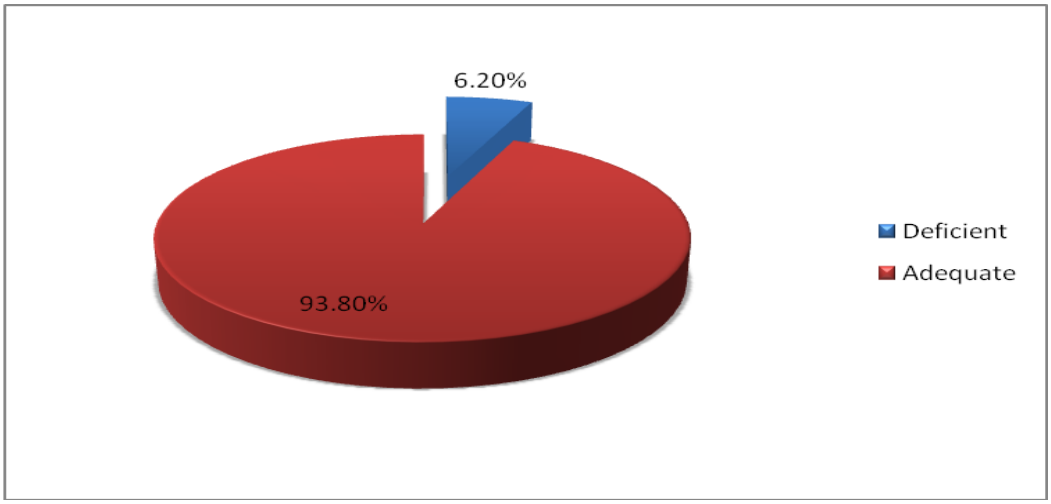
7.2 Common Deficiencies in Physical Infrastructure & Facilities

Table 7.21 No. of Available Lecture Theater

No. of seats	Requirement	% of deficient medical colleges
50	3	0
100	4	53.80%
150	5	58.30%
200	6	10%
250	7	28%

Table shows that more than half (58.3%) medical colleges with an annual UG intake of 150 students did not have the required number (5) of lecture theaters. Medical colleges with an annual intake of 100 seats showed a similar result where more than 53% of the colleges did not have the required number (4) of lecture theaters. Only 38% Medical colleges with an annual intake between 200-250 students were found to be deficient.

Figure 7.21 Availability of Common Rooms



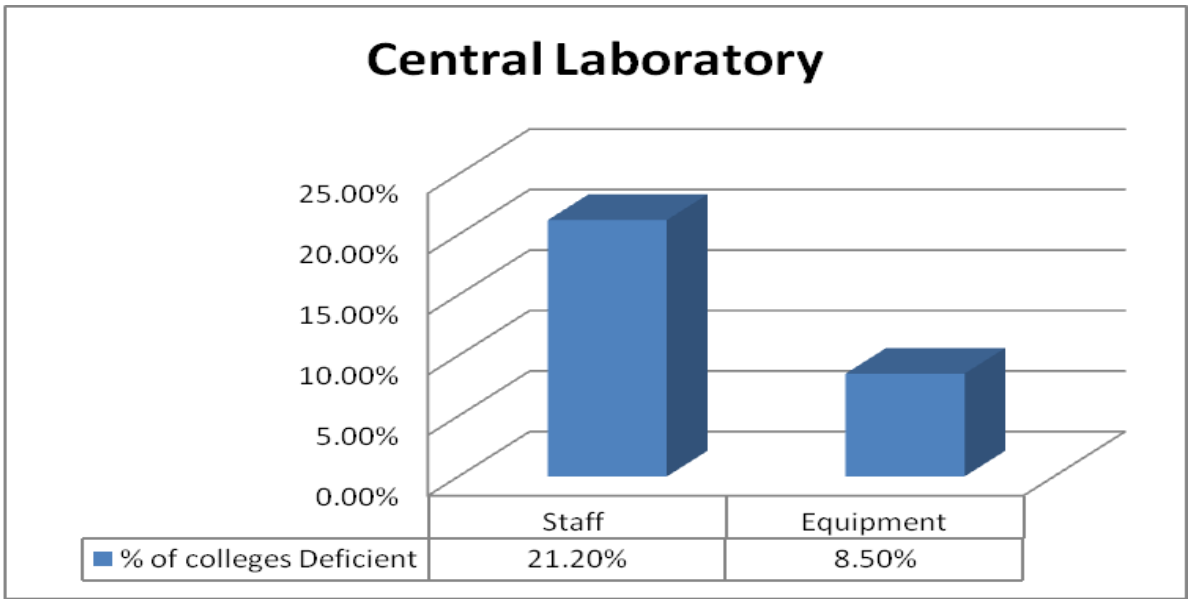
The above figure shows that out of all medical colleges, majority of the medical colleges (93.8%) had the required number of common rooms. Only 6.2 % of the colleges were deficient.

Table 7.22 Accommodation Facilities

Accommodation	**Minimum Requirement**	**% of Colleges Deficient**
Hostels for UG	75%	14.80%
Residential for staff	75%	12.70%

The study findings reveals that majority of medical colleges were providing accommodation facilities for the candidates as well as the staff. About 14.8% of the medical colleges were not providing accommodation facilities to 75% of the students. 12.7% of the medical colleges were deficient in providing residential accommodation for the staff members

Figure 7.22 Central Laboratory Facilities



The study findings reveal that in 21.2% & 8.5% of the medical colleges, the central laboratories are deficient in staff and Equipments respectively.

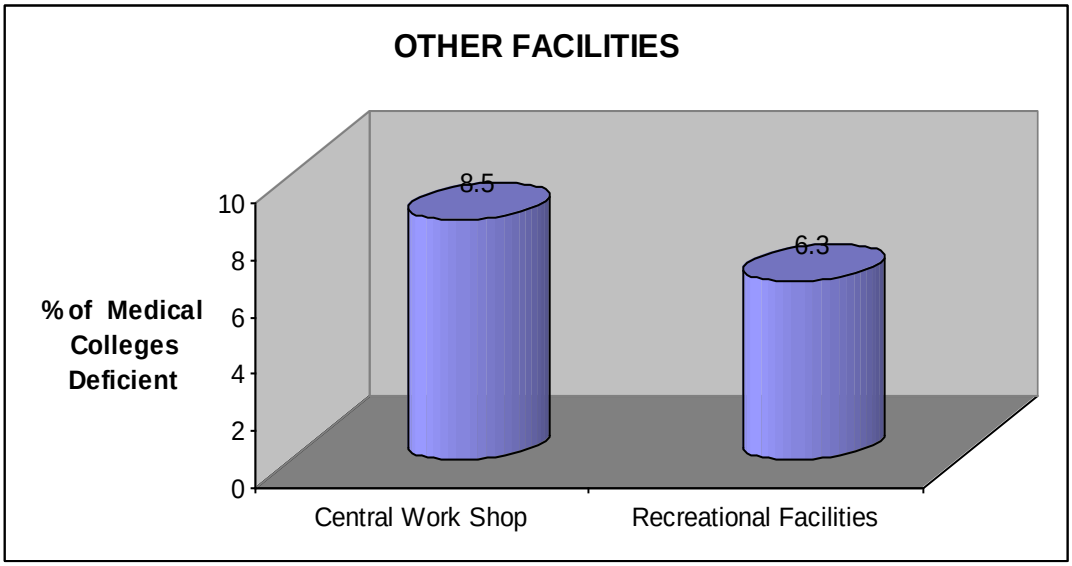
7.23 Rural/Urban Health Training Centres

Centre	Minimum Requirement	% of Colleges Deficient
Rural Health Training Centres	one	10.6
Urban Health Training Centres	-	14.8
Transport Facilities	Should be available	29.70
Hostel Accommodation	Should be available	25.5

The study findings show that in about 10.6% & 14.8% of medical colleges, there was no associated RHTC and UHTC respectively. Out of those where these are present, 29.7% of the colleges did not provide transportation facilities to the students and staff to these

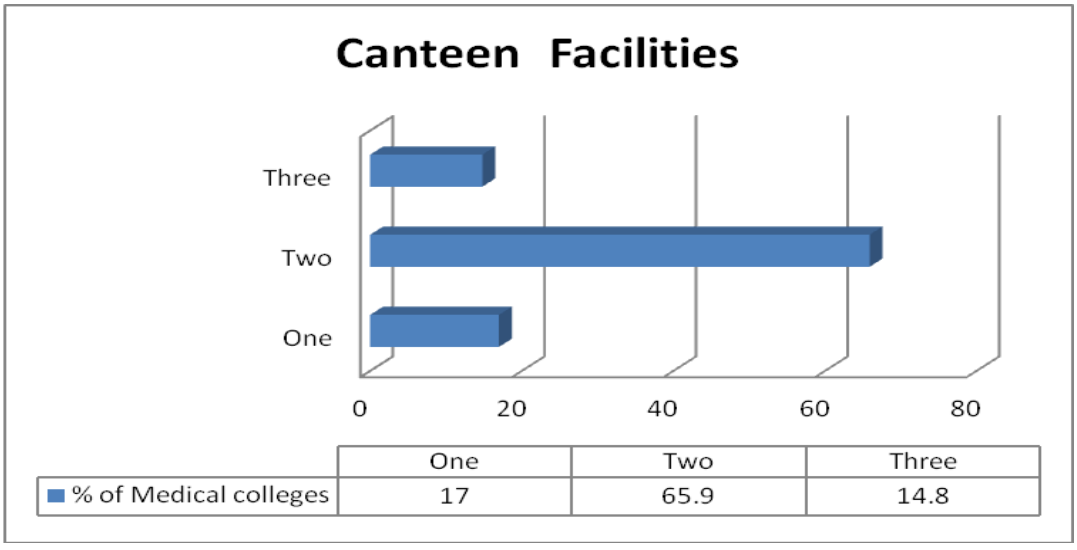
centres. 25.5 % of the centres did not have accommodation facilities for the staff and candidates.

Figure 7.23 Other Facilities



The figure illustrates that 8.5% of the colleges did not have a central workshop. Only 6.3% of the colleges did not provide any recreational activities to the candidates.

Figure 7.24 Canteen Facilities



Study findings reveal that majority of colleges have 2 canteens. 17% of the colleges have one canteen where as 14.8% of the colleges have three canteens.

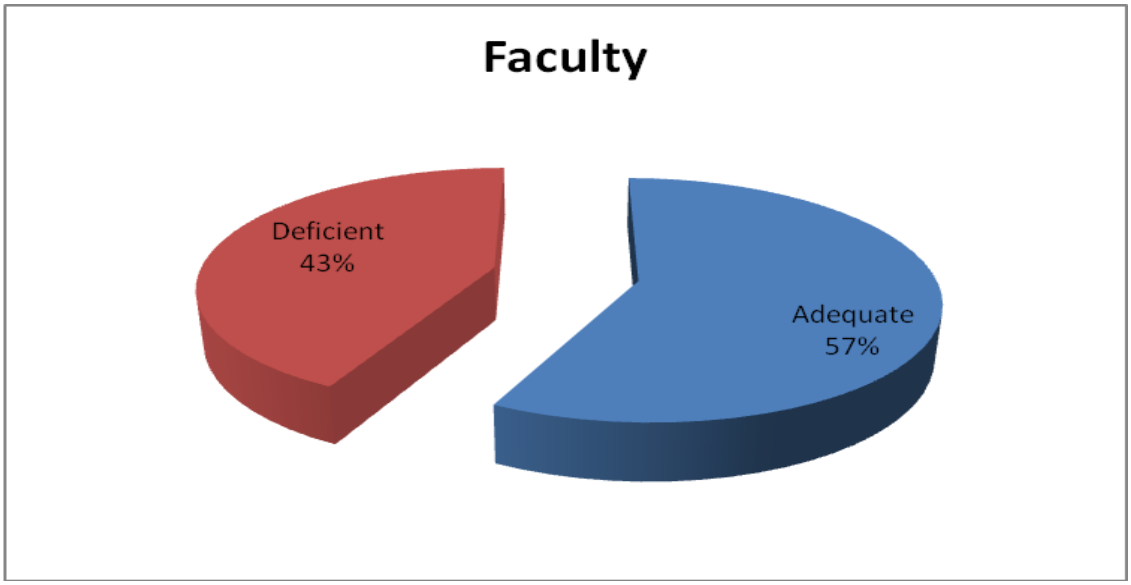
7.3 Common Deficiencies in Academic Facilities

Table 7.31 Departments in the College

No of Departments	% of Medical college
18	19.1
19	23.4
20	31.9
21	25.4

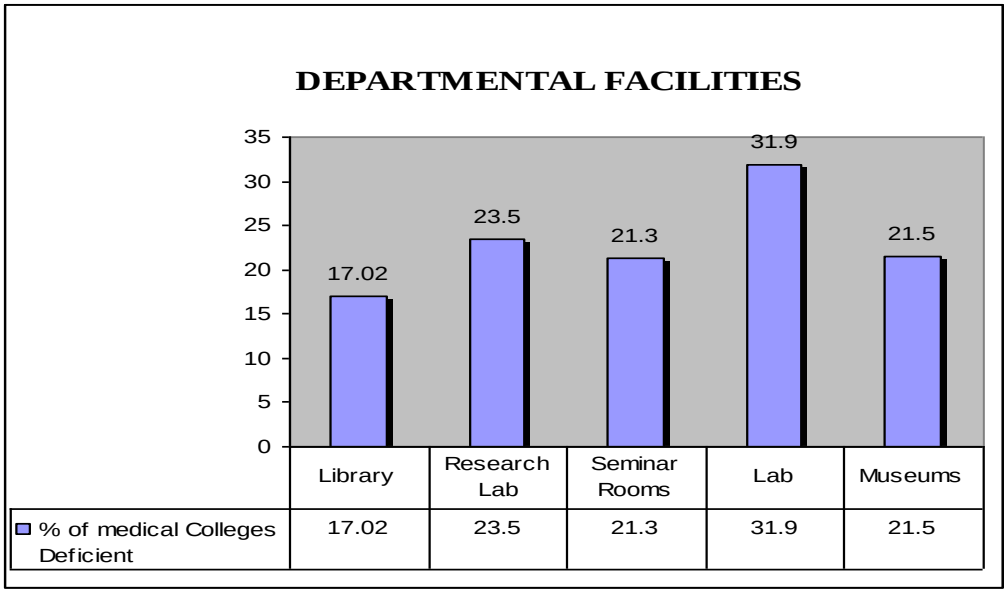
The study findings show that about 25.6% of medical colleges had all 21 departments. Majority of medical colleges (32%) had 20 departments. 23.4% of the medical colleges had 19 departments. Only 19.1 % had 18 departments.

Figure 7.31 Faculty Resources



The study findings reveal that 42.55% of medical colleges are deficient in teaching staff.

Figure 7.32 Departmental Facilities



The figure shows that nearly 32% of the colleges did not have departmental laboratories. 23.5% and 21.3% of the colleges did not have research lab and museums for all departments respectively.

7.4 Common Deficiencies in Clinical Facilities

Table 7.41 Number of Teaching Beds

UG seats	Minimum Requirement	Deficiency
100	500	30.7
150	700	42.8
200	900	19.1
250	100	0

The study findings reveal that about 42.8% & 30.7 % of medical colleges with annual intake of 150 & 100 respectively students did not have the required number of teaching beds. The study also shows that the medical colleges with an annual intake of 250 students had adequate number of teaching beds.

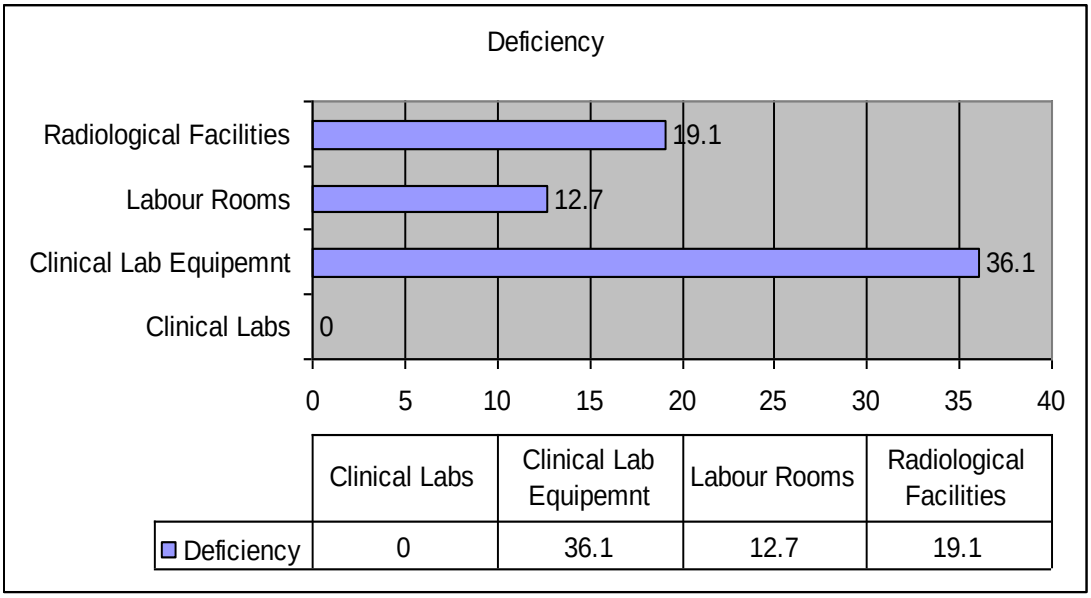
Table 7.42 Department wise Teaching Beds

UG intake	Departmental Teaching Bed Deficiency						
	General Medicine	General Surgery	Pediatrics	Orthopedics	Ophthalmology	OBGYN	Psychiatry
100	23.7	24.1	30.7	19.1	10.1	7.6	12.1
150	15.1	32.6	13.33	21.2	9.5	8.9	28.5
200	4	7.2	8.9	5.1	21.1	19.1	12.3
250	3.5	4.9	8.1	1.9	11.1	10.1	5.1
	46.3	68.8	61	47.3	51.8	45.7	58

The above table shows the percentage of medical colleges not having adequate number of teaching beds in various departments.

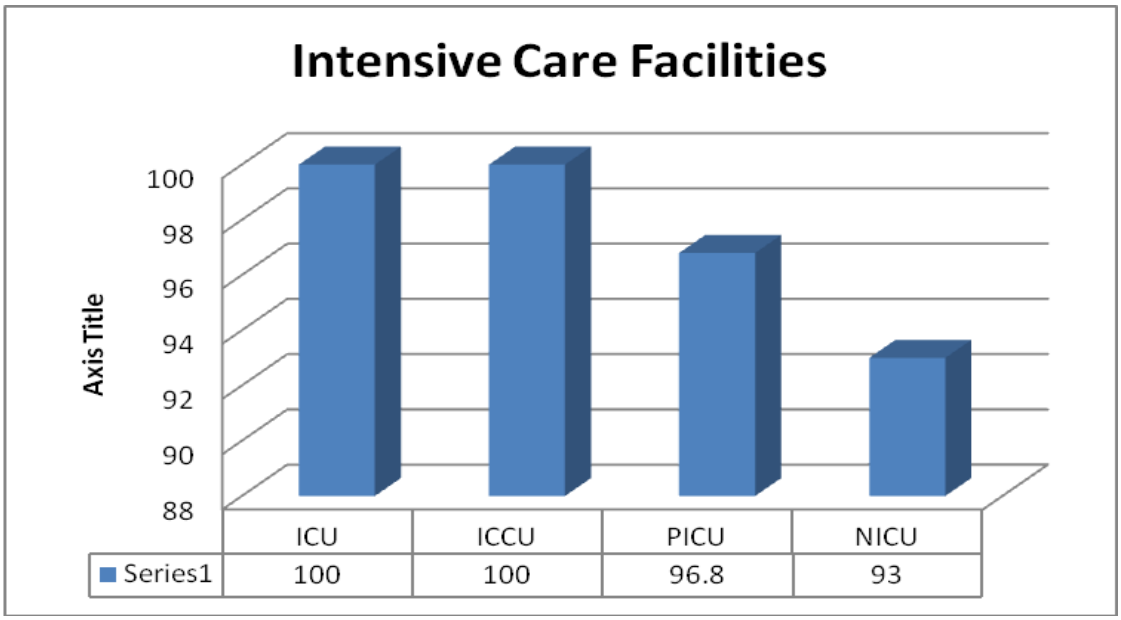
More than half of the medical colleges did not have adequate number of teaching beds in the departments of ophthalmology and psychiatry. About 31.2% & 39% of colleges had adequate number of teaching beds in department of General Surgery & pediatrics respectively. About 52.7% of the colleges had adequate number of teaching beds in department of orthopedics.

Figure 7.41 Other Clinical Facilities



The study findings show that about 36% of the medical colleges did not have adequate equipments in all 6 laboratories. About 19.2% did not have required radiological facilities. 12.7% did not have adequate number of labour rooms.

Figure 7.42 Intensive Care Facilities



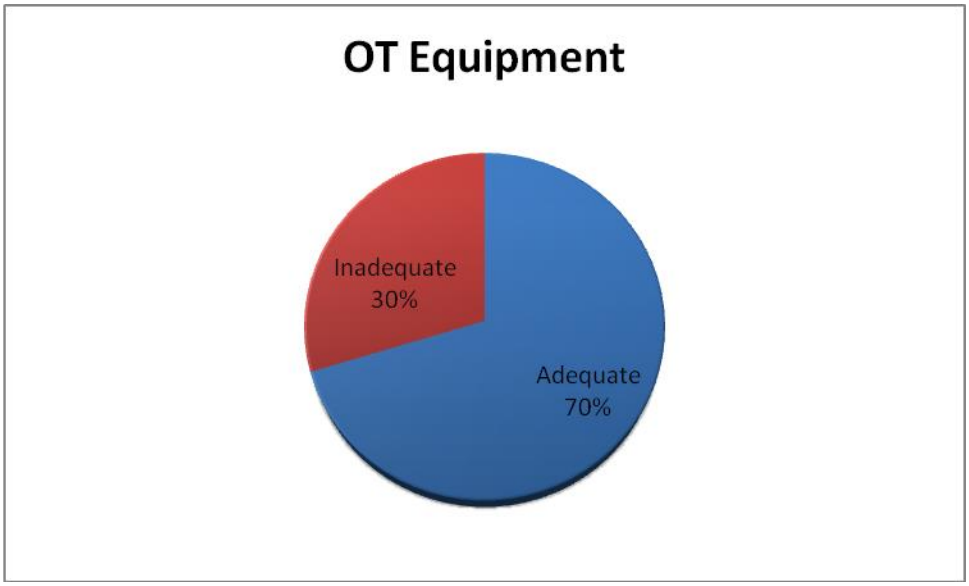
The findings reveal that all the colleges had required number of ICCU's & ICU's. About 4.2 % of the colleges did not have PICU facilities and 7% did not have NICU facilities.

Table 7.43 Number of Operation Theaters

Annual Intake	Required No. of OT	Deficient
100	7	35.7
150	10	37.5
200	12	50
250	15	19.3

Study findings shows that in about 50% of the colleges with an annual intake of 200, did not have the required number of operation theaters. 37.5% & 35.7% of the colleges with an annual intake of 150 & 100 respectively did not have the required number of operation theaters.

Figure 7.43 Operation Theaters Equipment



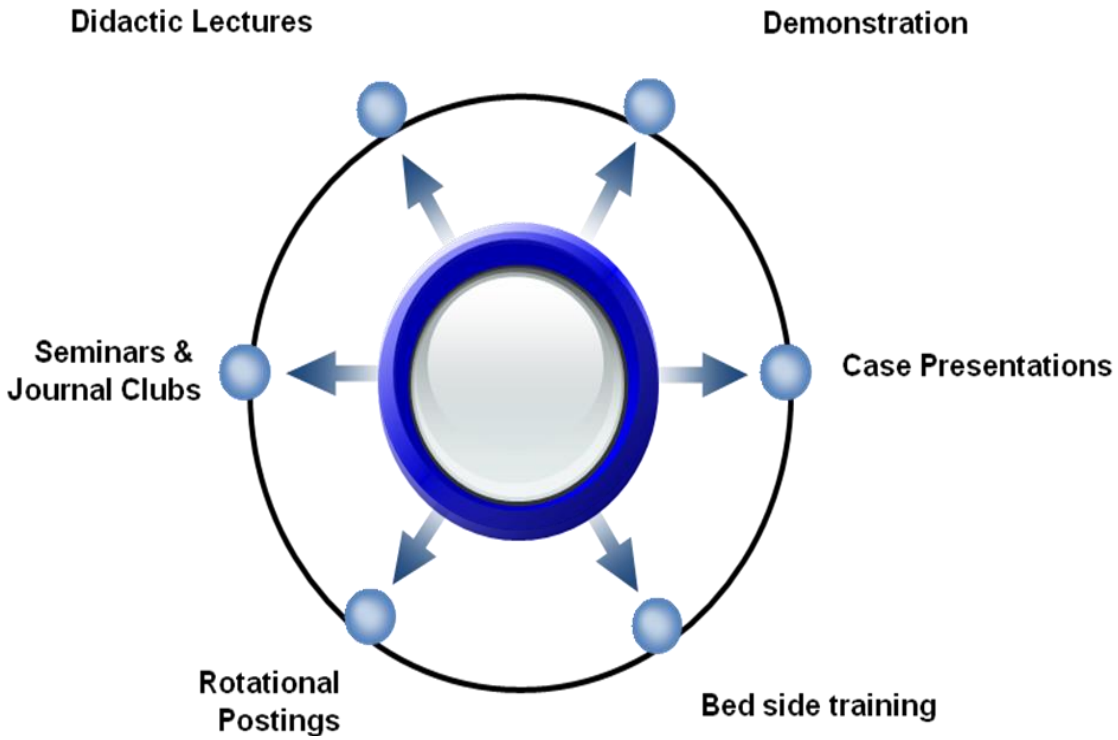
Study findings reveal that in about 70% of the OT's the equipments were not adequate.

Chapter 8 Discussion

The rationale of this study was to determine the common deficiencies in the UG medical colleges. These deficiencies were studied in three areas namely infrastructure, academics and clinical facilities. The study results show a varied amount of deficiencies in colleges.

8.1 Teaching and Training Methods

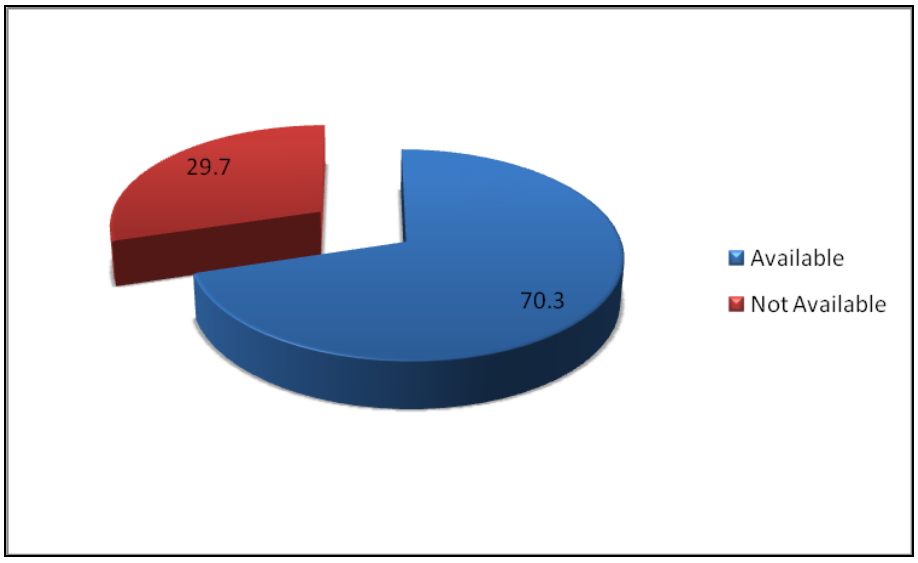
Figure 8.1 Teaching and Training Methods



The study shows that all medical colleges use a variety of methods to impart training to the students. These methods focus on providing comprehensive & holistic knowledge to the students.

8.2 Biomedical Waste Management Facilities

Figure 8.2 Biomedical Waste Management Facilities



The above figure illustrates that about 70% of the medical colleges had biomedical waste management facilities. Only 29.7 % of the colleges did not have any facilities.

8.3 Central casualty services & Resuscitation service

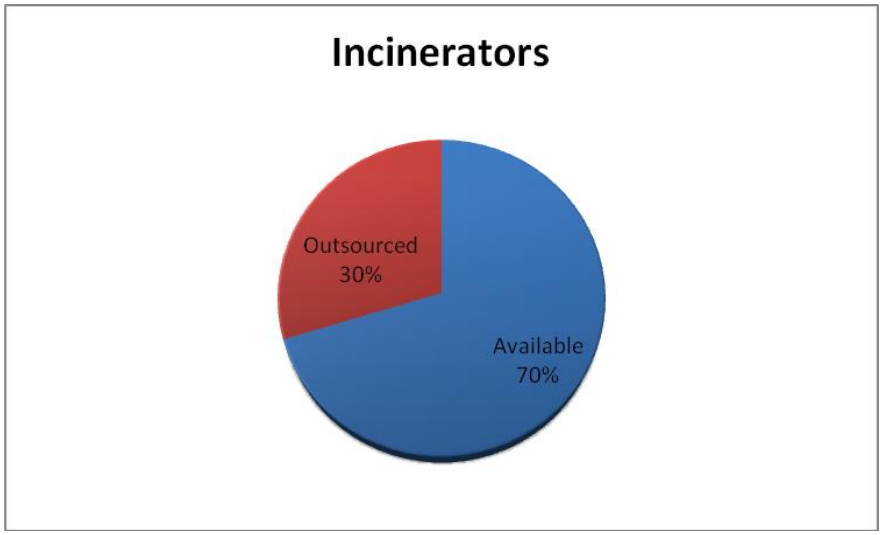
All medical colleges had central casualty services and resuscitation facilities.

8.4 Central Sterilization Services

All medical colleges had central sterilization services.

8.5 Incinerator Facilities

Figure 8.5 Incinerator Facilities



Majority of the colleges (70%) had incinerator within the campus. About 30 % of the colleges had the facility outsOurced.

8.6 Kitchen

All medical colleges had kitchen facilities.

Chapter 9 Recommendations

The study clearly shows that the MCI standards for Under Graduate Medical Colleges are not being followed strictly by institutions. Modest provisions of accreditation have facilitated the rapid growth in the number of Medical colleges. The colleges which are deficient in the standards are still accredited by MCI. This could be due to poor regulation by the concerned council or could be due to provision of false evidence for the purpose of obtaining accreditation by institutions. Which ever could be the reason, the standards are required to be followed by all medical colleges in order to maintain the quality of medical education in India.

The following gaps in the guidelines and inspection format were found during the analysis:

1. MCI guidelines do not have any recommendations on the location of the Medical colleges.
2. MCI guidelines also do not consider the population density while allotting seats to the institution.
3. Accreditation of medical colleges by the MCI is compulsory but the information comes solely from the medical college's administration and information from other sources, such as faculty, students, or patients, is not used in the accreditation process.
4. Some facility indicators which are checked during inspection are categorized either as adequate or inadequate by inspectors. Quantification of these indicators is required.
5. Documentary proof for some of the facilities is not asked for.

Inability of increasing number of medical colleges in the country to maintain even the minimum requirements for undergraduate medical education as laid down by MCI is a cause for concern. In view of this, the following recommendations are suggested:

1. Strict adherence to standards by MCI authorities to ensure that all the existing medical colleges have adequate infrastructure, teaching faculty, clinical facilities and physical standards and banning quantitative expansion of medical education.
2. Strengthening of MCI and Directorates of Medical Education at State level, to ensure quality control and monitoring of standards.
3. Operational indicators to be developed for each accreditation standard to make them quantifiable & measurable.
4. Documentary proof for every component of standards must be made compulsory.
5. Denial or withdrawal of accreditation must be the decision, if many criteria or standards are not fulfilled, signifying severe deficiency in the quality of the programme
6. The decisions on accreditation of medical programmes must be made public. Publication of the reports providing the basis for the decisions, or a summary of the reports, should also be considered.
7. The accreditation process should include: self evaluation; conveying the results of the self-evaluation to the accreditation body; an audit – possibly including a site visit – by the accreditation body to verify the self-evaluation and obtain any additional information needed; a preliminary report to the institution by the accreditation body; opportunity for the institution to correct errors of fact; and the accreditation decision.
8. The accreditation process itself should undergo periodic review; it should accommodate input from all stakeholders for the maintenance and updating of its policies, standards and procedures.
9. Regular audits along with surprise audits to verify the actual situation.
10. To improve monitoring of accreditation standards, an external organization instead of the officials from MCI can be delegated the responsibility of inspecting the Medical Colleges.
11. Structural changes in national and state assessment and accreditation are needed to make improvements in medical education

Chapter 10 Limitations of the Study

One of the major limitations of the study was that, due to unavailability of time and resources, the data was not collected from on site locations. The data used in the study is MCI data which arises its own issues of validity.

Another limitation of the study is that all medical colleges from India were not included in the study.

Convenient Sampling was used to collect data

Chapter 11 Conclusion

The challenges that medical education in India are facing include the questionable validity of compliance of UG medical Colleges with MCI recommended minimum standards for various physical, clinical and teaching facilities. Non compliance with the recommended standards by medical colleges is a growing cause of concern. Accreditation by the Medical Council of India (MCI) emphasizes documentation of infrastructure and resources and does not include self-study. Medical schools should not lose sight of the fact that they exist primarily to serve the health needs of society. Inadequate regulation of standards by MCI is leading to decline in the quality of medical education. Due to unavailability of adequate clinical and academic facilities, a large number of graduating students do not have sufficient skills in managing common conditions and performing simple procedures and techniques. The efforts of institutions to enhance the number of seats are based primarily on economic reasons and on real or 'simulated' facilities, true or fabricated records, real or 'bussed' patients or actually existing or 'imported' faculty. It is however surprising how reports and studies undertaken by professional researchers and numerous internal and external reviews, fail to highlight or even mention this fall in standards in medical colleges.

The study findings clearly state that the standards are not completely being followed by Medical Colleges and despite that the MCI is providing recognition to such colleges. The decline in standards, that have been seen in more recent years, have been quite remarkable and if an objective evaluation were to be made of various medical colleges presently recognised by the MCI, using its own minimum requirements norms, then there would be so many medical colleges who would have to be derecognized immediately. Although the availability of minimum requirement norms in majority of medical colleges are reviewed periodically by MCI, there is no external system for evaluating these medical colleges.

In order to improve the standards of Medical Colleges, more vigilance and monitoring is required. Operational definitions for each standard are to be developed

along with obtaining documentary evidences for the same. Denial or withdrawal of accreditation must be the decision, if many criteria or standards are not fulfilled, signifying severe deficiency in the quality of the college. An external organization instead of the officials from MCI can be delegated the responsibility of inspecting the Medical Colleges.

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Annexure 1

Staff Requirements

	UG Annual Intake			
	50	**100**	**150**	**200-250**
DEPARTMENTWISE STAFF REQUIREMENTS-NON-CLINICAL				
(1) DEPARTMENT OF ANATOMY				
1. Professor	1	1	1	1
2. Assoc. Prof./Reader	1	1	2	3
3. Asstt. Prof./Lecturer	1	2	3	4
4 Tutors/Demonstrators	2	4	4	6
5. Technician	1	1	1	1
6. Dissection Hall Attendants	3	4	4	4
7. Store Keeper cum Clerk-cum Computer Operator	1	1	1	1
8. Sweepers	2	2	2	2
(2) DEPARTMENT OF PHYSIOLOGY				
1 Professor	1	1	1	1
2 Assoc. Prof /Reader	1	1	2	3
3 Asstt. Prof. /Lecturer	1	2	3	4
4 Tutors/Demonstrators	2	4	4	6
5. Technician	1	1	1	1
6 Store Keeper cum clerk cum Computer operator	1	1	1	1
7 Sweepers	2	2	2	2
(3) DEPARTMENT OF BIOCHEMISTRY				
1 Professor	1	1	1	1
2 Assoc. Prof./Reader	1	1	1	2
3 Asstt. Prof. /Lecturer	1	1	2	3

4 Tutors/Demonstrators	2	4	4	6
5 Technical Asstt./Technician	2	2	2	2
6. Store-Keeper cum clerk cum Computer operator	1	1	1	1
7. Sweepers	2	2	2	2
8. Lab Attendant	1	1	1	1
(4) DEPARTMENT OF PATHOLOGY				
1 Professor	1	1	1	1
2 Assoc. Prof. /Reader	1	3	3	4
3 Asstt. Prof. /Lecturer	2	3	3	4
4 Tutors/Demonstrators	3	4	5	7
5 Technical Asstt./Technician	4	4	4	4
6 Lab. Attendants	2	2	2	2
7 Steno cum Computer Operator	1	1	1	1
8 Store Keeper cum Record Keeper	1	1	1	1
9. Sweepers	2	2	2	2
(5) DEPARTMENT OF MICROBIOLOGY				
1 Professor	1	1	1	1
2 Assoc. Prof. /Reader	1	1	2	3
3 Asstt. Prof. /Lecturer	1	2	2	3
4 Tutors/Demonstrators	2	3	4	6
5 Technical Asstt./Technician	7	7	7	7
6 Lab. Attendants	2	2	2	2
7 Store Keeper cum Record clerk	1	1	1	1
8 Steno cum Computer Operator	1	1	1	1
9 Sweepers	2	2	2	2
(6) DEPARTMENT OF PHARMACOLOGY				
1 Professor	1	1	1	1
2 Assoc. Prof. /Reader	1	1	2	3
3. Asstt. Prof. /Lecturer	1	2	2	3
4 Tutors/Demonstrators	2	2	3	5
5. Laboratory Attendants	2	2	2	2
6. Store Keeper cum clerk cum Computer operator.	1	1	1	1

7. Sweepers	2	2	2	2
(7) DEPARTMENT OF FORENSIC MEDICINE Staff Strength Required				
1 Professor	1	1	1	1
2 Assoc. Prof. /Reader			1	2
3 Asstt. Prof. /Lecturer	1	1	1	2
4 Tutors/Demonstrators	1	2	3	5
5 Technical Asstt./Technician	2	2	2	2
6 Laboratory Attendants	2	2	2	2
7 Steno Typist 1	1	1	1	1
8 Store Keeper cum clerk cum Computer Operator	1	1	1	1
9 Sweepers	4	4	4	4
(8) DEPARTMENT OF COMMUNITY MEDICINE				
1 Professor	1	1	1	1
2 Assoc. Prof. /Reader	1	2	2	3
3 Asstt. Prof./Lecturer	1	2	3	4
4. Epidemiologist-cum-Assistant Professor 1	1	1	1	1
5 Statistician-cum-Assistant Professor 1	1	1	1	1
6 Tutors/Demonstrators	2	4	4	6
7 Medical Social Worker	1	1	1	1
8 Technical Asstt./Technicians	1	1	1	1
9 Stenographers	1	1	1	1
10 Record keeper cum clerk cum Computer Operator	1	1	1	1
11 Store Keeper	1	1	1	1
12 Sweepers	1	1	1	1
STAFF FOR RURAL TRAINING HEALTH CENTRE				
1 Medical Officer of Health-cum-lecturer/Assistant Professor.	1	1	1	1
2 Lady Medical Officer	1	1	1	1
3 Medical Social Workers	2	2	2	2

4 Public Health Nurse	1	1	1	1
5 Health Inspector/Health Assistant (Male) 1	1	1	1	1
6 Health Educator	1	1	1	1
7 Technical Asstt./Technician	1	1	1	1
8 Peon	1	1	1	1
9 Van Driver	1	1	1	1
10 Store Keeper cum Record Clerk	1	1	1	1
11. Sweepers	2	2	2	2
URBAN TRAINING HEALTH CENTRE				
1. Medical officer of Health-cum-Lecturer/Assistant Professor	1	1	1	1
2. Lady Medical Officer	1	1	1	1
3. Medical Social Workers	2	2	2	2
4. Public Health Nurse	1	1	1	1
5. Health Inspectors	2	2	2	2
6. Health Educator	1	1	1	1
7. Technical Assistant/Technicians	2	2	2	2
8. Peon	1	1	1	1
9. Van Driver	1	1	1	1
10. Store Keeper	1	1	1	1
11. Record Clerk	1	1	1	1
12. Sweepers	2	2	2	2
DEPARTMENT WISE STAFF REQUIREMENTS-CLINICAL DEPARTMENTS				
(2) DEPARTMENT OF GENERAL MEDICINE				
The Number of units, beds and staff for each department shall be as follows;				
(a) GENERAL MEDICINE				
No. of units/beds: 3/72				
Staff strength required				
1. Professor	1	1	1	1
2. Associate Professor/Reader	2	3	5	8

3. Assistant Professor/Lecturer	3	4	6	9
4. Sr. Resident	5	6	9	15
5. Junior Residents	9	12	18	20
(b) TUBERCULOSIS & RESPIRATORY DISEASES				
1. Professor	1	1	1	1
2. Assistant Professor	1	1	1	1
4. Sr. Resident	2	2	2	3
5. Junior Residents	3	3	3	4
(c) DERMATOLOGY, VENEREOLOGY & LEPROSY				
1. Professor/	1		1	1
2. Assoc.Prof./Reader				1
3. Asst.Prof./Lecturer	1		1	1
4. Tutor / Registrar/Sr. Resident	2		2	3
5. Junior Residents	3		3	4
(d) PSYCHIATRY				
No. of units/beds: 1/8				
Staff strength required				
1. Professor/	1	1	1	1
2. Assoc.Prof./Reader				1
3. Asst.Prof./Lecturer	1	1	1	1
4. Tutor/Registrar/Sr. Resident	2	2	2	3
5. Junior Residents	3	3	3	4
The following ancillary staff shall be provided.				
Staff Strength required				
1. E.C.G. Technician	1	1	1	1
2. Technical Asstt./Technician	3	3	3	3
3. Lab. Attendants	4	4	4	4
4. Store Keeper	1	1	1	1
5. Steno Typist	1	1	1	1
6. Record clerks	2	2	2	2
7. T.B. and Chest Diseases Health Visitors 2	2	2	2	2
8. Psychiatric Social Workers	2	2	2	2

(3) DEPARTMENT OF PAEDIATRICS				
1. Professor/	1	1	1	1
2. Assoc.Prof./Reader	1	1	3	4
3. Asst.Prof./Lecturer	2	2	2	5
4. Tutor / Registrar/Sr. Resident	3	3	5	8
5. Junior Residents	6	6	9	10
The following ancillary staff shall be provided.				
1. Child Psychologist	1	1	1	1
2. Health Educator	1	1	1	1
3. Technical Asstt./Technician	1	1	1	1
4. Lab attendant	1	1	1	1
5. Store Keeper	1	1	1	1
6. Record clerks	1	1	1	1
7. Social worker	1	1	1	1
(4) DEPARTMENT OF GENERAL SURGERY				
1. Professor	1	1	1	1
2. Associate Professor/Reader	2	3	5	8
3. Assistant Professor/Lecturer	3	4	6	9
4. Sr. Resident	5	6	9	15
5. Junior Residents	9	12	18	20
The following ancillary staff shall be provided.				
1. Technical Assistant/Technicians	3	3	3	3
2. Laboratory Attendants	4	4	4	4
3. Store keeper	1	1	1	1
4. Steno-Typist	1	1	1	1
5. Record Clerks	2	2	2	2
(5) DEPARTMENT OF ORTHOPAEDICS				
1. Professor/	1	1	1	1
2. Assoc.Prof./Reader	1	1	2	4
3. Asst.Prof./Lecturer	2	2	3	5
4. Tutor / Registrar/Sr. Resident	3	3	5	8

5. Junior Residents	6	6	9	10
The following ancillary staff shall be provided.				
1. Technical Assistant/Technicians	1	1	1	1
2. Laboratory Attendants	1	1	1	1
3. Store keeper	1	1	1	1
4. Steno-Typist	1	1	1	1
5. Record Clerks	1	1	1	1
(6) DEPARTMENT OF OTO-RHINO-LARYGOLOGY				
1. Professor	1	1	1	1
2. Assoc.Prof./Reader				2
3. Asst.Prof./Lecturer	1	1	1	2
4. Tutor / Registrar/Sr. Resident	2	2	2	2
5. Junior Residents	3	3	3	2
The following ancillary staff shall be provided.				
1. Technical Assistant/Technicians	1	1	1	1
2. Laboratory Attendants	1	1	1	1
3. Store keeper	1	1	1	1
4. Steno-Typist	1	1	1	1
5. Record Clerks	1	1	1	1
6. Audiometry Technician	1	1	1	1
7. Speech Therapist	1	1	1	1
(7) DEPARTMENT OF OPHTHALMOLOGY				
1. Professor	1	1	1	1
2. Assoc.Prof./Reader			1	2
3. Asst.Prof./Lecturer	1	1	1	2
4. Tutor / Registrar/Sr. Resident	2	2	2	3
5. Junior Residents	3	3	3	4
The following ancillary staff shall be provided.				
1. Technical Assistant/Technician	1	1	1	1
2. Lab Attendant	1	1	1	1
3. Steno typist	1	1	1	1
4. Store keeper	1	1	1	1

5. Record Clerk	1	1	1	1
6. Refractionist	1	1	1	1
(8) DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY				
1. Professor/	1	1	1	1
2. Assoc.Prof./Reader	1	2	3	5
3. Asst.Prof./Lecturer	3	3	5	8
4. Tutor / Registrar/Sr. Resident	3	3	5	8
5. Junior Residents	6	6	9	10
The following ancillary staff shall be provided.				
1. Antenatal Medical officer-cum-lecturer/Assistant Professor	1	1	1	1
2. Maternity and Child Welfare Officer-cum-lecturer/Assistant Professor	1	1	1	1
3. Social Worker	2	2	2	2
4. Technical Asstt./Technicians	2	2	2	2
5. Lab Attendants	2	2	2	2
6. Stenographer	1	1	1	1
7. Record Clerk	1	1	1	1
8. Store Keeper	1	1	1	1
(9) DEPARTMENT OF RADIO-DIAGNOSIS				
1. Professor	1	1	1	1
2. Associate Professor/Reader			1	2
3. Assistant Professor/Lecturer	1	1	1	2
4. Sr. Resident	3	1	1	2
5. Junior Residents	1	5	5	8
6. Radiographic technicians	8	8	8	8
7. Dark room assistant	4	4	4	4
8. Stenographers	1	1	1	1
9. Storekeeper	1	1	1	1
10. Record clerk	1	1	1	1
(10) DEPARTMENT OF RADIO-THERAPY (OPTIONAL)				
1. Professor	1	1	1	1

2. Assoc.Prof./Reader	1	1	1	1
3. Asst.Prof./Lecturer	2	2	2	2
4. Tutors/Registrars	3	3	3	3
5. Physicist	1	1	1	1
6. Radiotherapy technicians (for every treatment unit)	2	2	2	2
7. Dark room assistant	1	1	1	1
8. Stenographer	1	1	1	1
9. Storekeeper	1	1	1	1
10. Record clerk	2	2	2	2
(11) DEPARTMENT OF ANAESTHESIOLOGY				
1. Professor	1	1	1	1
2. Associate Professor/Reader	1	2	3	2
3. Assistant Professor/Lecturer	2	3	4	4
4. Sr. Resident	5	8	11	14
5. Junior Residents	2			
The staff in the department shall consist of:				
1. Technical Asstt. Technicians	8	8	8	8
2. Stenotypist	1	1	1	1
3. Record clerk	1	1	1	1
4. Store keeper	1	1	1	1
(12) DEPARTMENT OF PHYSICAL MEDICINE AND REHABILITATION				
1. Professor/	1	1	1	
2. Assoc.Prof./Reader				
3. Asst.Prof.Lecturer	1	1	1	1
4. Senior Residents	2	2	2	2
5. House Surgeon/Junior Resident	1	1	1	1
The staff in the department shall consists of:				
1. Physiotherapists	2	2	2	2
2. Occupational Therapists	2	2	2	2
3. Speech Therapists	1	1	1	1
4. Prosthetic and Orthotic Technicians 2	2	2	2	2
5. Workshop Workers	6	6	6	6
6. Clinical Psychologist	1	1	1	1
7. Medico-social Worker	1	1	1	1

8. Public Health Nurse/Rehabilitation Nurse	1	1	1	1
9. Vocational Counsellor	1	1	1	1
10. Multi-rehabilitation Workers/(MRW)/	4	4	4	4
Technician/Therapist				
11. Stenographer	1	1	1	1
12. Record Clerk	1	1	1	1
13. Store keeper	1	1	1	1
14. Class IV workers	4	4	4	4
(13) DEPARTMENT OF DENTISTRY				
1. Professor/	1	1	1	1
2. Assoc.Prof./Reader				2
3. Asst.Prof./Lecturer	1	1	1	2
4. Tutor/Registrar	2	2	2	4
5. Dental Technicians	4	4	4	8
6. Store Keeper cum clerk	1	1	1	1
STAFF REQUIREMENT FOR-ANCILLARY SERVICES				
I. CENTRAL RECORD SECTION				
The staff of the section shall consist of				
1. Medical Record Officer	1	1	1	1
2. Statistician	1	1	1	1
3. Coding Clerks	4	4	4	4
4. Record Clerks	6	6	6	6
5. Daftaries	2	2	2	2
6. Peons	2	2	2	2
7. Stenotypist	1	1	1	1
II. CENTRAL ANIMAL HOUSE				
1. Veterinary Officer	1	1	1	1
2. Animal Attendants	2	2	2	2
3. Technicians for animal operation room	1	1	1	1
4. Sweepers	2	2	2	2
III CENTRAL LIBRARY				
1. Librarian with a degree in Library Science	1	1	1	1
2. Deputy Librarian	1	1	1	1

3. Documentalist	1	1	1	1
4. Cataloguer	1	1	1	1
5. Library Assistants	4	4	4	4
6. Daftaries	2	2	2	2
7. Peons	2	2	2	2
IV. CENTRAL PHOTOGRAPHIC CUM AUDIOVISUAL UNIT				
1. Photographers	1	1	1	1
2. Artist Modellers	1	1	1	1
3. Dark Room Assistant	1	1	1	1
4. Audiovisual Technician	1	1	1	1
5. Store Keeper cum Clerk	1	1	1	1
6. Attendant	1	1	1	1
V. MEDICAL EDUCATION UNIT				
1. Officer In-charge	1	1	1	1
(Principal/Dean)	1	1	1	1
2. Coordinator	1	1	1	1
3. Faculty	2	2	2	2
faculty on part time basis..				
Supportive Staff:				
1. Stenographer	1	1	1	1
2. Computer Operator	1	1	1	1
3. Technicians in Audio-visual aids,	2	2	2	2
Photography and Artist				
VI. CENTRAL STERLIZATION SERVICES DEPARTMENT				
1. Matron	1	1	1	1
2. Staff Nurse	4	4	4	4
3. Technical Assistant	8	8	8	8
4. Technician	8	8	8	8
5. Ward Boys	8	8	8	8
6. Sweeper	4	4	4	4
VII. LAUNDRY				
1. Supervisor	2	2	2	2
2. Dhobi/Washerman/Women	12	12	12	12

3. Packer	12	12	12	12
VIII. BLOOD BANK				
1. Professor /Reader	1	1	1	1
2. Lecturer	1	1	1	1
3. Technicians	6	6	6	6
4. Laboratory Attendants	6	6	6	6
5. Store Keepers	6	6	6	6
6. Record Clerks	2	2	2	2
IX. CENTRAL CASUALTY SERVICES				
1. Casualty Medical Officer	4	4	4	4
2. Operation Theatre staff to function on 24 Hours round the clock basis. As required				
3. Stretcher bearers				
4. Receptionist-cum-clerks	6	6	6	6
5. Ward boys	2	2	2	2
6. Nursing and Para-medical staff	6	6	6	6
7. Clinical staff for casualty Beds. As required.	6	6	6	6
X. CENTRAL WORKSHOP				
1. Superintendent	1	1	1	1
2. Senior Technicians	4	4	4	4
3. Junior Technicians	2	2	2	2
4. Carpenter	1	1	1	1
5. Blacksmith	1	1	1	1
6. Attendants	4	4	4	4

Annexure 2

Teaching Beds

UG intake	Departmental Teaching Bed Requirements						
	General Medicine	General Surgery	Pediatrics	Orthopedics	Ophthalmology	OBGYN	Psychiatry
50	72	90	30	30	10	40	8
100	120	120	60	60	210	60	10
150	150	150	90	90	30	100	15
200	210	210	120	120	40	120	15
250	240	240	120	150	60	150	30