Medical Council of India

Proposed

UNDER GRADUATE MEDICAL EDUCATION
M.C.I. OBJECTIVES FOR UNDERGRADUATE MEDICAL EDUCATION

Quality Improvement
- Curriculum Reformation
  - Restructure & Optimize
  - Vertical & Horizontal integration
  - Flexible: expanding learning opportunities
  - Skill development
  - Quality Accreditation

Capacity Building
1. Increasing Training capacity of doctors
   - Adopting District hospitals into Medical Colleges
   - Increasing Seats in existing medical colleges
   - Public Private Partnerships for hospitals
   - New Medical setups
   - Govt. colleges and Govt. hospitals

2. Medical Teachers
   - Faculty Development Programme
   - Define Career path
   - Inter disciplinary appointments
   - Dual /Adjunct Appointments
   - Tapping consultant Pool who have left Govt. service
   - Retired Teachers
   - Increasing the age of Superannuation
   - New Pool from Young Teachers from proposed new PG Course

Incentives (Performance based)
- Faculty Incentives
- Financial Grants and funding
- Grants and funding

OUTCOMES
Motivating Career Pathways for Students and Teachers

Expected Outcomes

Short Term
- Improved and Revised Curriculum
- Detailed Capacity Building Plan
- Faculty Development Programmes in Place

Middle Term
- Improved Quality of Existing Colleges
- Sufficient Number of Trained Teachers
- Motivating Career Pathways for Students and Teachers

Long Term
- Sufficient Number of Doctors
- Improved Medical Education
- Improved Doctor: Patient Ratio
- Equitable Distribution of Doctors in Urban-Rural Areas

Improved Health Parameters

Improved Health Care

Improving Quality of Medical Care for Patients
PREAMBLE:

The Government of India recognizes Health for All as a national goal and expects medical training to produce capable "Physicians of First Contact" towards meeting this goal. However, the Indian health care and medical education is facing systems and standards challenges.

The burden of diseases in India is still large. Even though there has been some improvement, national statistics reveal wide disparities between different states as also rural/urban areas with regard to access to basic medical services and quality health care. These are attributed to physician shortage, both generalist and specialist, inequitable distribution of manpower and resources, and deficiencies in the quality of medical education.

India has the highest number of medical colleges in the world. This unprecedented growth has occurred in the past two decades in response to increasing health needs of the country. The most significant challenge for regulatory bodies has been to balance the need for more medical colleges with the maintenance of quality standards. The globalization of education and health care and India’s potential as destination for education and quality health care has brought the issue into sharper focus.

Curricular reform to systematically address the issues and develop strategies to strengthen the medical education and health care system is a logical next step. There is a need to create systems and standards that establish and promote state-of-the-art medical education, so that Indian medical graduates from all institutions are comparable to the best from anywhere in the world.

Additionally, though recent advances in medicine have been understood and adopted by medical and other health science institutions, the same is not true for new methods and strategies in medical education. There is an urgent need to build capacity in this area.

To address the above challenges, the Board of Governors, Medical Council of India constituted the undergraduate and postgraduate working groups in July 2010 to develop a Vision 2015 in alignment with the following mandate.

1. To evolve a roadmap for the direction of medical education in India in alignment with national needs.

2. To evolve a broad policy regarding the emphasis, duration and curricular changes that could be adopted as future strategies to make medical education in India comparable to global standards.
3. To evolve strategies and futuristic plans so that medical education in India is innovative and is able to prepare undergraduates to be able to perform in the changing scenario of medical science.

4. In the light of deteriorating medical education standards in the country, to work on parallel tracks for immediate solutions and long term improvement in a steady, phased manner.

**Members of the Undergraduate Working Group Nominated by BOGs, MCI**

1. **Prof. George Mathew**, Principal & Professor in GI Surgery, Christian Medical College, Vellore. **Convenor**

2. **Prof. Nilima Kshirsagar**, Ex-Vice Chancellor, Maharashtra University of Health Sciences, Mhasrul, Dindori Road, Nashik.

3. **Prof. J.M. Kaul**, Director, Professor & Head, Department of Anatomy, Maulana Azad Medical College

4. **Prof. Sandeep Guleria**, Professor, Department of Surgery, All India Institute of Medical Sciences

5. **Prof. Sudha Salhan**, Professor & Head, Department of Obstetrics & Gynaecology, Vardhman Mahavir Medical College & Safdarjung Hospital.

6. **Brig. Chander Mohan, SM** Former Professor and Head, Dept. of Radiodiagnosis, Army Hospital (Research and Referral) New Delhi. Senior Consultant and Head, Department of Interventional Radiology, BLK Memorial Hospital.

7. **Prof. Payal Bansal**, Associate Professor and Incharge, Department of Medical Education & Technology, MUHS Regional Centre, 3rd Floor, Aundh.

8. **Dr. S.Vasantha Kumar**, Vice Principal and Professor and Head, Department of ObGyn, Kempegowda Institute of Medical Sciences.

**The undergraduate working** met several times from July to December, 2010 to deliberate and discuss the various issues regarding undergraduate medical education.
MCI BOARD OF GOVERNERS’S DIRECTIVE TO THE UG WORKING GROUP

The Board of Governors of the Medical Council of India constituted the Undergraduate Education working group to develop a vision 2015 statement. The mandate for the group is to assess the

a) Present status
b) Compare with global needs
c) Rationalize and proposed reforms in medical education

UG WORKING GROUP’S MANDATE

1. To evolve a roadmap for the direction of medical education and undergraduate curriculum in India.

2. To evolve a broad policy regarding the emphasis, duration and curricular changes that could be adopted as future strategies to make medical education in India comparable to global standards.

3. To evolves strategies and futuristic plans so that medical education in India is innovative and is able to meet the demands of national needs while preparing undergraduates to be able to perform in the changing scenario of medical science.

DISCUSSION AND RECOMMENDATIONS

The working committee initially did an indepth analysis of the current situation of doctor manpower in the country. For this exercise, the committee reviewed existing data from the MCI and the public domain to arrive at its conclusions. The current situation is that the doctor population ratio in India is 1:1700 when compared to a world average of 1.5: 1000. The committee came to a consensus that the targeted doctor population ratio should be 1: 1000 by 2031.

The next exercise that the working group undertook was to estimate the need for medical doctors to achieve this target. The working group looked at the existing number of medical colleges, the current intake of medical colleges and the critical mass of doctors that will be needed to achieve this target. Currently there are 330 medical colleges with an intake of approximately 35,000 and with the current intake of doctors, the shortfall of doctors by 2031 is estimated at 9.54 lakhs.

The working group also deliberated on the manpower shortage in medical teachers in our colleges which will compound if an increased number of students have to be taken in to medical colleges to produce the increased demand. The committee has arrived at the teacher shortfall by the current available figures from published literature and data from the MCI. The details of this is given in the table attached.

The committee deliberated on the solutions of improving manpower of trained doctors in the country and various strategies have been enumerated in the attached document. The following are the main strategies:
1. **SHORT TERM SOLUTIONS (immediate)** – Increasing the intake in existing medical colleges wherever there is adequate infrastructure of teachers, equipment and clinical load and to augment infrastructure in relation to clinical load by attaching established medical colleges to district level hospitals or secondary hospitals run by government agencies.

2. **MEDIUM TERM SOLUTIONS (lag period of 2-3 years):** Upgrading existing larger district hospitals and augmenting their infrastructure to become community medical colleges through private public partnership or public private partnership.

3. **LONG TERM SOLUTIONS (lag period up to 5 years):** Starting new medical colleges and hospitals preferably in states and areas which are underserved with doctors and medical colleges.

The next issue that the working group deliberated on was to address the problem of teacher shortage in medical colleges. The strategies that were identified and suggested are:

1. Tapping the consultant pool in government service departments
2. Dual / adjunct appointments
3. Interdisciplinary appointments
4. Faculty development programme
5. Defining career paths
6. Employment of retired teachers
7. Increasing the age of superannuation in specific areas
8. Increasing the pool of young teachers by increasing postgraduate output.

The next major issue that the working group deliberated on was to improve the quality of training from what is the current existing model so that the graduates are efficient, competent and responsive to national and international needs.

**NEED AND STRATEGIES FOR CURRICULAR REFORMS**

Medical education in India has grown three times more rapidly than the population. This expansion has been accompanied by worsening inequalities in health and access to health care. There is paucity of doctors in rural and underserved areas and the MBBS graduates are not competent to provide health care in such situations. All these are indicative of the crisis that besets medical education today. None of the policy changes in medical education over the last 60 years have sufficed to adequately address these issues. Obviously, if the end product of the undergraduate medical education in India is to be doctors who are competent to address health needs of the community, more radical reforms are called for. Such reforms have to be based on successful experiments within India, but also drawing on models of medical education that have addressed similar issues in other countries. India needs medical institutions that have the benefit of experience and expertise in exploring these issues, and will boldly experiment to develop training approaches appropriate to the health needs of the country.
The reasons for reforms in the current MBBS course in India:

- The MBBS graduate does not have adequate skills and competence to take care of the common problems at the secondary and primary level. Neither do the majority of them have the motivation to work in areas of need.

- This is reflected in the low number of graduates who go into practice at the end of their MBBS training and the lack of manpower in rural areas and in primary health centres and taluk hospitals.

The *lacunae* of the CURRENT MBBS training are:

- a. Goal of training is not focused on providing health care to needy and disadvantaged
- b. Discipline based curriculum and lack of integration between basic and laboratory science and clinical medicine
- c. Assessment system’s focus on summative assessments at the end of each stage, rote learning and recall rather than competency
- d. Lack of development of clinical competency
- e. Majority of clinical training occurs in large teaching hospitals with insufficient practical training at secondary and primary care level
- f. Lack of training in family medicine
- g. No mandatory service period at the end of undergraduate training and lack of linkage of undergraduate to postgraduate training.

A study of models of medical education in other countries that have been successful in training appropriate doctors and retaining these doctors in areas of need has demonstrated the following critical factors in their curricular models:

- a. Selection bias of students from rural and underserved backgrounds; who are motivated to work in areas of need
- b. Early clinical training from I MBBS with continuity to secondary and primary care
- c. Decentralisation of clinical training through clerkship model to the secondary and primary level;
- d. Family medicine or Generalist medical Practice as a core component of the curriculum;
- e. Integrated curriculum in starting from the first year with vertical and horizontal integration between basic, laboratory sciences and clinical medicine;
- f. Focus on formative and continuous assessments with specific assessment to evaluate skills and competence
g. Partnerships between medical college and other health care facilities in the community

The first recommendation is **restructuring and optimizing the current MBBS course**. The committee recommends the following for consideration of implementation:

1. A 4+1 model of training (4 years course + 1 year internship); 1+1+2+1

This strategy is advocated along with other curricular restructuring and they are:

1. Clinical teaching from 1st year onwards
2. Integrated modular teaching both horizontal and vertical
3. Clerkship / student doctor model of clinical postings
4. Secondary hospital exposure
5. Using contemporary approaches to education such as
   a. Skills lab
   b. e-learning
   c. m-learning
   d. Simulation
6. Flexible curricular path
7. Redefine assessment and acquisition of skills

**INTEGRATION SCHEME**

The committee also recommends that at the end of internship, certified logbooks need to be submitted and each intern will mandatorily undergo structured skills training and this **certification of skills is necessary before licensure**.

This above strategy will not be efficiently implemented without faculty development to familiarize teachers with this methodology of teaching. Hence, the committee strongly recommends that Learning Facilitation Centres are set up in many parts of the country for faculty development and training. Each institution should be encouraged to conduct its own faculty training programme and the completion of this training must be made mandatory. A national strategy for large scale faculty development is necessary to be instituted immediately.
Example - HORIZONTAL INTEGRATION SCHEME IN PRE-CLINICAL SCIENCES

<table>
<thead>
<tr>
<th>Anatomy</th>
<th>Physiology</th>
<th>Biochemistry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdomen Surgery/Radiology/O&amp;G</td>
<td>GI liver</td>
<td>GI+liver+kidney</td>
</tr>
<tr>
<td></td>
<td>Gastroenterology/Hepatology/Nephrology</td>
<td>Gastroenterology/hepatology/nephrology</td>
</tr>
<tr>
<td>Neuro anatomy</td>
<td>Neuro physiology</td>
<td>Biochemical changes affecting brain</td>
</tr>
<tr>
<td></td>
<td>Medicine/neurology/ Ophthalmology</td>
<td>Neurology/endocrinology</td>
</tr>
</tbody>
</table>

a. **Clerkship / Student Doctor Method Of Clinical Training**

b. **Introduction of Electives** - Examples - Bio Informatics, Tissue Processing Computer and Computer Applications, Ethics & Legal Medicine, Immunology, Genetics, Human Nutrition etc. Sports Medicine, Lab Sciences, Research Methodology, Ethics, Accident and Emergencies (A&E), Community Projects, HIV Medicine, Tissue Culture, PharmacoKinetics/Pharmacodynamics/Pharmacoeconomics, Assisted Reproductive Technology, Ethics and Medical Education etc

c. **Introduction of skills development and training** - A mandatory & desirable comprehensive list of skills would be planned and recommended for Bachelor of Medicine and Bachelor of Surgery (MBBS) Graduate. **Certification of skills is necessary before licensure.**
d. **Secondary hospital exposure**: Each medical college would be linked to the local health system including CHCs, taluk hospitals and primary health care centres that can be used as training base for medical students.

e. **Contemporary approaches** to education such as Skills lab; e-learning; m-learning & Simulation.

f. **Flexibility in Curriculum**

g. **Setting up of learning facilitation centres**: MCI strongly recommends that Learning Facilitation Centres should be set up in many parts of the country for faculty development and training. A national strategy for large-scale faculty development is necessary to be instituted immediately.

Impact:-

An improved and revised curriculum, capacity building of faculty and increased manpower can be produced with world standards with the help of necessary infrastructure and faculty development programmes.

The committee also feels that this will result in the improved quality of the existing colleges, sufficient number of teachers and will create motivating career pathways for both students and teachers. This should result in an overall improvement in the healthcare of our country with improved health parameters.

**Development Of Teachers Training Programmes**

*Capacity building in medical education through extensive, as well as in-depth faculty training in teaching methods and a variety of other education tools is critical to implementation of the new curriculum and the reforms envisaged.*

- To establish and conduct training programmes for medical and allied health sciences faculty in education including curriculum development, education methods, assessment and quality assurance.
- To develop and conduct CME Programmes and continuing professional development courses in medical specialities and other health sciences faculties
- To develop Quality Assurance Systems for Medical and Allied Health Sciences Institutions.
4 – TIERED MODEL OF CAPACITY BUILDING IN MEDICAL EDUCATION:

Four Levels of Centres, with four levels of functions (goals and activities), infrastructure, equipment and staff structure (academic and administrative) are proposed.

**FIGURE 1**

Training Need at Each Level (*Minimum Number Required to be trained*)

**FIGURE 2**
Table 1 - Estimate Of Training Capacity – Current And Needed

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>Courses</th>
<th>Duration</th>
<th>Current Frequency</th>
<th>Needed status(Nos.)</th>
<th>Current Deficit</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEVEL 1</td>
<td>Basic Course in Education Technology</td>
<td>3-day</td>
<td>4 /yr</td>
<td>100 X 400=40000</td>
<td>30X 100=3000</td>
</tr>
<tr>
<td>LEVEL 2</td>
<td>Advanced Education Course – FAIMER/JIPMER/MUHS</td>
<td>10 days + project</td>
<td>2/yr</td>
<td>400 X 10=4000</td>
<td>60 X 10 600*</td>
</tr>
<tr>
<td>LEVEL 3</td>
<td>Diploma in Training/Educational Research/Leadership and Skills Centre</td>
<td>1 Year + Thesis</td>
<td>1/year</td>
<td>40 X 10=400</td>
<td>20 X1 20/year**</td>
</tr>
<tr>
<td>LEVEL 4</td>
<td>Masters in Medical Education</td>
<td>2 years</td>
<td>-</td>
<td>Atleast 100</td>
<td>&lt; 10 (Overseas Degree)</td>
</tr>
</tbody>
</table>

*Not yet started at MCI Regional Centres, but being conducted at MUHS  
**Course is ready to be started at MUHS

The above training will include, as appropriate to the level, training in development of the centre to include skills, e-learning, assessment centres, question bank and OSCE bank development.

LEVEL-WISE DESCRIPTION OF CENTRES ANR THEIR FUNCTIONING

- **Level 1** Centres will be situated all in Medical Colleges.
- **Level 2** Centres can be at the Medical College Level active functional ME units or Health Science University level.
- **Level 3** are larger centres and will serve a much wider segment of teachers – they should preferably be autonomous, with state govt. providing the land and the central agency providing the development funding and support, preferrably be at Health Science University Level (MUHS Model)
- **Level 4** Centre should be centrally located at apex regulatory body centre

New programmes will be developed through multi-level system of courses and workshops, basic to advanced, specific train-the-trainer programmes and workshops on specific topics and for specific faculty groups.
EXPECTED OUTCOMES:

1. Faculty will apply and use educational principles in their day-to-day teaching and planning of teaching to make it more student-centered.

2. Faculty will incorporate new teaching-learning methods and improve educational systems in their own institutions.

3. Faculty will be able to conduct basic workshops in their own institutions.

4. Faculty with specialized skills will participate in activities of their affiliated Centre/Unit

TABLE 2

<table>
<thead>
<tr>
<th>S.No</th>
<th>ACTIVITIES</th>
<th>LEVEL 1</th>
<th>LEVEL 2</th>
<th>LEVEL 3</th>
<th>LEVEL 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Teachers Training</td>
<td>Basic Level 1</td>
<td>Advanced Diploma/Masters Programme</td>
<td>Orientation Workshops</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Skills Training</td>
<td>Level 1</td>
<td>Level 2</td>
<td>Level 3</td>
<td>Exam Centre</td>
</tr>
<tr>
<td>3</td>
<td>Patient Simulation Centre</td>
<td>Level 1</td>
<td>Level 2</td>
<td>Level 3</td>
<td>Exam Centre</td>
</tr>
<tr>
<td>4</td>
<td>E- Learning &amp; Resource Centre</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Central Consortium of Books/Journals/E-Resources</td>
</tr>
<tr>
<td>5</td>
<td>Distance Education Programmes</td>
<td>Co-ordinating Centre</td>
<td>Course and Material Development</td>
<td>Accreditation</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>CPD/CME Programmes</td>
<td>Can do</td>
<td>MUST</td>
<td>MUST</td>
<td>Accreditation</td>
</tr>
<tr>
<td>BUDGET</td>
<td>Establishment</td>
<td>1.5 crore X400</td>
<td>5 crore X40</td>
<td>20 crore X5</td>
<td>100 Crore X1</td>
</tr>
</tbody>
</table>

TOTAL 1000 Crores

ESTABLISHMENT OF SKILLS TRAINING CENTRES:

SKILLS CENTRE:

The skills development centres will consist of:

- A simulation laboratory for developing basic clinical, procedural and surgical skills.
- A laparoscopic training facility for acquiring basic skills in laparoscopy
- The facility will be also to open to undergraduate and postgraduate students, interns and residents, who can come for skills training accompanied by their teachers.
The courses should be tailored to meet the requirement for various levels of competence and variety of skills.

LEVEL 1 – Basic Surgical Skills, Basic Life Support Skills, Procedural Skills, Normal Labour Management and Conduct of Delivery.

These should be a mandatory part of clinical training of all undergraduates. Level 1 training facility is mandatory for all medical colleges.

LEVEL 2 – Advanced Life Support and Refresher Level 1 Courses, Basic Laparoscopic Skills Course, Neonatal and Paediatric Resuscitation Skills. Level 2 skills training centres are desired in each medical college; however if there are financial constraints, these could be conducted in collaboration with regional centres.

LEVEL 3 – These will be available for multi-institutional use. Course will include

Microsurgical Skills Courses, Advanced Laparoscopic Skills Courses and Human Patient Simulators for Anaesthesia, Pharmacology, Physiology and other physiology competencies.

Level 3 is to be offered only in regional skill training centres and above, mainly because of its cost-effectiveness.

*Interns should have a mandatory Level I Certification before they get their Licensure degree*

**POST MBBS EDUCATION AND SUPPORT**

One of the factors in the reluctance of fresh graduates to serve in secondary or primary hospitals is professional isolation and lack of educational support. There should be options for distance education towards a Fellowship or Diploma in areas like Diabetic care, HIV medicine, Geriatric Medicine, Hospital infection control, Hospital management etc. so that the graduates will continue their learning and enhances their skills in areas beyond what is available in their regular curriculum.

Thus the working group is of the opinion with an improved and revised curriculum, detailed capacity building of faculty, increased manpower can be produced with which is equal to world standards provided the necessary infrastructure and faculty development programmes are put in place. The committee also feels that this will result in the improved quality of the existing colleges, sufficient number of teachers and will create motivating career pathways for both students and teachers. This should result in an overall improvement in the healthcare of our country with improved health parameters.