

Vision 2015



Medical Council of India

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Preface

It is almost a year since the Board of Governors (BOGs) were asked by the Government of India to look after the work of the Medical Council of India. At the very outset, it was realized that while, it was important that the activities of the Council should continue to be carried out with transparency and efficiency, this was a unique opportunity given to us, to re-look at the various aspects of medical education, training and practice for the country. With this background, it was decided to develop a **“Vision 2015”** document, addressing the areas of graduate and postgraduate medical education including examination patterns, ethics of medical practice, equivalence of various degrees and courses, enhancement of remunerations for medical teachers and setting up standards for accreditation of medical colleges. Separate working groups were constituted consisting of eminent members of the profession as well as leading members of the civil society to work with the BOGs.

It was our mission to develop systems which could continuously assess the needs, aspirations, enhance the quality & standards of medical education and training in India. Our aim was to standardize the output of graduate medical education in the form of an ‘Indian Medical Graduate’; a skilled and motivated basic doctor.

The large gaps in health care accessibility in many parts of the country, the need for enhanced clinical competency and, limited opportunities for post-graduate training were our major concerns.

The tireless efforts of months of deliberations and interactions of various working groups, finally led to the development of invaluable draft documents, which were placed on the MCI web-site for six weeks. Thankfully, suggestions, criticisms and guidance poured in from all over the country and enabled us to revise the proposals.

Today, the National Meet on the “Implementation of reforms in undergraduate and postgraduate medical education” is mandated to present only part of the Vision 2015 document. Today our endeavor is to place the proposed reforms in the graduate and postgraduate medical education including examination patterns and the Roll Out plans before all the stakeholders.

With the inputs and support of all the stakeholders, the BOGs have no doubt that these changes can be implemented through out the country. The successful roll out will place India as a global leader in health education.

The proposed changes are being recommended to bring about both equitable access to medical education and uniform standards in our doctors and specialists. It is also envisaged that curricular changes will make the training more exciting and challenging to the young students and will make medicine as the profession of choice for them.

Prof. S. K. Sarin
Chairman BOGs,
MCI

Under Graduate Medical Education

Under Graduate Medical Education

Introduction

The Government of India recognizes Health for All as a national goal and expects medical training to produce competent “Physicians of First Contact” towards meeting this goal. However, the medical education and health care in India are facing serious challenges in content and competencies.

The burden of diseases in India is still large. 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 generally attributed to inadequate infrastructure and lack of resources. However, physician shortage, both generalist and specialist, inequitable distribution of manpower and resources, and deficiencies in the quality of medical education also need careful and critical analysis and improvement.

Today, 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 like the Medical Council of India has been to balance the need for more medical colleges with the maintenance and improvement of quality standards. The globalization of education and health care and India’s potential as a destination of choice for quality education and health care has brought the issue into sharper focus.

Curricular reforms to systematically address these issues and develop strategies to strengthen the medical education and health care system are needed- so that Indian Medical Graduates match or better the international standards.

- i. To assess and evolve a roadmap for medical education relevant for India in the changing contexts.
- ii. To evolve a broad policy regarding the emphasis, duration and curricular changes that would be adopted as implementable strategies to make medical education in India comparable to global standards.
- iii. To evolve strategies and futuristic plans so that medical education in India is innovative and is able to prepare undergraduates to perform in the changing scenario of medical science.
- iv. To institute immediate solutions and propose medium and long term strategies to the existing medical education in a steady phased manner.

Need for more doctors

The current estimated doctor population ratio in India is 1:1700 as compared to a world average of 1.5: 1000. The Board of Governors (BOGs) after detailed inputs from various working groups came to a consensus that the targeted doctor population ratio would be 1: 1000 and achievable by the year 2031. For achieving this target & considering the number of existing medical colleges in the country, it was felt that the current intake by medical colleges and the critical mass of doctors would be rationally enhanced. However, the medium and long-term goals, the need for more medical colleges need to be met, primarily through the Govt. support.

Improving quality of training

Restructuring the Undergraduate medical course

The total duration of undergraduate MBBS course will remain 5 ½ years. The course will be restructured as below to enable the student to be more participatory and competent.



* Wait period of 2months should be allowed for preparation of NEET-PG

Introduction of New Teaching Elements

1. Foundation Course

Foundation course will be of 2 months duration after admission to prepare a student to study Medicine effectively. This period aims to orient student to national health scenarios, medical ethics, health economics, learning skills & communication, life support, computer learning, sociology & demographics, biohazard safety, environmental issues and community orientation. In addition, this would include overview in the three core subjects of Anatomy, Physiology and Biochemistry to be taught in first MBBS.

2. Integration: Horizontal and Vertical

The innovative new curriculum has been structured to facilitate horizontal and vertical integration between disciplines, bridge the gaps between theory & practice, between hospital based medicine and community medicine. Basic and laboratory sciences (integrated with their clinical relevance) would be maximum in the first year and will progressively decrease in the second and third year of the training when the clinical exposure and learning would be dominant.

3. Early Clinical Exposure

The clinical training would start in the first year, with a foundation course, focusing on communication, basic clinical skills and professionalism. There would be sufficient clinical exposure at the primary care level and this would be integrated with the learning of basic and laboratory sciences. Introduction of case scenarios for classroom discussion/ case-based learning would be emphasized. It will be done as a coordinated effort by the pre, para-clinical and clinical faculty.

4. Student Doctor Method of Clinical Training

In order for the MBBS course to provide sufficient skills development for competent practice, a frame shift is required in clinical training in the following ways:

- a. Focus on common problems seen in outpatient and emergency setting
- b. Learning through clerkship/ student doctor method by involvement in patient care as a team member - involvement in investigations, management and performance of basic procedures.
- c. Emphasis on a significant part of training taking place at the primary and secondary level with compulsory family medicine training.
- d. Restructuring clinical training so that parts of it would be 'core' requirements and others would be 'elective' postings.

5. Electives:

The aim of adding electives is to allow flexible learning options in the curriculum and may offer a variety of options including clinical electives, laboratory postings or community exposure in areas that students are not normally exposed as a part of regular curriculum. This will also provide opportunity for students to do project, enhance self directed learning, critical thinking and research abilities.

Examples - Bio Informatics, Tissue Engineering/ Processing, Computer and Computer Applications, Immunology,

Genetics, Human Nutrition, Sports Medicine, Laboratory Sciences, Research Methodology, Ethics, Accident and Emergencies (A&E), Community Projects, HIV Medicine, Tissue Culture, Pharmacokinetics/Pharmacodynamics / Pharmacoeconomics, Assisted Reproductive Technology, Ethics & Medical Education.

6. Skill Development & Training

A mandatory & desirable comprehensive list of skills has been planned and would be recommended for Bachelor of Medicine and Bachelor of Surgery (MBBS) Graduate. Certification of skills would be necessary before licensure.

7. Secondary Hospital Exposure

Each medical college would be linked to the local health system including CHCs, taluk hospitals and primary health care centers that can be used as training base for medical students.

8. Adoption of Contemporary Education Technologies

Skills lab, E-learning, Simulation.

Strategy For large Scale Faculty Development for India:

Regional Learning Facilitation Centers would be established for continuous faculty development programs. Training of the trainers is the essence of successful implementation of our reforms.

Impact

The introduction of a restructured curriculum and training program with emphasis on early clinical exposure, integration of basic and clinical sciences, clinical competence and skills and new teaching-learning methodologies will lead to a new generation of medical graduates of global standards. Improvements in the infrastructure and increased emphasis on faculty development will result in increase in the quality of the existing medical colleges. These in turn will lead to motivating young doctors into the academic career and will further enhance the quality of medical education and clinical research in the country.

The proposed undergraduate medical education program is designed to create an **“Indian Medical Graduate”**. The Indian medical graduate will have the necessary competencies (knowledge, skills, and attitudes) to assume his or her role as a health care provider to the people of India and the world.

The goals of the M.B.B.S. training program are to create doctors - with requisite knowledge, skills, attitudes, values and responsiveness, so that they may function appropriately and effectively as a **Basic Doctor**, physicians of first contact for the community in the primary care setting both in urban as well as rural areas of our country.

Roles

In order to fulfill these goals the doctor must be able to function in the following roles appropriately and effectively:

1. Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.
2. Leader and member of the health care team and system with capabilities to collect, analyze and synthesize health data.
3. Communicator with patients, families, colleagues and community.
4. Lifelong learner committed to continuous improvement of skills and knowledge.
5. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community, and profession.

Competencies

Competency based learning would include designing & implementing medical education curriculum that focuses on the desired and observable ability in the real life situations.

In order to effectively fulfill the above roles the medical student would have obtained a set of competencies at the time of graduation from the M.B.B.S. program:

1. **Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion :**
 - a. Demonstrate knowledge of normal human structure, function and development from a molecular, cellular, biologic, clinical, behavioral and social perspective.
 - b. Demonstrate knowledge of abnormal human structure, function and development from a molecular, cellular, biological, clinical, behavioral and social perspective.
 - c. Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.
 - d. Demonstrate knowledge of national and regional health care policies including the national rural health mission, frameworks, economics and systems that influence health. Promotion, health care delivery, disease prevention, effectiveness, responsiveness, quality and patient safety.
 - e. Be able to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is complete and relevant to disease identification, disease prevention and health promotion.
 - f. Be able to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is contextual to gender, age, vulnerability, social and economic status, patient preferences, beliefs and values.
 - g. Be able to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.
 - h. Be able to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.
 - i. Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate

available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.

- j. Maintain accurate clear and appropriate record of patient in conformation with appropriate legal and administrative frame works.
- k. Be able to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.
- l. Be able to prescribe and safely administer appropriate therapies including nutritional interventions based on the principles of rational drug therapy, scientific validity, evidence and cost effectiveness that conform to established national and regional health programs and policies for the following:
 - disease prevention,
 - health promotion and cure,
 - pain and distress alleviation and
 - rehabilitation & palliation
- m. Be able to provide a continuum of care at the primary and/or secondary and tertiary level that addresses chronicity, mental and physical disability.
- n. Be able to appropriately identify and refer patients who may require specialized or advanced tertiary care.

2. Leader and member of the health care team and system

- a. Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.
- b. Recognize and function effectively, responsibly and appropriately as a health care team leader in a primary and secondary health care setting.

- c. Educate and motivate other members of the team and work in a collaborative and collegial fashion that will help maximize the health care delivery potential of the team.
- d. Access and utilize components of the health care system and health delivery in a manner that is appropriate, cost effective, fair and in compliance with the national health care priorities and policies, as well as be able to collect, analyze and utilize health data
- e. Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.
- f. Recognize and advocate health promotion, disease prevention and health care quality improvement through early recognition and intervention in life style diseases and cancer in collaboration with other members of the health care team and within the health care system.

3. Communicator with patients, families, colleagues and community

- a. Be able to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.
- b. Be able to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.
- c. Be able to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy.
- d. Be able to communicate with patients, colleagues and families in a manner that encourages participation and shared decision-making.

4. Lifelong learner committed to continuous improvement of skills and knowledge

- a. Be able to perform an objective self-assessment of knowledge and skills and continue learning and refine existing skills and acquire new skills.
- b. Be able to apply newly gained knowledge or skills to the care of the patient.
- c. Be able to introspect and utilize experiences, to enhance personal and professional growth and learning.
- d. Be able to search (including through electronic means), and critically evaluate the medical literature and apply the information in the care of the patient.
- e. Be able to develop a research question and be familiar with basic, clinical and translational research as it applies the care of the patient.
- f. Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.

5. Professional who is committed to excellence, is ethical, responsive and accountable to patients, community, and profession

- a. Be able to demonstrate and practice selflessness, integrity, responsibility, accountability and respect.
- b. Be able to respect and maintain professional boundaries between patients, colleagues and society.
- c. Be able to recognize and manage ethical and professional conflicts.
- d. Be able to abide by prescribed ethical and legal codes of conduct and practice.
- e. Be able to demonstrate a commitment to the growth of the medical profession as a whole.

Outline of changes to existing curriculum

The following modifications have been made in the existing curricula to accommodate the aspirations of the defined goals and competencies:

1. Newer learning experiences through introduction of foundation courses placed at crucial junctures, clerkships/ student doctor clinical mode of teaching and electives.
2. Early clinical exposure starting from the first year of the MBBS course.
3. Alignment and integration (horizontal and vertical) of instruction.
4. Integration of principles of Family Medicine
5. Emphasis on clinical exposure at secondary care level.
6. Competency based learning.
7. Greater emphasis on self-directed learning.
8. Integration of ethics, attitudes and professionalism into all phases of learning.
9. Encouragement of learner centric approaches.
10. Ensure confidence in core competencies so as to practice independently.
11. Assessment of newer learning experiences, competencies, integrated learning and subject specific content.
12. Acquisition and certification of essential skills.

There will be a Curriculum Implementation Support Programme, which will assist the teaching faculty of the medical colleges to implement these changes at their own medical colleges.

It is also envisaged that the tools of information and communication technology will be harnessed to enhance teaching and learning.

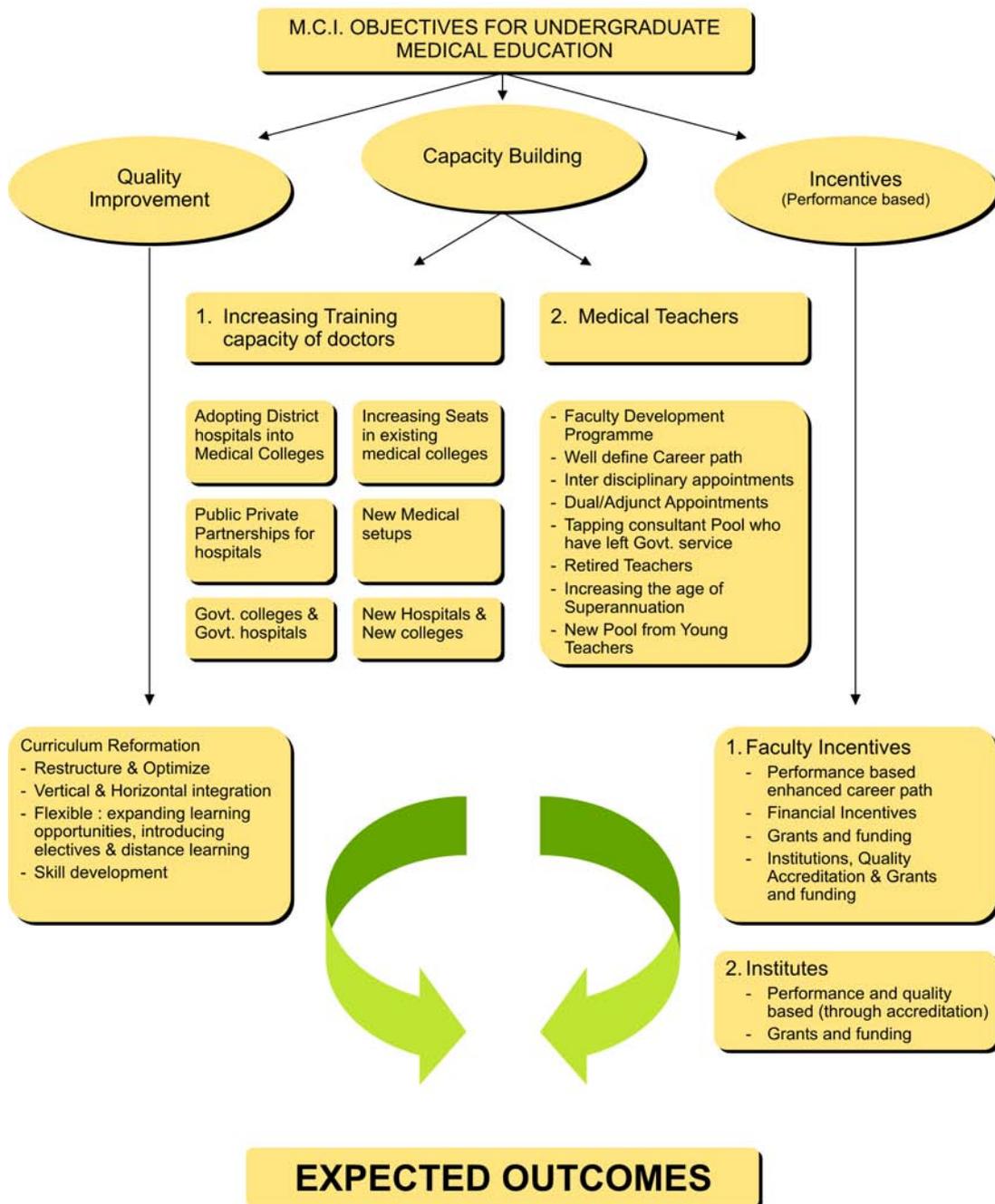
Rationale for various New Approaches for Proposed Curriculum

Change should be for betterment and hence the BOGs carefully looked into the rationale and benefits of every proposed reform in the graduate medical curriculum. These have been

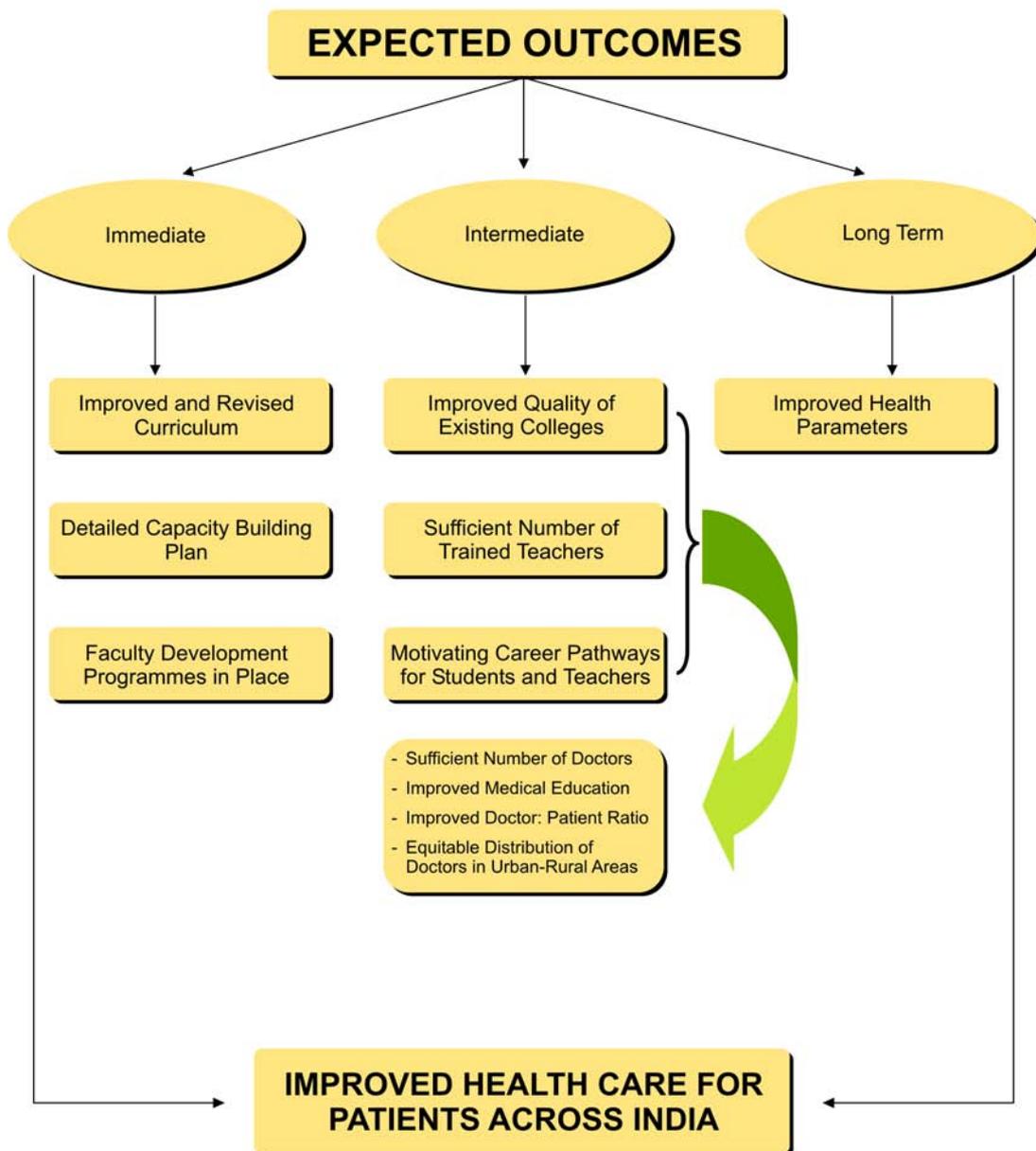
Rationale for various Approaches for Proposed Curriculum

S. No.	Curricular Strategy	Rationale
1.	Foundation course	Prepare the student for medical studies
2.	Elective Training	Provide flexible and self-directed learning; development of research skills and implementation of a project
3.	Early clinical exposure	To understand the relevance of basic and laboratory science in the clinical context, exposure to integrated learning.
4.	Horizontal and vertical integration	Develop a student knowledge base that is relevant to practice, rational and promotes stepwise acquisition and application of knowledge and skills.
5.	Student doctor mode of clinical training	Development of competence in clinical care of patients, longitudinal learning experience, functioning within a team and acquiring procedural skills by a student-doctor approach.
6.	Integration of principles of Family Medicine	Exposure to issues related to managing patients in multi-competency clinical care.
7.	Emphasis on clinical exposure at secondary care level.	Development of clinical skills in secondary context with focus on common diseases.
8.	Competency based learning	To acquire the core competencies to effectively function as a basic doctor.
9.	Greater emphasis on self-directed learning.	To encourage life-long learning skills.
10.	Integration of ethics, attitudes and professionalism into all phases of learning	To enable the Indian Medical Graduate to function professionally and ethically.
11.	Acquisition and certification of essential skills.	To ensure uniformity of basic level of competencies across the country and uniform standards for the Indian Medical Graduate.

GRADUATE MEDICAL EDUCATION



GRADUATE MEDICAL EDUCATION



Post Graduate Medical Education

Post Graduate Medical Education

Vision

To increase the pool of competent and skilled specialists and super-specialists so as to cater to the healthcare and educational needs of the rural and urban India and to facilitate every Indian Medical Graduate to be able to pursue post-graduate medical education in India.

Mission

To fulfill this mission, the BOGs constituted a Working Group on Post-graduate Medical Education with a mandate to develop a system that will:

- Generate large number of socially committed competent specialists for community health care,
- Increase availability of medical teachers
- Increase the availability of qualified family physicians
- Increase the option of a research path and promote research in medical colleges.
- Provide for multiple career options to the outgoing postgraduate student avoiding frustration in the career pathway
- Increase the availability of subspecialists to provide high quality care

Preamble

An exhaustive review of the existing PG medical education system and the deficiency in the availability of specialists in the country has been done. The available data, within their limitations, suggest that there is a need to rapidly produce a number of specialists in the country not only to fulfill the needs of delivering quality care across the country but also to overcome shortage of faculty in existing and proposed medical colleges in order that the quality of medical education would improve. The aim was also to give adequate opportunities to every graduate student to be able to pursue a postgraduate course, if he so desires and some bold and innovative approaches were required to fulfill these national aspirations.

The proposed framework suggests introduction of a 2 year **Master of Medicine** (M. Med) program as the first level of specialists with focus on skill development and providing care to community. This may be considered equivalent to Masters/ M Phil programs or existing Diplomas in various clinical specialties. These post-graduate students will be trained mainly to enhance clinical skills rather than get engaged in basic research. The curriculum would be competency based and skill based. The proposed reforms in undergraduate medical education with early clinical exposure and an internship program freed of the stress of simultaneously preparing for PG entrance examinations would ensure that at the entry level the Indian Medical Graduate would be adequately prepared to enjoy and go-through this two year PG training. The quality of the output would therefore be far better than the current outgoing diploma graduates. These PGs would also be able to function as undergraduate teachers at the entry level. Further, progress in the academic stream would require additional training in research and analytical methods. Since the number of options for further training is limited to compared to the number of M Meds, it follows that a large proportion of them would be directed towards providing specialists care to the community.

Further, post-graduate specialization will essentially involve a research component and prepare this group of **specialists** to pursue the academic stream and provide high quality medical education for the next generation of students. After M Med, the students will have an option to pursue one of the **five doctorate streams** depending on the aptitude and professional aspirations.

Proposed program also institutionalizes the structured fellowship programs for the first time, which are largely unregulated currently. This will ensure that community requirements and advancing medical technology are main streamed on an ongoing basis across disciplines.

After M Med, the graduates will be able to compete for **Doctor of Medicine (MD) or Master of Surgery (MS)** other dual degree programs (MD- PhD; MD- MHA; MD- DM and MD-fellowships) through another competitive examination. Based on their respective merit and counseling, the students will be able to take up the doctorate programs. The overall philosophy is to have the potential of diversity and to be able to develop a large number of hybrids to generate new breed of accomplished clinicians. The system would also ensure a transparent and open system of career advancement with multiple career opportunities.

Quality of training in post-graduation will be maintained through a competency based curriculum, which is implemented and maintained through an elaborate subject specific log book and using clinical training opportunity in accredited regional / offsite non-conventional facilities like district hospitals, industry, private hospitals, private sector laboratories and clinics of family physicians.

The proposed strategy will increase the availability of specialists to provide community care by 33% (Since the course is shortened from three to two years) while sustaining the core requirements of research based post graduates for academic streams and for providing highly specialized sub-specialty care using cutting edge technology.

While country gears itself to finalize the proposed strategy, further steps to improve the existing PG program would be simultaneously undertaken. These would address the service needs of the community, the academic needs of medical colleges, foster research and address the development of a large number of subspecialists to take care of the country's requirement in the 21st century.

Specific Objectives

The specific objectives for the Working Group on PG medical education were defined by the BOG after a series of meetings.

The main focus was to make Post graduate medical education more relevant to the country's needs including enhancement of acquisition of skills and competence ensuring adequate opportunities for graduate students to become specialists and to have new stream of career options. The main objectives were :

- A. Assessing needs of existing and new specialty courses
- B. Restoring importance of internship
- C. Restructuring the duration and content of the PG courses to increase career options after qualification
- D. Suggesting uniformity of nomenclature and duration
- E. Increasing number of PG seats for increasing number of teachers and specialists with augmentation of standards and quality
- F. Providing specialists services to smaller centers
- G. Restructuring the PG examination pattern to emphasize assessment of decision making and clinical skills.
- H. Emphasizing role of research and innovations in the Academic stream

Working Principles

To give a rapid boost to the PG education, two sets of recommendations were prepared:

1. Short-term solutions, implementable immediately across the country. This track would not require a great deal of resources.
2. Medium and Long-term Solutions; While these solutions could be implemented in next 2-5 years, their impact would be visible only after 5-10 years.

Recommendations

1. **Increasing seats of PG diplomas and degrees:** Diploma courses are meant for development of sufficient skills to serve as secondary care specialist. Increasing the pool of such specialists would increase the availability of specialized health care to masses. The increase in degree seats would enhance the availability of medical teachers in the Govt. as well as private set-up.
2. **Building competency based modules** which would add clinical and analytical skills and enhance the decision power of the specialists in context of new complexities of the specialties.
3. **Change of Nomenclature and introduction of M. Med Course :** Diplomas courses would continue to be of two year duration. This would be renamed as Master of Medicine (M Med) & after successful completion of the course the candidate would be designated as a Specialist; such as M. Med (Family Medicine).
4. **Career Pathways after M. Med.:** After M Med, the candidate would have multiple career options to improve the proficiency. This would depend on the interest and academic performance of the candidate :
 - I) **Degree Course :** For comprehensive training in the same subject, a degree course (MD/MS) is worthwhile. This would be of one year duration and would primarily serve to enable the M. Med to become a faculty/professor in a medical colleges.
 - II) A **two year course on allied subjects** like Hospital Administration, Epidemiology, Bioengineering, Nano engineering, Molecular biology, Medical Education, etc. followed by an exit examination would enable the candidate to earn a dual degree.
 - III) A **three year research path would lead to the MD/Ph.D degree** on satisfactory completion of the requirements.
 - IV) A three year course which would lead to the DM/ MCh degree in sub-specialties. This step would

reduce the duration of acquisition of super-specialist degree by one year from the current system.

5. **Fellowship programs:** A two year course in skill oriented allied areas (listed elsewhere) such as minimally invasive surgery, dialysis and management of chronic renal failure etc. which would give them a fellowship in the concerned field in addition to the basic specialist's degree.

It is proposed that the PG fellowships would be formalized and taken under the purview of the MCI. Fellowships may be administered by Universities but must be under the domain of a central regulatory agency; i.e. MCI for acceptability and accountability across the country.

- As new opportunities arise, one year fellowship program may be offered post DM in allied areas.
- Provision would be made for a lateral entry in to DM/ fellowship courses after appearing for a subject specific entrance exam.

6. **Need based Assessment & Distribution of Diplomas and PG Courses:**

Need based assessments for starting of postgraduate programs would depend on the needs of the country. While existing PG courses are being relooked at by the respective specialty boards, new courses would be encouraged based on need of the community / public, need of the subject in view of technological advances, there would be sufficient content over and above the existing courses & trained graduate would have adequate career opportunities. The need based assessment to be done on the reliable data on morbidity pattern and also existing numbers of specialists of various categories.

The PG working group felt the need to consider starting new diploma courses in several areas where an acute shortage of specialists was felt, such as Pre-clinical subjects like Anatomy, Physiology, Emergency medicine, Family medicine, Laboratory medicine (including elements of Pathology, Bio-chemistry and Microbiology), etc.

The new colleges & new courses would be initiated in underserved areas keeping in mind equitable distribution of medical facilities across the country subject to availability of facilities and expertise.

7. Curriculum Reforms:

- The main focus of the reforms in the course curriculum would include adequate clinical exposure in the PG courses in clinical specialities so as to compare with the patient care practices of high quality and standards, matching international norms.
- Core Curriculum would contain Ethics, Professionalism, Modern teaching-learning technology & Good clinical practice/ Good laboratory practices, Research methodology & Biostatistics, Communication skills, Computer applications, Safe medical care & Medico legal issues as salient elements.
- **Hybrid curriculum for PG courses:** This curriculum allows for different curricular models to be practiced for different parts of the course i.e. part of the curriculum may be subject based, part may be problem based etc. In addition, there can be a core content and provision for electives.
- **Regular revision of curriculum** at periodic intervals depending on newer developments in the field.
- **Uniform Duration and Training of courses:** The duration of training would be uniform; Diplomas (M. Med) – two years, Degrees – One year after M. Med, Fellowships –two years after M. Med, DM / MCH – three years M.Med & Post DM fellowships – two years.
- A **log book** would carry a record of all activities of the candidate during the period of training duly attested by the teachers, it would be subject specific & would specify skills to be acquired and indicate the minimum number of procedures etc to be conducted. It would be the responsibility of the respective boards to prepare a subject based log book based on the competency model.

- There would be **extra departmental rotations** for at least six months in degree courses in allied disciplines for increasing breadth of training. Off site training upto six months would be recommended during the M. Med course, this would be supervised

8. **Training & Assessment:**

- **Extensive faculty development Training:** Prior to implementation of curriculum teachers would be given extensive training on competency based curriculum and associated student assessment.
- **Continuous formal structured assessment** with regular feedback is proposed for the post graduation. National common entrance examination is proposed for the entry & selection to post graduate and superspecialities courses.
- **Training:** As recommended for the broad specialties including a subject specific logbook. In addition there would be a doctoral committee in every institute which is responsible for the training of DM / MCh students. This will constantly monitor the training of these students. In addition to what is recommended for the broad specialties, the candidate would have two publishable papers based on his work during the DM/ MCh course which would be certified as such by the doctoral committee after internal review. There will be minimum six months rotation in allied specialties.
- **Skill center:** Establishment of skill labs would be mandatory. These would be of help to several disciplines to improve the quality of their training. Funds may have to be allotted from a central source to existing colleges for establishment of skill labs.
- **Log Book:** Maintenance of log book, which would be day to account of the activities of an educational in which the candidates participate. This would be duly attested by the teacher and available for inspection in the summative examination.

9. **Entry criteria for postgraduate courses:** In the suggested pattern of entrance examination, the candidate

would have ranking based on NEET-PG conducted initially at the exit of Final MBBS examination and for licentiate skill based examination at the completion of internship. With new proposed changes, candidate would be free to concentrate on skill development during internship. MBBS students would be eligible for appearing for PG seats via a common PG entrance examination which would be inclusive of PG seats in the All India quota and in the state where they have done the MBBS.

10. **Rural Service:** In addition there may be a additional weight age (5% or more) if the candidate has put in two years of rural service.
11. **Exit criteria:** The curriculum is largely competency based; the exit criteria would also focus on assessment of acquisition of competencies and therefore would be criterion referenced.
12. **Structure/composition of postgraduate unit:** Minimum requirements of beds, infrastructure and equipment for each specialty are revised by the respective specialty boards. This needs to be revised for specialties which are now largely outpatient based such as ophthalmology and dermatology etc. and they may not require a large component of inpatient beds. The minimum structure requirements of different specialties would therefore be need based and not uniform across the specialties.
13. **Licensing of Institutions imparting post-graduate medical education:** Licensing process would also include assessment of associated institutions, laboratories and health facilities where students will be sent for offsite training. Medical Council of India would continue to be the primary licensing agency. Accreditation would be encouraged as a quality improvement process.
14. **Accreditation & ranking of institute imparting PG Medical Education:** It would be encouraged as a quality improvement process, transparent, explicit and objective bench marks will have to be developed for accreditation for the institutions and shall be subject specific. Accreditation would essentially incorporate both the infrastructure (along with manpower) as well as the processes of imparting the PG

15. Increasing Faculty Pool: Efforts would be made for increasing the faculty pool and several innovative approaches would need to be explored. All newly recruited teachers would mandatorily undergo a course in modern Teaching - learning technology in approved centers for further promotion within a specified time. Teachers retiring from the Govt institutions can continue on contract basis up to the age of 70 years till the crisis is tided over.

16. Promoting Research for faculty promotion:

- All newly recruited teachers would mandatorily undergo a course in research methodology within a specified time.
- Research activity must be made mandatory in the academic stream by linking it to promotions. The institutional and departmental environments would actively encourage research activities.
- Existing criteria of the MCI as regarding number of publications for promotions would be enforced for the teaching cadre.
- Medical college teachers would be encouraged to pursue PhD degrees. Postgraduates with PhD degrees would be given preference to join the faculty. A weight age of three years would be give as teaching experience for these PhD holders.
- Facilitate research by mandatory creation of research cell in every medical college that will provide assistance in financial and administrative management of research projects.
- Medical colleges would create a corpus of intra-mural funds that provide seed money to encourage young teachers and research workers to initiate and then seek funding from regular funding agencies.

- MCI and ICMR would work jointly to initiate research mentorship programs for young medical teachers.
- MCI would interact with other National and International Research organizations in promoting funding of research in medical colleges. These funds may be disbursed through the MCI based on specific proposals received from Medical colleges after due vetting by a nominated peer group committee.

17. Continuing Professional Development (CPD): The process is to improve the performance of the doctor in his practice and thus improve the care that patients receive. The MCI guidelines regarding accreditation of organizations for conduct of CMEs and the individual requirements are already in place. There is a need to ensure implementation of these guidelines and the use of foolproof methods to ensure participation in CME activities on a regular basis. Innovative models to ensure wider coverage and effective implementation of the guidelines are recommended. There is a need to encourage self learning using the distance learning modality using online courses. MCI also needs to develop an electronic resources library that can be made available to all physicians at a reasonable cost.

Seventy percent of curricular content may be standard across the country and remaining 30% allowed to emphasize regional considerations and leave place for innovations.

The curricula for various courses need to be revised at periodic intervals not exceeding 5 years depending on newer developments in the field.

The details of the syllabus of individual subjects, would be worked out by the respective specialty boards.

Educational institutions would be encouraged to conduct experimental modules on innovative tracks and disseminate the results of these to the rest of the country.

Issues Related to Nomenclature & Duration of Existing PG Courses.

1. At present there are different types of postgraduate programs being run in the country in medical sciences in Postgraduate Diplomas; Postgraduate degrees; Postdoctoral degrees (DM and MCh); Post DM/ MCh fellowships (non MCI); Post MD / MS Fellowships run by the NBE and some universities and Post MBBS certificate courses (non MCI).
2. There is no uniformity of syllabus across the country particularly for the fellowship and certificate courses which are largely dictated by available expertise at the various institutions conducting the programs. At present the fellowship and certificate courses are not under the purview of the MCI and are awarded by Universities or individual institutions.
3. **Diploma courses** are primarily meant for producing physicians for secondary level care. Unfortunately, in practice, the curriculum of diplomas and degree programs in the same subject are more or less the same except for the additional research component in the degree course and although the duration of training is different

Similarities between Diploma & MD/MS

- Course content is almost the same
- Skills expected are the same
- Standard of examinations is more or less the same

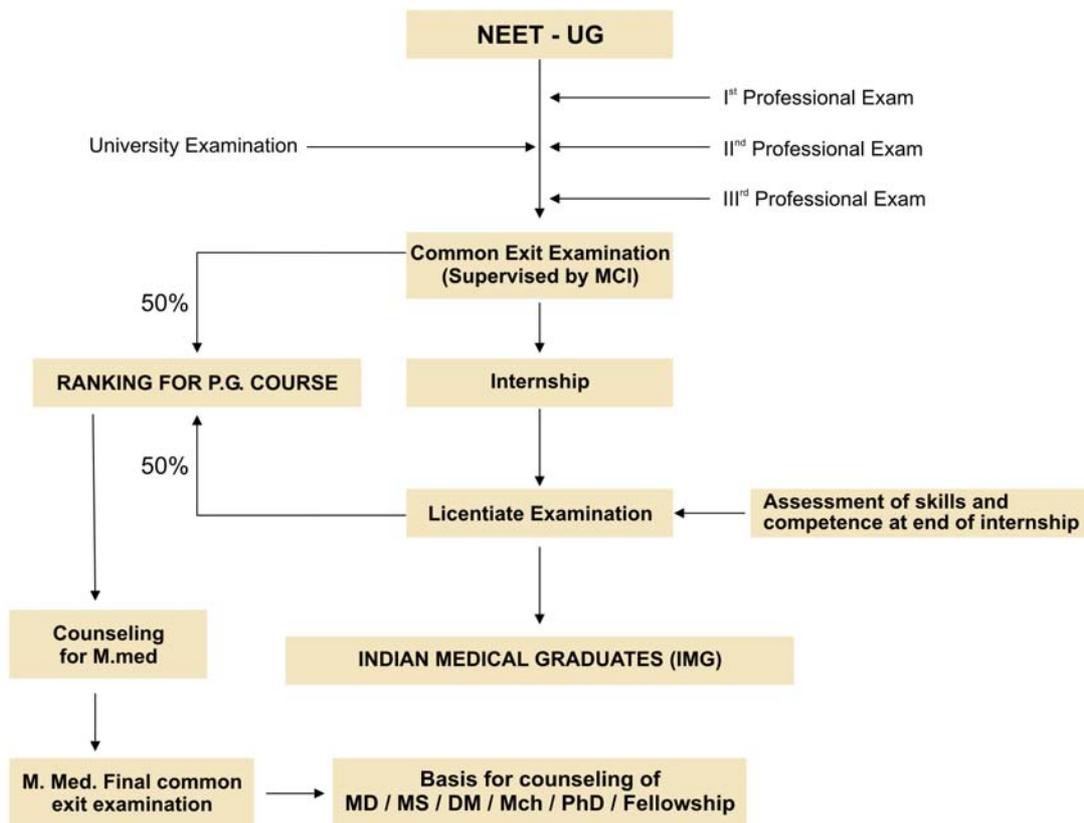
Drawbacks of existing Diplomas

- Instead of providing specialists for secondary level health care, diplomas are used merely as the first step by those who are unable to get a seat in degree programs. After diplomas they are in a queue to join degree courses. In this process, we see several anomalies like candidates with a diploma in otolaryngology followed by a degree in pediatrics merely dictated by seat availability rather than interest of the candidate.

- Number of diploma seats nationally is far less than degrees although the need is probably greater for specialists with diplomas to serve in smaller towns and villages.
- There is no rationality in selection of subjects for diplomas since other subjects which may have equal need for secondary care specialists like surgery, medicine etc. do not have a diploma course.

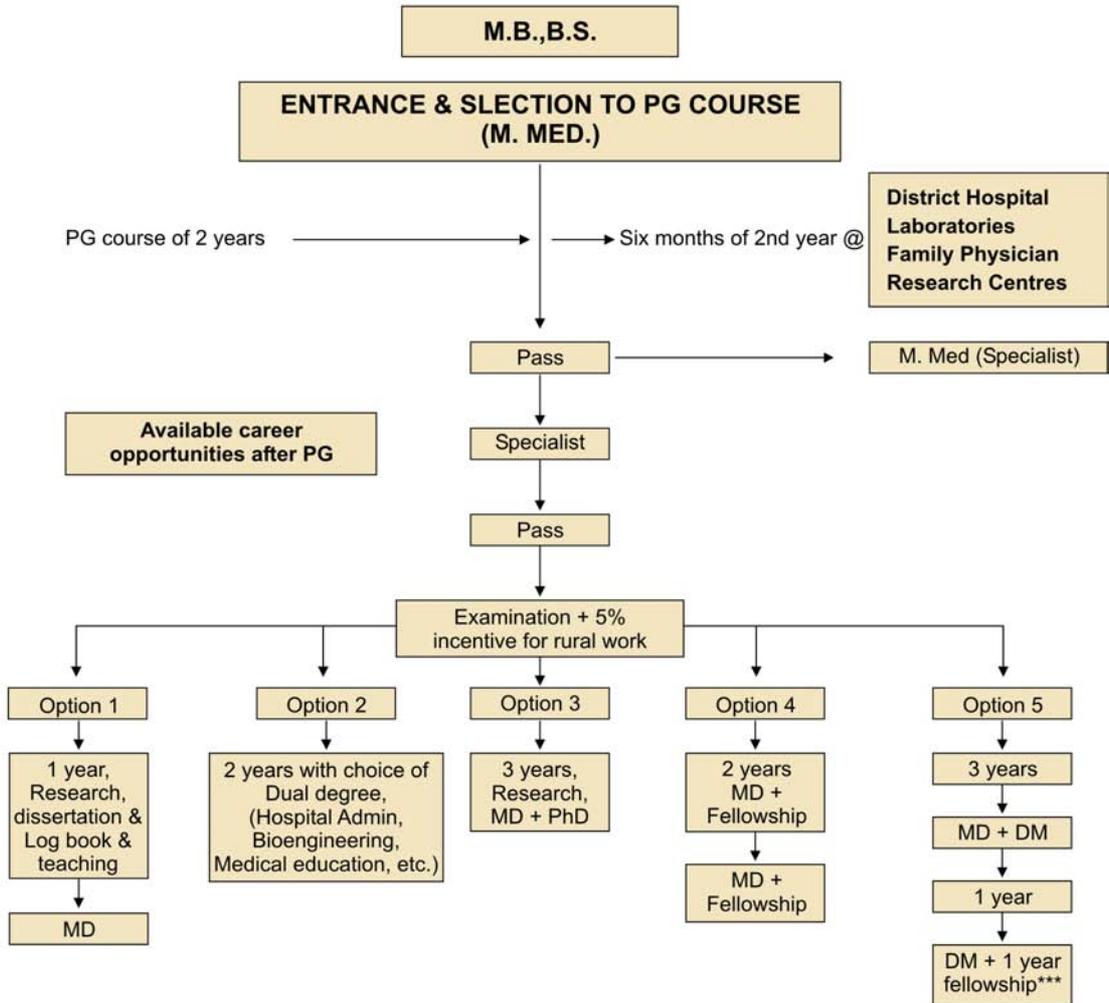
In the light of the above, the recommendations to introduce M Med courses were made by the PG Working Group.

PROPOSED ALGORITHM FOR NATIONAL ELIGIBILITY ENTRANCE EXAMINATION (NEET) valid after 2016



Note: 1. NEET – National Eligibility Entrance Test
2. This plan would be valid after year 2016.

SUGGESTED ALGORITHM FOR PG COURSE



DURATION OF VARIOUS PG COURSES



Examination

Examination

Need for National Eligibility Entrance Examination (NEET)

It was felt that common entrance examination is essential as it:

- Ensures uniformity across the country,
- Sets a minimum standard and
- Is convenient for the candidates
- Saves resources.
- Takes care of malpractices.

Challenges

- i. To counter act disparities in existing syllabus in inter & intra states and to ensure level playing field a common syllabus is proposed for all the examinations including MBBS entrance, MBBS exit examination & PG entrance examinations and Superspecialties entrance examinations.
- ii. Reservation of seats as applicable to the states would be taken care of in all common entrance examinations.

Based on the recommendations of undergraduate (UG) curriculum committee and post-graduate (PG) curriculum committee, MCI also intends to conduct licentiate examination after internship completion to qualify for Indian Medical Graduate (IMG) status. The UG and PG curriculum committees after various discussions opined that IMG licentiate examination and common entrance examination for PG i.e. National Eligibility-cum-Entrance Test (NEET-PG) would be separate. The essential reason is that IMG examination shall assess the minimum defined standards for a competent doctor relevant to Indian needs whereas the NEET-PG examination is intended for ranking with explicit need to differentiate students for merit. The UG/PG committees suggested to hold the NEET-PG prior to internship so that a candidate spend time for preparing during internship.

Framework of Examinations

All the examination would be structured in framework. These would include:

- i. Common syllabus throughout the country
- ii. **Subject wise allocation of marks:** MBBS entrance examination, would have 30% marks each for Physics and Chemistry and 40% marks for Biology. In PG entrance examination, distribution of marks would be as per relevance of the subjects, with clinical subjects carrying more weight age than pre and paraclinical subjects. For DM/ Mch entrance, there would be three kinds of papers, M.S. surgery level for all M.Ch. courses (surgical specialties), MD Medicine level for D.M. (medical subspecialties) and M.D. Pediatrics level for Pediatric subspecialties (Pediatric Gastroenterology, Pediatric Neurology, Neonatology and some other upcoming disciplines).
- iii. **Type of Paper/Questions:** MCQ pattern of questions would be followed for MBBS entrance. The PG and DM/MCh entrance examination papers would have multiple types of MCQs, namely single response (Section A-60%), multiple T/F, images, assertion/reasoning questions and patient management questions (Section B-40%).

- iv. **Multi-lingual paper would be considered in MBBS entrance examination** only In certain states (Tamil Nadu, UP, MP) where the exam is currently conducted both in English and the local language
- v. **Generation of questions & preparation of validated question bank:** The questions will be of single response type MCQs. In case of PG and DM/ MCh entrance , there will be a single paper of 180 questions of 3 hours duration. Each question will carry one mark. There will be negative marking for wrong answer (0.25 marks). Questions generated during dedicated workshop sessions would be validated by a second independent group. A minimum of 2000 questions need to be made in the beginning and this bank can be gradually increased.
- vi. **Setting of Question Paper:** MBBS entrance examination, will have a single paper of 250 questions (75 questions from physics and chemistry each and 100 from Biology) and be of 3 hours duration. Questions will have four options with single correct answer and three distracters. In PG and DM/ MCh entrance examination, there will be a single paper of 180 questions of 3 hours duration. Each question will carry one mark.
- vii. **Eligibility Criteria:** The student would have passed 12th class examination securing minimum of 50% for General category & 40% for Reserved category in aggregate of Physics, Chemistry and Biology from a recognized board before admission. In postgraduate medical entrance examination, candidate would have passed the Final MBBS examination and have completed internship. The students who are likely to complete internship by March 31 are also eligible to apply but would complete internship before admission.
- viii. **Conduct of Examination:** Advertisement for MBBS entrance examination, would be sent in last week of November in all major newspapers of the country and applications collected both online and offline by January 15th 12.00 Noon. Admit cards will be

dispatched by April 15th and the exam would be conducted on last Sunday of May. The PG entrance exam would be conducted at the end of the internship in Mid January- mid February as is the current practice. In future the common exam will be held at the start of internship as candidates. For DM and MCh, the advertisement would be sent in January in all major newspapers of the country and applications collected online by March end. The admit cards will be dispatched by middle of April and the exam would be conducted on the First Sunday of June so that the course starts from July of each year.

- ix. **Examination centers:** Centers would allocated depending on the number of applicants from each region. To prevent impersonation biometric data (finger prints, photo and signature) of each candidate would be collected and matched at the time of admission. This work can be outsourced to agencies involved in conducting other large scale national level examinations.
- x. **Evaluation:** The evaluation would be done centrally with the help of an agency, well versed with OCR evaluation and a merit list as per eligibility decided by MCI would be prepared. Presently minimum of 50% marks are required by a general candidate and 40% by other categories for admission. The merit list may be prepared using percentile score and there may not be any cut-off level. Both all India and state wise lists will be prepared and sent to respective Governments to fill the All-India and state seats
- xi. **Tie Breaks:** For MBBS entrance examination, the following rules in order will apply:
 - 1. Marks in Biology section of paper (Higher marks will be placed higher in the rank)
 - 2. Marks in Chemistry section of paper (Higher marks will be placed higher in the rank)
 - 3. Marks in Physics section of paper (Higher marks will be placed higher in the rank)

4. Total number of negative responses (Fewer negative responses will be placed higher in the rank)
5. Date of birth (older person will be placed higher in the rank).

For PG entrance examination, tie break will be resolved by marks in Section B (patient management questions) and student scoring higher marks will be placed higher. If there is still a tie it will be resolved by marks in the assertion/reasoning questions.

- xii. **Online Conduct of Examinations:** MBBS entrance examination will be conducted by the standard paper-based test ; online will be considered then in subsequent years. For DM/MCH & PG entrance examination, it may be possible to conduct online examination as the numbers of candidates are low.
- xiii. **Cost of Examination and fees:** In MBBS entrance examination, an application fee of Rs. 1000 (Unreserved category) and Rs 800 (Reserved category) would be charged. The cost of examination will be approximately Rs. 500 per student all inclusive of expenses incurred. In PG entrance examination, an application fee of Rs. 3000 would be charged. The cost of conduct of examination will be approximately Rs. 1000 per student besides cost of generating a question bank etc. If online exam is done than the charges may be higher: An application fee of Rs 5000 would be charged. The cost of examination will be approximately Rs 4000 per student besides cost of generating a question bank etc.
- xiv. **Examination Cell:** This will ensure secrecy, confidentiality and proper preparation of the paper and conduct of exam.

Exit Examination - MBBS, PG & Super Specialities

Final Examination for MBBS, Post Graduation and DM/ MCh:

- MBBS: status quo to be maintained
- MD/MS/MCh/DM: To create uniformity, a postgraduate board/ central university comprising of both MD and DNB would need to be formulated.
- MD/MS: Would have a thesis which would be submitted along with a paper from the thesis material and sent to the examiners before examination.
- DM/MCh: One research paper would have been submitted before appearing for the examination.
- Defining responsibilities of Internal & External examiners.
- Duration of Practical Examination:

MBBS	-	25 students/day
MD	-	5 students/day
DM/MCh	-	2 students/day.
- Structuring of Examination: OSCE, long structured case discussions, structuring of viva voce
- Internal assessment: From Log books, periodic (6 monthly) assessment by institute. This would have a 25% weightage for the final examination. A student would be shown his assessment every 6 months to apprise him of his progress.

Summary of Project Execution

- For exploring the possibility of holding NEET-PG before internship, we strongly opine that for the year 2012, only the NEET-PG for post-internship candidates to be held in January 2012 would be notified.

The examinations will be conducted commencing from 2012 onwards.

Examination	Examination Content development	Examination Executing Body	First Examination
Undergraduate (UG) National Eligibility-cum-Entrance Test (NEET-UG)	MCI	Identified Agency	May 2012
Postgraduate common entrance test – NEET-PG			Jan 2012
Licentiate IMG examination			April 2013
SuperSpeciality common entrance test-NEET-SS			June 2012

- Only MCI or a body designated by it will be responsible for conduct of the examination and preparation of national and state merit lists. National merit list will be used for admission to 15% all-India quota (whatever proportion is applicable from time to time) and state merit list will be used by respective state quota admissions. It may be noted that Jammu and Kashmir and Andhra Pradesh are protected by articles 371A and 371D of Constitution of India respectively (Presidential order). Accordingly, the two states will not be participating the national pool. The state of Jammu & Kashmir and Andhra Pradesh may take part in NEET and their respective state merit lists, drawn from National Merit List, may be given to them for filling up their 100% seats.
- An independent examination cell with a controller of examination will need to be to maintain the components related to confidentiality. Controller of examinations would be full-time senior medical specialist with experience in MCQ-based examinations and related information technology issues. Deputy controller of examinations with similar qualifications as of controller is required for smooth running of examination cell. Convenors for each individual examination would be required who would be responsible for content development of relevant examination. The members of the working group shall assume different responsibilities of the functioning of the examination cell.

- The examination cell shall be in the premises of MCI with costs of infrastructure development and maintenance recovered from the examination fee. Where applicable, items for infrastructure development will be procured under DGS&D rate contract as per laid down Govt procedures.
- For software development, a request for proposal (RFP) will be prepared and forwarded to the 3 software companies shortlist during technical evaluation by MCI on an earlier occasion. A techno-commercial bid system is proposed with 70% weightage to the technical component.
- As an alternative to procuring servers, one may inclined to consider cloud computing which is currently very popular. The essential advantages are lower cost of ownership, reduced data center facility costs, and improved disaster recovery and data backup etc. However, Government regulations do not permit us to put confidential and sensitive data (e.g. question database in our case) in the cloud. Therefore, cloud computing for question banking for examinations is not being considered

National Eligibility-cum-Entrance Test for Under Graduates (NEET-UG) for 2012

About 10 to 15 lakhs candidates are expected to take the test for admission to about 40,000 seats across the country. A draft of syllabus after reviewing syllabi from various states is ready. It needs to be circulated and validated by an expert group. In certain states (Tamilnadu, UP, MP) the exam is conducted both in English and the local language. Thus, a student would be able to take the entrance exam in the medium of instruction in class 12th or English and we need to have paper in multiple languages. This information needs to be gathered from various states. There will be a single paper of 250 questions and of 3 hours duration. The questions will be of single response type MCQs. It will be notified in December 2011. The admit cards will be dispatched by middle of March and the exam would be conducted in middle (2nd or 3rd Sunday) of May. Considering the magnitude, the examination would probably be paper-based and may become online in subsequent years.

National Eligibility-cum-Entrance Test for Post Graduates (NEET-PG) for 2012

Candidates who have completed internship or those expecting to complete by March 31, 2012 will be eligible to take the examination. About 100,000 and maybe upto a maximum of 1,50,000 candidates are expected to take the examination. It will be notified in August 2011 with applications collected by September end. The admit cards will be dispatched by middle of November 2011. The examination will be online type conducted in the middle of January, 2012 and the number of sessions etc will be finalized after the feasibility is explored. The MD/MS courses will commence from May 2, 2012. The candidates aspiring for direct 5-year Neurosurgery and neurology super-specialty or similar courses will have to take this NEET-PG examination for the courses commencing in August. There will be a common paper with 180 MCQs at MBBS standard to be answered in 3 hours.

National Eligibility-cum-Entrance Test for Super Specialties (NEET-SS) for 2012

Candidates who have completed post-graduation (MD/MS) or those expecting to complete postgraduate by June 15, 2012 will be eligible.

About six to seven thousand candidates are expected to take the examination with courses commencing from August 1, 2012. It will be notified in February 2012 in all online by April end. The admit cards will be dispatched by middle of May and the exam will be conducted in middle (2nd Sunday) of June. The paper will consist of about 150 to 180 questions of 3 hours duration. The examination will be online. Because of wide variability in qualifying degrees for eligibility in super-specialties, the type of question paper is being evolved.

Indian Medical Graduate (IMG) Licentiate Examination 2013:

The examination will consist of questions will assess minimum defined standards for an Indian Medical Graduate (IMG). Approximately, 35,000 to 40,000 medical graduates will take the examination. Foreign graduates who intend to practice in India will have to qualify in the examination. The examination will be on-line with most questions will be based on static images, audio and video clippings. The paper will have only questions of single response from 4 alternatives or just true/false. There will be one or more papers of 3 hour duration. Each correct question will carry one mark. There will be no negative marking wrong answers. The examination will be for candidates who completed internship after March 2013. The examination will be conducted in four sessions commencing from April 2013.

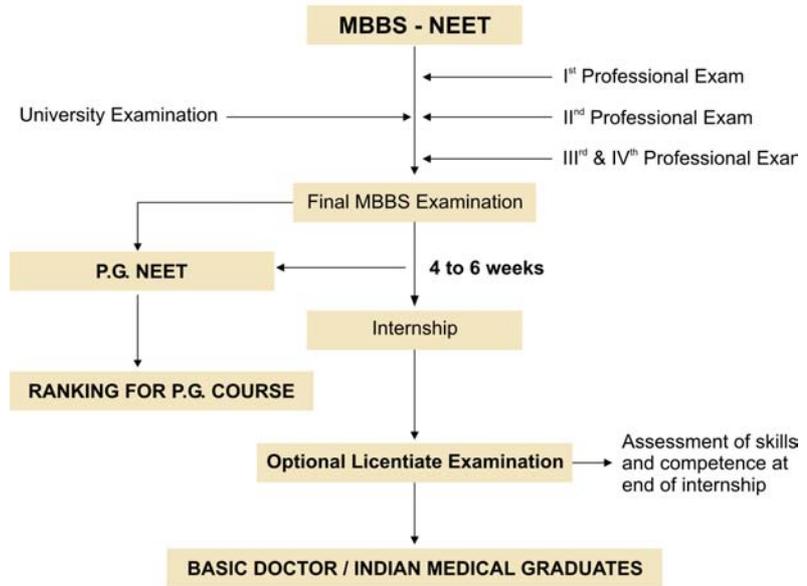
Comparison of Number of Examinations in the current and proposed

Nomenclature	Current	Proposed	Time Frame
Selection to MBBS	One (May be National, or State)	Single window common entrance examination (NEET MBBS) Paper based initially would become online subsequently	May 2012
Exit examination	Ist MBBS IInd MBBS IIIrd & IVth MBBS	Similar manner, held by University Paper based	
PG selection examination	One at the end of internship (National and State)	Held 4-6 weeks after final year MBBS examination (Before beginning of internship) Online examination	Jan 2012
Licentiate examination	Not existing	At the end of internship, based on skill assessment Online examination Optional till year 2017 & later mandatory	April 2013
PG exit examination	One at the end of three years	One at the end of two years (M. Med.)	
Post PG, MD/MS/ DM/PhD	One for each subject	M. Med. ranking to be use for entry to the post M. Med. streams	June 2012

Advantages of the proposed pattern:

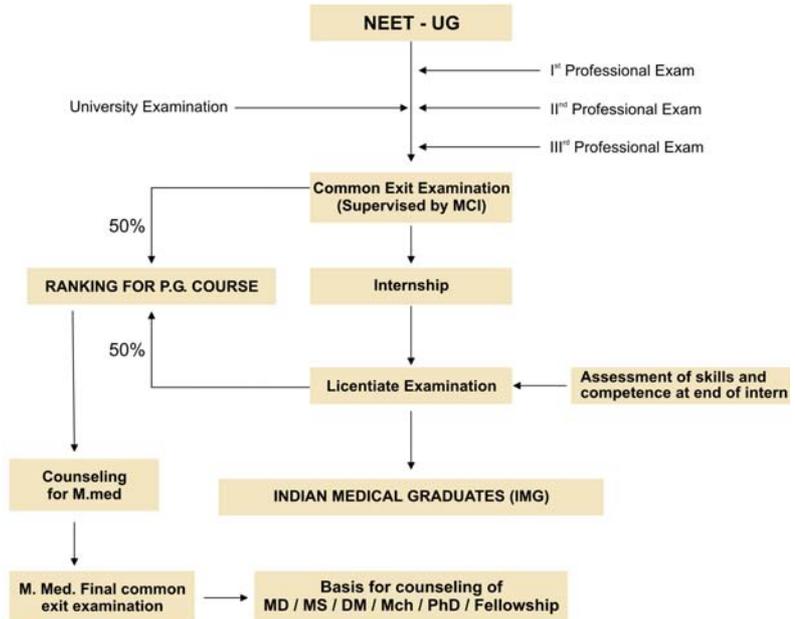
1. Less stress on students.
2. Only one National entrance examination instead of appearing for several entrance examinations, one for each institute or state.
3. Cost effective and conservation of resources.
4. Will restore internship as a training period instead of being an examination preparing period.
5. Enhance skill development & competency building for basic doctor (Licentiate examination).
6. Multiple career opportunities after MBBS.
7. Provide equal opportunity for candidates from rural & economically weaker sections

PROPOSED ALGORITHM FOR NATIONAL ELIGIBILITY ENTRANCE EXAMINATION (NEET) valid till year 2016



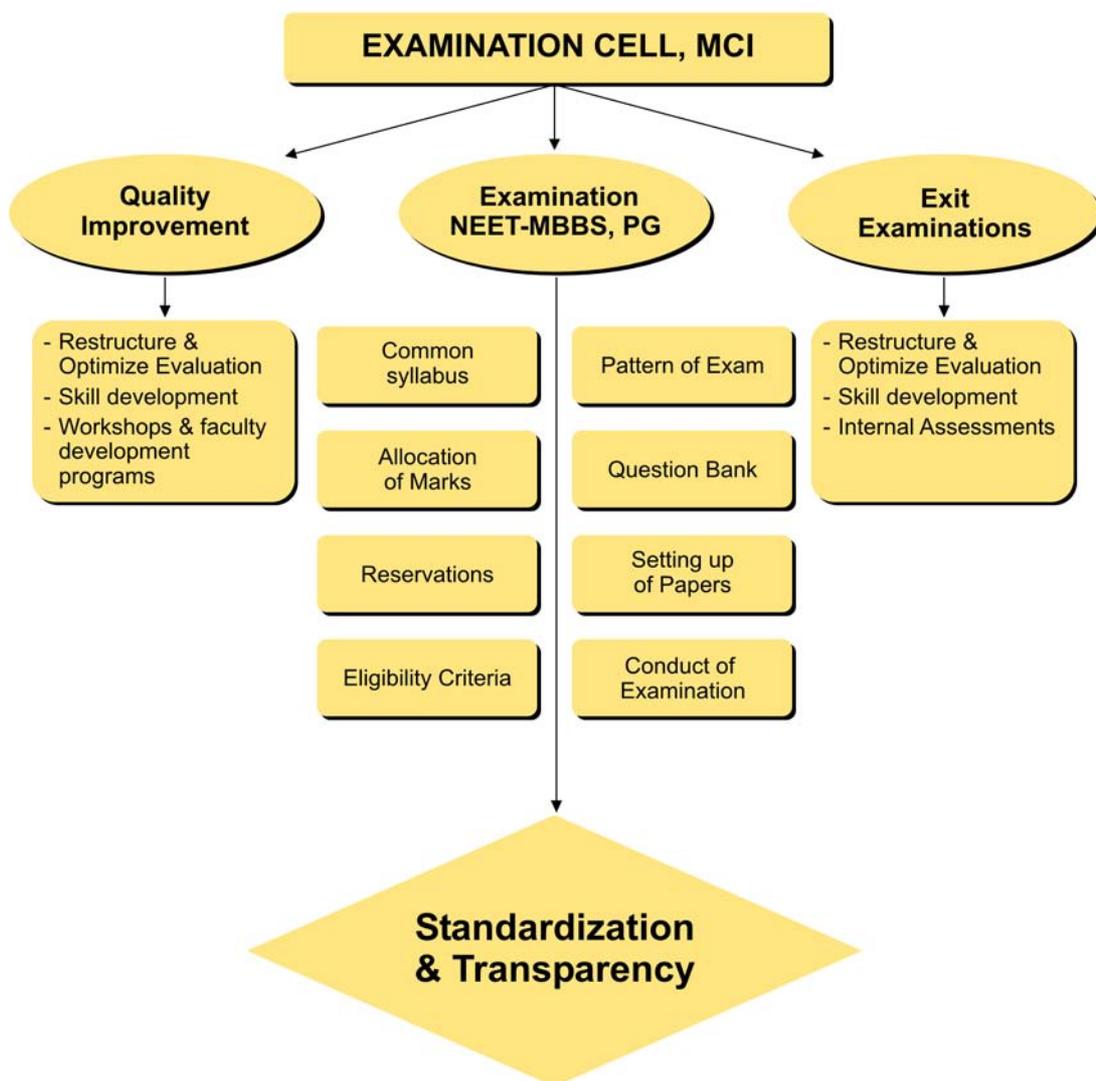
Note: 1. NEET – National Eligibility Entrance Test
2. This plan would be valid till year 2016.

PROPOSED ALGORITHM FOR NATIONAL ELIGIBILITY ENTRANCE EXAMINATION (NEET) valid after 2016



Note: 1. NEET – National Eligibility Entrance Test
2. This plan would be valid after year 2016.

FRAME WORK OF EXAMINATION CELL



Acknowledgements

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