The New 2019 Medical Curriculum in India; In Light of the Integration of Medical Curriculum

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Abstract

With lots of thoughts after 21 years, tremendous changes have been made in the new Medical curriculum for MBBS in India. Some changes are positive while other changes require more thought for implementation. In the long run, how the program would affect the overall development of Indian Medical Graduates is still uncertain. These aspects of changes that have occurred in the Medical Curriculum have been discussed in detail in this article.

Keywords: REVISED MEDICAL CURRICULUM INDIA, INDIAN MEDICAL GRADUATE, INTEGRATION, REFORMS

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Introduction

After almost a 21-year gap, broad changes has been made in the MBBS curriculum for undergraduate education by the Medical Council of India initiating in 2019. MBBS curriculum was last modified in 1997. Since then, many changes have occurred in terms of demography, socio-economic context, values, perception of stakeholders, advances in medicine and further innovations in teaching worldwide. Considering these changes, the new guidelines welcome change and are required at this time. The training program orients towards recognizing the national goal "Health for All" by Indian medical graduates and fulfilling their societal obligations towards the realization of this goal. An Indian medical graduate, according to Academic cell, National Medical Commission of India, should possess required knowledge, skills, attitudes, and values and be responsiveness, so that he/she would function appropriately and effectively as a physician in the community while being globally relevant. The role of Indian medical graduates can be summarized as a clinician, leader and member of the healthcare team and the medical system. They are communicators, lifelong learners and professionals with ethical responsibility and accountability. Also. they understand and provide preventive, promotive, curative, palliative and holistic care with compassion (1).

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Progression to the Indian Medical Graduate

Based on various objectives, certain competencies need to be developed in Indian medical graduates. These competencies help in fulfilling the expected role which will further help in attaining higher goals. Though there is no change in the total duration of the MBBS, there are some major divisions in the courses semester wise with

inclusion of new short but important courses such as one-month Foundation Course, 12 months of duration for each phases of the courses, professional development including ethics and 02 months of elective courses. To develop effective communication with patients and their relatives and to understand their preferences, values, beliefs, confidentiality and privacy, the students will be trained in "Attitude, Ethics and Communications" by a book (AETCOM Module) developed by the National Medical Council only (2). These reforms focus on enhancing vertical integration, giving ethically sound training, and clinical competency with practical linking to theory with cases and overall improvement in quality of training of MBBS students. A broad framework will be provided by the National Medical Council which shall be further modified according to state, region, and medical college. Some flexibility will be available at the college for implementing of the new curriculum. Every medical college is directed to constitute a "Curriculum Committee" at the college level consisting of few faculty members who will be responsible for developing the curricular modules and their implementation at the institution. These faculty members are then trained under the Faculty Development plan and there is an urgent need to formulate a National Faculty Development strategy for medical teachers for serving to the desired objectives (3).

The New Recommended Medical Curriculum

The new recommendations have come in the form of a curriculum called "Competency-based curriculum for Undergraduate Medical Education" which is an attempt to plan an outcome driven curriculum to provide orientation and necessary skills for lifelong learning. These outcomes or the broad competencies or topics which students must know. These will also be the basis of assessment. These competencies are further divided into sub-competencies which are nothing but the courses' wise outcomes which must be achieved at the end of the course. For each competency, the learning domains (Knowledge, Skill, Attitude, and Communication) are identified. The expected level of achievement in that subject is identified as: [knows (K), knows how (KH), shows how (SH), performs (P)]. As a rule, 'perform' indicates independent performance without supervision and is required rarely in the pre-internship period. The outcome is a core (Y - must achieve) or a Non-core (N - desirable) outcome (4). For example, in Community Medicine, there are 20 total topics given which are divided into 107 outcomes or competencies. These are already provided to the institutes through the undergraduate base curriculum module-I. On the basis of these competencies each institute is expected to design sub-competencies or learning objectives based on the covered domain (Knowledge, Skill, Attitude, and Communication). These are further assessed on the level of achievement which are: knows (K), knows how (KH), shows how (SH), performs (P). In this way, a broad outcome is divided into small aims and objectives which are called Specific Learning Objectives to be achieved at the end the teaching sessions. The domain which is stimulated by these teaching sessions should be clarified and familiar to the teacher and the ways of the assessment of these broad topics should be known to the teacher. The broad competencies cover the important aspects of the subjects according to the National Medical Council, so all these fall into core competencies. There is an option for desirable competencies which an institute can add on its own in the undergraduate curriculum to cover the subjects or the missed topics. How these competencies should be delivered is also described in the module from National Medical Council. For example, in Community Medicine, it is stated that for first-year competencies, the subjects should be covered by 20 lectures, 22 small-group discussions and 05 self-directed learning (SDL). It is a marathon task to put the topic of any subjects into a rigid frame (4). Apart from medical education and knowledge,

some focus also has been given to non-academic but equally important domains of medical graduates such as human resources, materials and resources management related to healthcare delivery, personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals (4).

Changes in the New Medical Curriculum (5)

1. Integration – In conventional subject-based teaching, students receive isolated bits of information in each subject but generally no effort is made to build connections between these pieces resulting in decreased practical utility of knowledge. By the time they start final clinical teaching all the basic theoretical knowledge of the first year has been forgotten (6, 7). Also, there is ever an increasing burden of increase in the number of students per batch, making it more difficult to give attention to individual students. Hence, innovative methods of teaching should be used, one of which is integrated teaching at all levels. Even the world summit on Medical Education identified the gap between medical education and the medical practices as one of the major problems (8). The National Medical Council strongly recommended integration in undergraduate medical education to increase the effectiveness of the teaching-learning process. For example, according to current practices tuberculosis is being taught in different subjects such as Surgery, Pharmacology, Medicine, Pediatrics, Obstetrics and Gynecology, Microbiology, Pathology, Community Medicine, etc., in different semesters leading to confusion among students. For them it is difficult to correlate the findings of Microbiology with sign and symptoms of tuberculosis in Medicine or Surgery where they see patients face-to-face. After integration the same topics will be taught simultaneously in all the medical subjects, which would lead to better understanding and more applied knowledge among students. In traditional teaching, some parts used to be covered by horizontal integration. However, in the new curriculum utmost efforts are put on integration. Integration is nothing but an important strategy to promote meaningful learning and make it last for a longer time. It can be done in two ways. One is horizontal integration where two or more disciplines of any phases of the MBBS curriculum (Pre-clinical, Para-clinical and Clinical) are combined. For example, collective teaching and training of liver (Gross anatomy, Histology and functions) by the Anatomy, Physiology and Pathology department and another one is vertical integration where two or more phases of the MBBS curriculum are combined. For example: Collective teaching and training of liver functions and sign and symptoms of Liver failure by the Physiology, Pathology and Medicine departments. The advantages of integrated teaching over traditional lectures are (9):

- Integrated teaching reduces fragmentation of medical courses
- Prevents repetition and waste of time
- Students learn to apply their knowledge to clinical practice
- Promotes interdepartmental collaboration
- Rationalization of teaching resources

It is proven in several studies (10, 11) that integrated teaching increases knowledge and understanding of the topics or competencies (As the word used by the Board of Directors). As suggest by the National Medical council, roughly 20% of the curriculum is designed to integrate wherever possible. For this purpose, the integration ladder is used. This concept was initially introduced by Harden in 2000. It has 11 steps (As shown in Figure 1) starting from Isolation (1st step) where subjects are taught in isolation followed by awareness, harmonization and nesting concept (step 4) where a correlation between subjects takes place followed to temporal coordination (5th step) in which several subjects are taught simultaneously. It leads to Multidisciplinary (9th step) where one concept or topic is taught by several specialties. Finally it reaches the 11th step which is Trans-disciplinary in which students create a new concept out of different

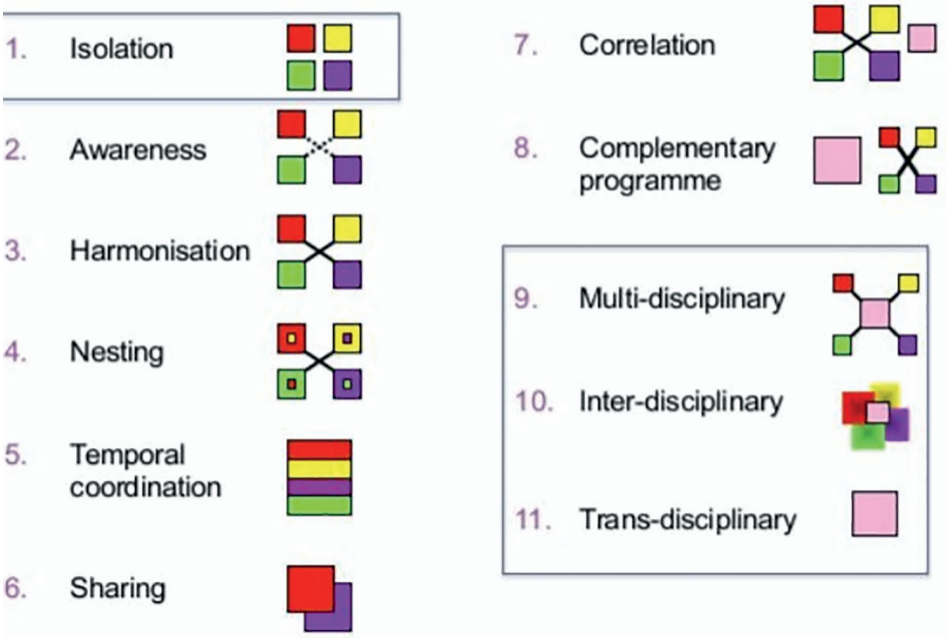

Figure 1: The integration ladder

disciplines, theories, and their own meaning and apply what they learned to the real world (12). Integration is the major teaching tools used in this manual.

Integration mostly horizontal was already and vaguely being followed in the MBBS teaching. However, with the revised guideline, the main focus was shifted to integration. In a way it is a good thing as it is a proven fact that facilitates better and everlasting knowledge. However, it is difficult to attain this at the college level. Integrating all the competencies with other specialties as well as keeping the topic overlaps in mind is a difficult goal to attain. Also, in clinical branches the senior faculty are busy with the patients. Already they are burdened in such situations and spending their time on integrating teaching sees like a waste of resources. Probably at first, it will be difficult to follow, however, once streamlining starts happening it will become easy. Vertical integration of various medical subjects simply means "Coordination of different activities to ensure harmonious functioning".

2. Learner centric approach-Focus has been shifted from the teachers to the learners. In many designated sessions teachers should act as facilitators rather than taking a passive role in lecturing. Total duration for such didactic lectures has been reduced to less than one third of the allocated time in all subjects.

3. Student-doctor method of clinical training- The student-doctor method of clinical training provides for the student to function as a member of the clinical care team, work with patients and follow them longitudinally. Under this program in supervised manner students are required to care for the patients taking part in daily admission activities, following patients during the course of hospitalization, writing and maintenance of the records and participating, observing and assisting in procedures in a graded fashion.

4. Skill acquisition and Certification- The new curriculum has a mandatory and desirable comprehensive list of skills which would be taught to the Indian medical graduate. The ability of students to be able to acquire and practice important skills in a safe and supervised environment is emphasized. Institutions are mandated to create skill labs in which skill acquisition is possible. A list of certifiable skills that the learner has to acquire prior to graduation has been developed. Skill acquisition time for basic skills has also been implemented in the timetable.

5. Early clinical exposure (ECE)- It is proposed that the training for clinical branches should start from the first year only, focusing more on communication, basic clinical skills and professionalism instead of actual clinical case discussion. Classroom discussion/case-based learning would be emphasized.

Introduction of early clinical exposure is present in the new curriculum to help them understand the patients' signs and symptoms and the clinical courses. This will also develop diagnostic and analytical competencies earlier. One of the important points is that not everyone who does MBBS opts for post-graduation. Some opt for becoming medical officers, some move to other projects. However, this early exposure of clinical practice and then practical exposure later on will help them to have a more practical approach for treating patients. The Indian medical graduate will be taught about clinical exposure from patients' admission to their professional visits, lab work, and discharge. It is a very good practice to make them learn about the patients and their suffering behind the scenes to suffering after his contact with the physician. That will surely help in generating an overall holistic approach in young doctors.

6. Self-directed learning (SDL)-Apart from the regular interactive sessions few sessions in every subject are covered by SDL. For example, in first year of Community Medicine courses, 05 sessions are designated for SDL. It is a form of adult teaching**.**

In the new curriculum it is said that several hours should be allocated to SDL. However, who will decide those topics and whether it is allocated varies from college to college and is still not clear.

7. Foundation course-For the first time, a foundation course for one month is planned for newly joined MBBS students**.** Each medical college will have to develop a one-month foundation course after admission to orient the students to national scenarios, medical ethics, health economics, learning skills and communications, basic life support, computer learning, sociology and demographics, biohazard safety, environmental issues and community orientation. The foundation course may also include 1) orientation program, 2) language and computer skills, 3) communication skills, 4) time management skills, and 5) Professional development program highlighting ethical and humanities issues. Each college should select certain elements of the foundation course as per local needs and develop faculty expertise from initial years. However, experts and other teachers may be invited as per need. It is emphasized that interactive case scenarios, movies, videos, and small group discussions be used for each concept along with the principles of reflective learning (13) as shown in Figure 2.

8. Electives- keeping more flexible learning in mind, students are allowed to opt for the clinical postings where they go to hospitals and communities to learn respective subjects of their choice in a given time frame. The areas for elective postings include areas that students are not normally exposed to as part of their regular curriculum and students are expected to do a project and enhance self-directed learning, critical thinking and research abilities.

Examples: - Bio-Informatics, Tissue Culture, 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, Pharmacokinetics/ Pharmacodynamics/ Pharmacoeconomics, Assisted Reproductive Technology, and Ethics and Medical Education.

9. Sports and extracurricular activity- Protected time for sports and extracurricular activity has been carved into the curriculum to allow students to preserve work life balance and prevent burn out.

Introducing sports and other extracurricular activities mandatorily in the curriculum is simply a brilliant idea which will promote overall personality development of Indian medical graduates, as in today's stressing world were the expectations from doctors are

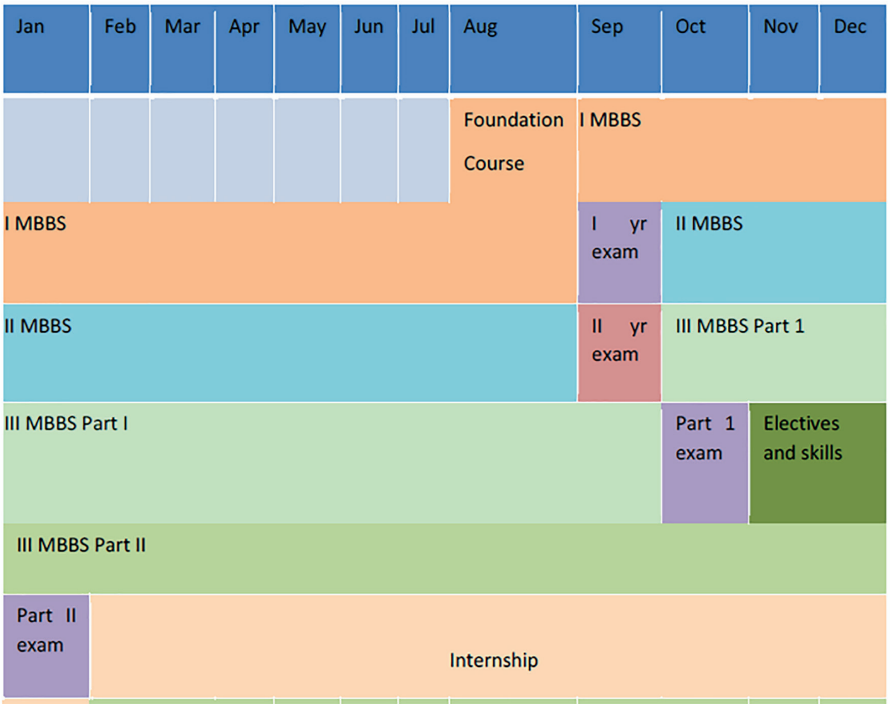

Figure 2: Time distribution of MBBS program and Examination schedule

high. This is simply a way to keep our future doctors in mentally sane conditions for their future profession. Probably once they develop healthy habits they will maintain them throughout their lives.

10. Assessment- It is known that what is not assessed is not learnt. Modules are made in a way that almost all the competencies or learning objectives are assessed in one way or another. Both formative and summative methods are used for assessment. Some key changes in areas of assessment have been proposed in the Graduate Medical Education, 2019 guidelines (14). A pass score in the theory and practical/clinical parts of the Internal Assessment will be a prerequisite to attempt the summative examination. Formative assessment is streamlined. Continuous assessment through log books, documentation reports, etc., are given additional importance. Internal Assessment will not contribute to the summative examination. Separate pass scores in theory and practical/clinical sections are required. Viva marks (Oral examinations or theory vivas) will be added to practical/clinical examination. A provision for skill assessment and assessment of AETCOM competencies has also been made.

To assess the AETCOM is difficult. The assessment requires a different approach altogether. One cannot do that by subjective questions. For that some amounts of training are also required for the assessor as most of the topics are assessed in a formative way in the AETCOM Module.

Uniformity of methods of assessments - Since there are so many medical colleges in India, it would be difficult to keep the same level of assessment throughout medical colleges and during the exit exams as the broader topics are provided by the governing body but the individual learning objectives are subjective to department of medical colleges only. Also, for assessment, although the assessment manual has been given, to assess the students according to the manual, one has to undergo training and organizing the training to cover the faculty of every medical college is a big challenge to be attained in a short period of time.

11. AETCOM- Attitude, Ethics and Communication Model- Along with role modeling and mentoring focus is now shifted towards attitude, ethics and communications

now**.** In previous Ethics used to be taught in Forensic science, students were expected to imbibe lessons in ethics from their seniors and learn to solve medical ethical dilemmas on their own. Unfortunately, all too often, their role models fell short of their expectations and there was a chasm between what was preached and what was practiced (5). Also, it did not have much relevance in assessment as well. However, with the new curriculum the topic has gained its required attention. In all phases of learning, Ethics has been incorporated with allotted lecture (1st year: 34 lecture, 2nd year: roughly 37 lectures). The World Health Organization (WHO) also identified lack of learning and training material in Ethics and later on developed a module for medical students in the SEARO region (15) and a facilitator module (16) for the same topic. Keeping this in mind colleges such as Rajiv Gandhi University of Health Sciences (RGUHS) prepared its own ethics curriculum involving experts from all relevant branches. Everyone has now realized the importance of active teaching of Ethics in medicine, probably that is why the new guidelines has put emphasis on ethics too.

Also, in view of the increasing number of cases of harassment against doctors, AETCOM is a way forward. The overall attitude and communications play important role in keeping and maintaining the image of a doctor in society.

11. Licentiate exams- It is also an important point to consider for future MBBS students. At the end of five and half years of study, an exit examination is conducted by the universities. The need for a licentiate exam was felt for training qualified medical doctors graduating from the medical colleges and also to monitor the outcome of medical colleges rather than just the process of medical education. The same exams will be taken from international students who have graduated from foreign universities. Thus, the level of competency will be maintained.

12. **International standards-** One of the important points is that the new curriculum and training should be able to meet international standards. Also, it had been mentioned that **"History of Medicine**" should be thought by specialists coordinated by the Medical Education Unit of the college. Emphasis is given on creating a "Curriculum Committee" which would plan curricula and update institutional methods. This becomes more relevant in the current scenario where "Vertical integration" is present. Therefore, this committee is needed to integrate all the specialty lectures for maximum student gain. Keeping the need of the time, it was also mentioned to involve the latest Information and Technology in training process.

Some Important Points on the New Medical Curriculum

1. One of the biggest changes in the program is shifting of the Forensic medicine professional examination from second to third year. This will probably give students some quality time to work on other important second year subjects namely Pathology, Microbiology, and Pharmacology. Forensic classes will start in the second professional year and the exam will take place in the third professional year along with Community Medicine, Ophthalmology, and ENT.
2. Instead of treating patients in clinics or other health facilities, most MBBS doctors are dedicating their time on pursuing higher education. In the new Medical Council of India curriculum due to provision of early exposure to the clinical practice and treating patients, this will probably change gradually. Since the curriculum is competency based, a practical approach to treating patients will be taught and it will also mandate students to pass "must know" tests every semester.
3. New modules like mental health and sexual health issues, radiology, surgery, handling of medico-legal cases and ethics and communication to help them better interact with patients are part of the new MBBS syllabus.
4. Topics and diseases which are currently

relevant have been introduced in the new curriculum which is very promising. Now focus would be shifted to current diseases and their overall management.

5. One major problem faced by many faculties while implementing the curriculum to the local college level is that that the hours given by the Medical Council of India to cover a particular competency and the hours needed by the faculty to cover that particular competency do not match. Probably after the implementation the change in hours allotted for the competencies would change with time and experience.
6. Previously only knowledge domain and at times psychomotor domain used to get affected in Indian medical graduates but this time the focus has been shifted to the affective domain as well. In most of the competencies the aim is to touch the affective domain or the attitude domain also. One of the ways to achieve that is by increasing the interactions of the students with the teachers and develop the adult learning. To achieve this, in the new curriculum the number of total lectures has been cut down to one-third of the total allotted time and the rest of the topics are dealt with different learning and teaching methods such as tutorials, SDL, and competency-based learning. There were no standard ways to check this domain previously, but now assessments have become as standard as possible. This is a very positive change in new curriculum.
7. Competencies are divided into core and non-core competencies. That simply means that core competencies are must know topics without attaining the desired levels of knowledge in those must know topics the transition to the next year probably would not be complete. This is also a good thing as now the assessment also would become more standard and objective.
8. In many competencies the level of achievement is limited to "know how" especially in the 1st and 2nd year subjects, where in the same topics the level increases to "show how". This is done to increase the integration in the subjects. However, this might cause a confusion as for those teachers who are passionate towards their favorite topics which they are taking from a long time and are comfortable with it, will try to cover the maximum level of achievement of any competency which is "show how" but they somehow restrict themselves to a lower level of just know how". It will probably take a longer time to achieve that level.
9. "The physicians of tomorrow are taught by teachers of yesterday". The ways of teachings were different in old times and with new competencies and incorporation of new ways of teaching, many of the teachers who are supposed to teach the new schedule may not adapt themselves with the new teaching and training methods leading to a gap in the dissemination of knowledge as planned in modules.
10. Elective skills program was a positive change towards the overall growth of Indian medical graduates. It will expose them to the areas of their choices and give them directions at an early age about the field of expertise they want to adopt in future.

Conclusion

The new curriculum will certainly deal with many long needed and laudable changes emphasizing on the non-medical but related branches as well. The curriculum will definitely face some major problems in the beginning years. After a few years and once it gets streamlined it will be easier to follow. The actual impact in improving the knowledge and skills of medical graduates can only be assessed over time and improvement in the patients' overall conditions. Probably after a decade or so its effects can be observed. Until then it is an ambitious project with major tasks to be achieved.

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