

Community Medicine Teaching and Evaluation: Scope of Betterment

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ABSTRACT

There have been rapid and extensive changes in the way assessment is conducted in medical education. Assessment brings about standardization of the manner in which the syllabus is to be implemented and also gives guidelines regarding the teaching pattern, especially when the student is going to rotate through various departments in a medical college.

Community Medicine is an important branch of medicine concerned with the health of populations. Existing forms of assessment of community medicine education mainly consists of internal [formative] assessment and final (summative) examination. Advantages of the present system is the similarity of the methods used for internal assessments and final examinations and is relatively easily done since only the knowledge application and recall ability of the student in theory and practical are assessed. Disadvantages in the current evaluation system are neglecting the assessment of psychomotor, affective and communication skills.

Evaluation systems can be improved by implementing techniques to assess psychomotor skills, presentation and communication skills, organizational skills and the student's ability to work in a team. Regular feedback from students should be taken periodically for the betterment of Community Medicine education.

This article is meant to sensitise the academic experts in medical education to plan better need based methods of assessment in the subject of Community Medicine, in relation to the new MCI 2012 Regulations, in order to make it a better learning experience for the students.

Keywords: Community medicine, Educational assessment, Medical education, Scope for improvement

INTRODUCTION

The goal of medical education is to produce physicians who are prepared to serve the fundamental purposes of medicine [1]. Since the 1950s, there has been rapid and extensive change in the way assessment is conducted in medical education. Several new methods of assessment have been developed and implemented over this time and they have focused on clinical skills, communication skills, procedural skills, and professionalism [2]. Assessment creates excellence. It leads to the process of precise learning.

Over the past decade, medical schools, postgraduate training programs, and licensing bodies have made new efforts to provide accurate, reliable, and timely assessments of the competence of trainees and practicing physicians [3]. Assessments, if conducted properly, serves multiple purposes and have advantages for the following stakeholders: the Medical Student, the Teaching Faculty, the Universities and the Society [4]. The ultimate aim of medical education is to improve health status and health care of the population.

MEDICAL EDUCATION CURRICULUM

Modern day educationist refer curriculum as a study track along which students travel during a course of study. Curriculum is a formal plan of educational experiences and activities offered to a learner under the guidance of an education institution. Curricula may be of different types to suit the requirements of the courses. Example: Subject-oriented Curriculum, Competence-based Curriculum and Experience-based Curriculum [5].

Subject oriented curriculum is subdivided into Discipline-based or System-based curriculum. Competence-based Curriculum is also known as task-oriented or activity-based curriculum. Medical curricula need to adopt this approach more avidly. Experience-based curriculum is of two types – problem-based learning and community-based learning. Community oriented medical education (COME) is an ideal method of educating learners to be first-contact physicians in the community. Most of the medical schools in the

developed countries have switched over to the system based or competence based learning, incorporating community based learning as well. But the situation in medical education scenario in India is that “physicians of tomorrow are taught by teachers of today using a curriculum of yesterday” [5].

MBBS CURRICULUM IN INDIA

In India most medical schools were following the traditional Discipline-based curriculum which is taught in three phases through various departments and completed within four and half years plus one year of internship based on the 1997 MCI Regulations. By introducing the New MCI Regulation 2012, a Competency based, undergraduate medical education programme has been designed with a goal to create an “Indian Medical Graduate” (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that he or she may function appropriately and effectively as a physician of first contact of the community while being globally relevant [6].

The salient feature of the medical curriculum 2012 is the emphasis on learning which is competency based, integrated and student-centered acquisition of skills and ethical and humanistic values. The teaching and learning process is aligned and integrated across specialties both vertically and horizontally for better student comprehension by introducing student centered learning methods.

COMMUNITY MEDICINE

Community Medicine is the branch of medicine concerned with the health of populations. It strives to protect and promote the health and well-being of the community through Primary Health Care approach. The mission of Community Medicine teaching is to contribute to the development of a well-rounded (holistic) medical professional, who will demonstrate knowledge and competence with compassion in dealing with primary health care, desire for lifelong learning, evidence-based practice, interdisciplinary team work, and professional and ethical behaviour in practice in order to improve and sustain the health of the population [7].

Community Medicine teaching has a major role in achieving the main goal of graduate medical education in India. The guidelines and regulations of MCI also emphasize to include community medicine in all the three phase I, II & III of MBBS curriculum and also during internship [6].

Objectives of teaching Community Medicine to MBBS students in India can be broadly grouped in to the following areas [6]:

- To prepare them to function as community and first level physicians in accordance with the institutional goals.
- To make the students aware of environmental, social, financial, personal, occupational issues of the patients and to inculcate in the students the habit of considering the above aspects while rendering patient care.
- To teach them practised techniques of prevention at Individual, National and International level for various health issues.
- To orient the students with Indian Health System, National Health Programmes and Policies and International Health Policies and Agencies.
- To teach research principles and methodologies so as to create scientific attitude.

But the medical colleges in India have often been dubbed as "ivory towers isolated from the health service systems, training students for ill-defined academic standards and dimly perceived requirements of the twenty first century, largely forgetting or even ignoring the pressing health needs of today's and tomorrow's society." (Dr. Halfdan Mahler, Former Director General, WHO) [8]. This phrase is applicable to the current scenario of teaching of Community Medicine also, since we still follow the traditional teaching methods with lack of community oriented field based training programs, unsatisfactory training of interns and there is isolation from the public health system [9].

According to the 2012 guidelines, Community Medicine teaching should incorporate certain competencies and integration as part of the curriculum:

Competencies: The undergraduate must demonstrate:

1. Understanding of the concept of health and disease.
2. Understanding of demography, population dynamics and disease burden in the national and global context.
3. Comprehension of principles of health economics and hospital management.

Integration: The teaching should be aligned and integrated horizontally and vertically in order to allow the student to understand the impact of environment, society and national health priorities as they relate to the promotion of health and prevention and cure of disease.

EXISTING FORMS OF ASSESSMENT IN COMMUNITY MEDICINE IN INDIA

Medical Universities have designed an evaluation system which is meant to bring out the level of knowledge and skills acquired by the students based on the institutional goals and objectives as stipulated by the MCI [6]. But a review of the assessment pattern in majority of the Medical Colleges shows that most of the assessment procedures are outdated and needs urgent revision and updating. In our experience, most of the medical colleges in India, particularly in the private sector still follow the broad guidelines of the Medical Council of India regulations of 1997, which were endorsed by the Curriculum Committees and Academic Councils of those institutions.

In any evaluation or assessment, the impact on the following domains of each and every student is usually assessed: cognitive domain [knowledge /comprehension], psychomotor domain [skills] and affective domain [attitude]. Assessment can be formative (guiding

future learning, providing reassurance, promoting reflection, and shaping values) or summative (making an overall judgment about competence, fitness to practice, or qualification for advancement to higher levels of responsibility) [3]. Based on this the following two types of assessment is carried out in most of the medical colleges to assess the students, their knowledge level and skills acquired in the subject of Community Medicine.

Internal assessment examinations (formative assessment):

A series of 4-5 written and 1-2 practical examinations are held throughout the academic year, usually during the Final Part 1 year, at fixed intervals and an average is calculated at the end of the year. This constitutes to about 20 % of the total marks of assessment which is a prerequisite to allow the student for appearing for the final examination.

The Final Examination (summative assessment): This is the end of the academic year / phase examination held annually at the end of the Final Part 1 year, by the medical university to which the institution is attached. This is considered as a qualifying examination, which assess the students to go to the next level or not.

The final examination is broadly conducted in two categories:

1. **Written examination:** It consists of the free response essays, short answer question and the fixed response 'objective' (MCQ) format. Recently, long answer questions were replaced by structured 'modified essay questions' which helps to assess the complex, cognitive learning experience and knowledge acquired by the student. Short Answer questions are similar to essay questions, but student responses are limited in length, which can be answered in a couple of sentences or paragraph. MCQs are appropriate for covering extensive syllabus.
2. **Practical Examination:** This consists of the following sessions,

Clinical-social case presentation: In this format a patient is provided to each student for examination. In a stipulated period of time, the student completes history taking and clinical examination and presents a provisional diagnosis, desirable investigations and ideal management of the patient. This gives a fair idea about the clinical knowledge and its application in prevention and control at the individual, family and community level.

Epidemiological and Biostatistics problem solving exercises: Data sets based on different public health scenario and problems are used to be solved by the students based on epidemiological and statistical measurement tools. Problem solving capacity of the student in a short period of time is judged.

General spotters: Different objects of public health importance are used as spotters like specimens, models, instruments, slides, charts, vaccines, medicines etc. Knowledge and application regarding the spotter is judged by specific questions.

Viva-voce examination: It evaluates knowledge, application and clinical reasoning of the student. It is time consuming and involves multiple examiners.

The marks scored for the written theory and the practical examination is compiled separately and the students have to score a minimum of 50% marks for each separately as well as both combined for getting a pass grade to go to the next level.

Advantages of Current Evaluation System: The current evaluation system uses multiple methods of evaluation. Written theory examination is a major component followed by practical examination. Knowledge, application and recall, are judged in theory exams. Clinical, analytical and communication skills to an extent can be evaluated in the practical examination. All these can be done during the time of the internal and final assessment at the predetermined time schedule for the examinations.

Disadvantages of the existing evaluation system

1. Similar assessment methods are used for both the internal assessments and the final examinations.
2. Other than cognitive skills, the psychomotor and affective skills are not adequately evaluated and very minimal emphasis is given on assessing communication skills, as been stipulated in the foundation course based on the New Regulation 2012.
3. Overall performance of the student throughout the year especially their habits, sincerity towards work, general behaviour and attitude are not taken into account on the day of examination in assessing the performance.
4. A doctor is an important part of the team, and will most probably be the team leader. In the current model of evaluation, ability to work in a team is not at all evaluated.
5. Community Medicine is the only branch of Medicine that deals with teaching of Health management, Administration and Economics related to Health Sector but this area is not evaluated specifically.

Most of the medical colleges / universities in South East Asia and developed countries have already implemented the Community Medicine Curriculum and Assessment guidelines as has been stipulated by MCI 2012 New Regulations. The System based, integrated modular curriculum is followed in most of the Medical Schools for the MBBS programme. The assessment methods used to assess the medical students in Community Medicine in different phases are the regular formative and summative assessments, where the student's theoretical knowledge, problem solving skills, clinical skills, attitudes and communication skills etc are assessed. In one Malaysian University, there are seven continuous / formative assessments and three final / summative assessments (university exams) done in Community Medicine during the course of five years [10].

In these Universities, the continuous assessment is considered a pre-requisite for sitting for the final/professional examination and contributes 40% to the final score. It consists of multiple choice questions and data interpretation, short answer questions, and modified essay questions. The final (university exams) consist of theory, practical and viva-voce examinations. Theory exam consists of multiple choice questions and data interpretation, short answer questions, and modified essay questions. Practical exam consists of mainly Objective Structured Clinical Examination (OSCE) and Objective Structured Practical Examination (OSPE) followed by viva-voce exam. Final exam contributes to 60% of the total marks.

Areas for improvement in the evaluation system of students in India:

There are several initiatives which can make a difference in the way evaluation can be done to assess the community medicine students. Some of the possibilities are discussed below:

1. The pattern of conducting the internal assessment can be done in a different method which includes evaluation of assignments/practical, projects, presentations and the conduct of the student in a proportionately weighted manner rather than following similar method of assessing the performance of the student like in final examinations.
2. Technology is an important aspect of today's life, so are presentation skills. Evaluation of presentation of seminar topics, their research work etc will give the students confidence to face the professional world in the future. Thereby psychomotor, affective and communication skills also can be assessed.
3. Depression and distress are noted to be common among medical students during examinations which may lead to bad performance [11]. The two months foundation course envisaged in the New Regulation 2012 should take care of this problem. The overall performance of the student throughout the year and phase especially their regularity, habits, sincerity

towards work, general behaviour and attitude should also be considered.

4. A doctor is an important part of the healthcare team. In the current model of evaluation, ability to work in a team is not at all evaluated. Doctors need to develop organizational skills and needs interaction not only with medical and paramedical professionals but also with people of the community, stake holders and influencers. To develop these skills, students should be exposed to the community as part of their community oriented training. Community based learning places the learners in the natural setting of the community rather than tertiary care hospitals. Community oriented medical education (COME) is an ideal method of educating learners to be first-contact physicians in the community [5]. Hence evaluation on the basis of their ability to work in a team is to be done.
5. Physicians play a crucial role not only in the well-being of their patients but also in their economic welfare, as they help to make choices about the cost of health care for their patients. Medical education, however, has failed to keep pace with these developments. Thus, incorporating information about economic realities into medical education to enable physicians to make better-informed decisions should be considered [12]. Community Medicine also deals with teaching of Economics related to Health Sector. This aspect can be evaluated by giving the students, assignments related to cost-benefit and cost-effectiveness analysis of basic medical and public health interventions.
6. Research Methodology is an important component of Community Medicine teaching. Along with epidemiology and biostatistics problem solving exercises, the students should do research projects and is to be evaluated, which will help in sharpening the research and analytical skills of the student.
7. Medical teachers, who are to assess students, should be trained in evaluation and assessments methods since no formal training in teaching methodologies and assessment methods are provided to the medical teachers [13]. Thus there is a chance of personal bias and the teacher being influenced by his or her own experiences and opinions. This can be rectified by periodically training them on methods of medical education and assessment based on the guidelines of MCI 2012 Regulations which mandates to organize regional medical education workshops to train all the medical teachers with in a stipulated time frame.
8. Since medical field is a dynamic field, the content of the medical education is very important and hence needs to be followed / reviewed periodically. The syllabus should be made dynamic and medical advances should be incorporated at regular intervals. It should be kept in mind that medical student is an adult [14].
9. Learners, teachers and programs all need to be evaluated regularly. Feedback from the students and teachers should be taken frequently for the betterment of medical education system. Student feedbacks should be followed by consultation by the faculty [15].

Self-directed Learning plays an important role in medical education.

The learners should take the initiative in making use of resources to learn more and learn better, to develop the skills of inquiry, and to go on acquiring new knowledge easily and skilfully the rest of his or her life. Student centered learning methods like problem oriented learning, case studies, community oriented learning, self-directed and experiential learning plays an important role [6]. Self-directed Learning should be an important component of Competency-based medical education, as envisaged by the MCI 2012, implementing outcomes-driven education and assessment to ensure physicians possess the knowledge and abilities they need for every stage and role of their career.

Most of these possibilities are incorporated in the New MCI 2012 Regulations. Proper implementation of this will lead to overall development of the students and make medical education stress free and enjoyable. Any evaluation method has its own strengths and weaknesses. Beyond a certain extent, no evaluation system can predict future performances of the student [3].

According to WHO Guidelines for Community Medicine Curriculum in the Undergraduate Medical Education, the monitoring and evaluation recommended should be based on the following criteria [16]:

- Observation of student performance in community settings.
- Ability to work in teams should be evaluated rather than mere assessment of individual performance.
- Presence of mind, instant decision-making, appropriateness of referral, community diagnosis, use and interpretation of statistical data, logical and rational plan of patient management, cost effectiveness of the proposed solutions should be evaluated.
- Feed back of a 360 degrees nature to be obtained from teachers, students, organizers of community based teaching, administrators and community representatives. The findings should be considered preferably in an academic seminar and be used for further improvement.

To achieve these objectives, emphasis of the teaching should be shifted more towards community oriented rather than class room oriented by frequently arranging field and family visits, project works, demography / morbidity surveys and community diagnosis [17]. The goal of Community Medicine Education should be to create a band of "Five Star Doctors" as endorsed by the WHO. They should have the essential skills of a care provider, decision maker, communicator, community leader, and/or manager who will cater to the needs of the primary health care services of our country.

Suggestions to improve Community Medicine teaching and assessment

1. Specific Chapters / Topics should be designated for phase 1, 2 and 3 of Community Medicine posting based on the teaching hours allotted for each phase. Now it is done arbitrarily by the Departments and hence no uniformity among colleges.
2. Demographic survey, morbidity studies and community diagnosis should be incorporated during the community oriented program (COP) / Block posting during the 1st, 2nd and 3rd year phases along with Field / family / community visits
3. Objective Structured Clinical Examination (OSCE), Objective Structured Practical Examination (OSPE), Problem-Based Learning (PBL) should be part of the 2nd and 3rd year Community Oriented Program (COP) teaching program. The Practical exam should be based on OSCE, OSPE and should be uniformly adopted by all institutions. There should also be a continuous evaluation of the evaluation system adopted by institutions.
4. Self directed learning modules should be incorporated based on the topics given for problem based learning, seminars, group discussion, research projects etc, which will encourage the students to acquire knowledge as well as resource seeking behaviour.
5. Terminology of 'Internal Assessment' be replaced by 'Continuous Assessment' and should be incorporated and spread through the 3 Phases of Community Medicine posting. The annual academic calendar indicating the time distribution should have designated 1 week for conducting internal (continuous) assessment tests, once in 12 weeks. All concerned Departments should conduct the assessment tests during this designated week, which will reinforce the need for

the students and teaching faculty to advance planning and preparation.

6. System wise integrated teaching (inter-disciplinary approach) should be undertaken with respect to commonly occurring diseases / conditions, integrated across specialties both vertically and horizontally, with due importance to epidemiology, public health priorities, control and preventive measures.
7. Theory tests should be based on the Modified Essay Questions and Short Answer Questions, with creative writing experiences. Clinical scenarios / demographic / morbidity / epidemiological data sets should be used to assess the critical analytical skills of the students during the internal and final exams.
8. The quantum of internal (continuous) assessment marks and final exam marks should be in the proportion of 40% and 60% or at least 30% and 70%.
9. Importance of attaining more knowledge and skills related to primary health care practice and family medicine should be highlighted throughout the course duration. This will help students to acquire competent practical training during the Internship in the Urban and Rural Health Training Centres attached to the Medical Colleges.

CONCLUSION

The objectives of the Community Medicine education should be oriented towards moulding medical graduates with sufficient knowledge and skills in various aspects of Primary Health Care, Public Health and Preventive Medicine with emphasis on Research activities. To achieve these objectives, different teaching learning methodologies, like OSCE, OSPE, PBL, Problem solving assignments, Learning by Doing and Simulation Exercises, Evidence Based Medicine teaching and Soft Skills Development are to be adopted, as stipulated in the New MCI 2012 Regulations. The teaching program and assessment needs to be redesigned and implemented in an integrated manner so that it will have a positive impact on the cognitive, psychomotor and affective domains of each and every student of Community Medicine.

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Date of Submission: **May 05, 2014**Date of Peer Review: **Oct 25, 2014**Date of Acceptance: **Nov 08, 2014**Date of Publishing: **Jan 01, 2015****FINANCIAL OR OTHER COMPETING INTERESTS:** None.