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INNOVATIONS IN MEDICAL CURRICULUM

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Abstract:

Health care management and leadership education is an important gap in the undergraduate medical curriculum. Lack of training promotes poor decision making and may lead to inadequate health services, adversely affecting patients. We need an integrated approach to health care management and leadership education at undergraduate level, to enable doctors to be effective leaders and manage resources appropriately and to ultimately improve patient care. To achieve this goal we need to use newer innovative methods to train the students to global competitive citizens .It is not just the subject skills but knowledge about other areas like health economics, bioethics .We have to produce professional who are committed to excellence, is ethical, responsive and accountable to patients, community, and profession. Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.

Index Terms: Medical Education & Innovative Teaching

Introduction:

The goal of medical education is to enable medical graduates to acquire competencies related to knowledge, skill and attitude on completion of the course and to provide sufficient opportunity to become familiar with the knowhow of medical informatics that would ultimately help them work efficiently. At Present, Medical Council of India (MCI) [(1),] a statutory body holds the responsibility of establishing and maintaining high standards of medical education and recognition of medical qualifications in India. Bachelor of Medicine and Bachelor of Surgery (MBBS) is a 4 ½ course with 1 year of rotating internship. The selection of students for medical courses has been based on the marks obtained by students on a MCQs test whose validity is highly doubtful and which are usually directed towards testing of mere recall of facts. The humanistic approach, attitudes, and communication skills which form essential traits of any health professional are hardly assessed.

Every student shall undergo a period of certified study extending over 4 ½ academic years divided into 9 semesters,(i.e. of 6 months each) followed by one year compulsory rotating internship. Phase-1(two semesters) - consisting of Pre-clinical subjects (Human Anatomy, Physiology including Bio-Physics, Bio- chemistry and introduction to Community Medicine including Humanities Phase-II (3 semesters) - consisting of para-clinical/ clinical subjects. During this phase teaching of para-clinical and clinical subjects shall be done concurrently. The para-clinical subjects shall consist of Pathology, Pharmacology, Microbiology, Forensic Medicine including Toxicology and part of Community Medicine. Phase-III clinical subjects to be taught during Phase II & III are Medicine, Paediatrics and its allied specialties, Surgery and its allied specialties, Obstetrics and Gynaecology and Community Medicine.

Traditional curriculum has its own drawbacks like there is to much emphasize on learning, memorizing specific information and does not focus on the learning curve and student centric learning. While the graduates generally possess reasonably sound knowledge of medical science, they are often found deficient in the performance of clinical skills and problem-solving which form the core of clinical competence. New competency based medical education!.

Limitations:

Teaching in classroom using chalk and talk is "one way flow" of information. Teachers talk for an hour without knowing students response and feedback. There is insufficient interaction with students in classroom. More emphasis has been given on theory without any practical and real life time situations. Problem based teaching as in MBA would be ideal. Health care management and leadership education is an important gap in the undergraduate medical curriculum. Lack of training promotes poor decision making and may lead to inadequate health services, adversely affecting patients.This is reflected by the large number of consumer cases against the medical fraternity.

The areas which are inadequately covered include medical ethics, behavior skills, managerial skills and communication skills. There is no provision for training students for PG entrance exams and also no information in using information technology for gathering current scientific evidence.

Strategic Initiatives to be Taken:

- ✓ Revise the curriculum to address weaknesses and build on strengths
- ✓ SWOT analysis.
- ✓ Foster and facilitate teaching, advising and mentorship.
- ✓ Develop facilities to meet future curriculum.
- ✓ Develop a community service program.

How it can be Achieved:

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. MCI is trying through VISION 2015[(1)]. More attention needs to be given to the development of various skills, viz., problem-solving skills, psychomotor or performance skills, attitudinal and communication skills. It is essential to move away from the knowledge dominated examinations to more skill oriented examinations. Rationalize the examination system by giving due emphasis on the 'formative' or internal assessment, introduction of logbooks, and supplementing the traditional long/short case examination with more valid and reliable instruments for assessment of clinical skills like objective structured clinical examination (OSCE). A formal assessment at the end of internship can ensure proper utilisation of this period for development of skills. Students should be given opportunities to explore management and leadership skills in the "real-world setting" like shadowing GPs, attending relevant seminars , undertaking quality improvement projects and participating in practical simulation exercises in which students take on various roles and manage fictitious service.

Measures to be Taken to Achieve this Goal:

- ✓ Introduction of Electives
- ✓ Mind Map
- ✓ Conversion of traditional lectures
- ✓ Adoption of Contemporary Education Technologies
- ✓ Simulation
- ✓ SPICES model of educational strategies

1. Introduction of Electives:

Students should be given choice to select electives of their choice. Elective subjective like 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, Pharmaco kinetics/

Pharmacodynamics / Pharmacoeconomics, Assisted Reproductive Technology, Ethics & Medical Education can be introduced.

2. Mind Map [2]:

During their undergraduate years, medical students have to process lot of information where they become passive recipients. Tony Buzan developed a innovative graphical technique called Mind Maps in 1960, It is a visual technique where information and knowledge are converted to a hierarchical, formatted and illustrated diagram, with structural key terms associated with a subject. One can recollect information for long time.

3. Conversion of Traditional Lectures [3]:

- ✓ Large group methods-Symposiums, Panel groups, controlled groups, free groups, buzz groups, T groups, team teaching, microteaching, problem based learning.
- ✓ Small group methods- problem based, case study, case scenario with discussions and debate Seminar, tutorials, bedside teaching, field work, role plays and workshops.
- ✓ Individual teaching-guided reading, programmed learning, project and individual task or assignment, conference and counselling.

4. Adoption of Contemporary Education Technologies [4]:

Skills lab, E-learning, Simulation. Interactive simulator designed to teach and assess problem-solving skills .e learning, web based, computer assisted; self-instruction modules/exercises; site visits, community placement; personal reflection; self-directed learning, etc

5. Simulation [4]:

Simulation through the use of Sim Man for final year medical students was described by Paskins. Kreiter et al using a novel computer-based approach designed to formatively assess second year medical students' ability to undertake diagnostic laboratory tests. Use of the Ventriloscope which simulates auscultatory findings.

6. Technological Advances in Information and Communication Technology (ICT) [4]:

Video conferencing technology has addressed the distance barrier to educational resources through technologies such as telemedicine, telementoring and telesimulation. E-resources such as online discussion forums, technology-enhanced problem based learning tools, email, electronic library resources, and adaptive education systems are just some examples of how ICTs have dramatically changed the way learners access knowledge.

7. SPICES Model of Educational Strategies [5]:

S	Student-centred	⟷	Teacher-centred
P	Problem-based	⟷	Information gathering
I	Integrated	⟷	Discipline-based
C	Community-based	⟷	Hospital-based
E	Electives	⟷	Standard programme
S	Systematic	⟷	Apprenticeship-based/ Opportunistic

a. Student-Centred Learning:

Promoted by the use of study guides or structured logbooks. These resources can direct students to learning outcomes related to the clinical problems being seen. Students benefit from the unhurried environment, the personal tuition and from time to practise clinical or communication skills.

b. Problem-Based Learning:

Diagnostic or management problems for students to solve based on the core clinical problems. Here the emphasis is on problem-solving rather than information gathering.

c. Integrated or Inter-Professional Learning:

Integrated learning can be facilitated when students in a systems-based course attend a clinical teaching session using system-sensitive patients invited from a bank of patient volunteers. Related information can also be made available in the session for reference or revision.

d. Community-Based:

Moving student teaching to venues in the wider community hospitals/ PHC's allows students to gain experience in a wider range of common healthcare problems often more appropriate for undergraduates and with patients who may be more accessible than those in the teaching hospital

e. Elective:

Introducing student elective opportunities moves learning away from a standardised/uniform programme to one which gives students a choice of further study in areas of interest. A 4-week rotation through a variety of specialties in out-patient clinics the clinical investigation and radiology units; nurse or therapist-led procedure clinics; and the day surgery unit.

f. Systematic:

Structured logbooks are the key roles which ensure that students see the required range of core clinical problems and focus on appropriate learning objectives.

Newer Innovations in Student Assessment [3]:

- ✓ Modified essay questions (MEQ)
- ✓ Simulated patient management problems (SMPM's)
- ✓ Multiple choice questions
- ✓ Long case clinical examinations
- ✓ Objective structured clinical exams (OSCE)
- ✓ Objective structured practical exams (OSPE)

Training the Teachers:

The teacher is the corner-stone for any system of education. Medical education Units should play a key role in training teachers in the techniques of teaching would go a long way in improving the quality of teaching.

Conclusion:

We need an integrated approach to health care management and leadership education at undergraduate level, to enable doctors to be effective leaders and manage resources appropriately and to ultimately improve patient care. To achieve this goal we need to use newer innovative methods to train the students to global competitive citizens. It is not just the subject skills but knowledge about other areas like health economics, bioethics.

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