

Assessment in Medical Education: Time to Move Ahead

Piyush Gupta

Professor of Pediatrics,
University College of Medical Sciences, Delhi, India

SUMMARY

Assessment is an integral part of the curriculum. However, the assessment tools, devised more than a century ago, have not kept up with changing scenario of health care and demand of the consumers. In the present scenario, what is tested is a one-time assessment at the exit examination as a surrogate marker for real and observable competence. Most Indian medical schools employ the traditional assessment tools that hardly permit testing of most competencies desirable of a physician; i.e., skills in communication, management, collaboration, professionalism, medical knowledge, health promotion, and counseling. Also, the competencies are not assessed in real time situations. A few medical schools have tried to bridge the gap by introducing the second generation tools, yet the overall approach and methodology is fraught with major drawback of fragmentation and non-contextualization. The physician is supposed to satisfy the patient in a holistic manner or in other words, win the trust. It is this trust primarily what needs to be assessed. The present article stresses on the need of a global assessment conducted on an ongoing/periodic basis, with adequate weightage given to the opinion/assessment of the consumer. Utility of some newer tools including mini clinical evaluation exercise (mini-CEX), direct observation of procedural skills (DOPS), multisource (360°), and portfolio based assessment is discussed. Finally, we introduce the reader to the concept of assessment of entrustable professional activities (EPAs). The concept of EPA helps integrate the theoretical concepts of individual competencies into a measurable parameter of Trust.

Correspondence : Dr. Piyush Gupta, Block R6A, Dilshad Garden, Delhi 110 095, India. Email: prof.piyush.gupta@gmail.com; Tel: 011-22592149; Mobile: 919811597172.

DR. K.L. WIG ORATION delivered during NAMSCON 2014 at the All-India Institute of Medical Sciences, Rishikesh.

INTRODUCTION

In any field of study, assessment is an integral part of the curriculum. It determines the success and failures of its recipients; and that is its accepted role. But, is it so, especially in the medical field? In the United States, medical students are assessed on the ACGME (Accreditation Council for Graduate Medical Education) Model that outlines 6 major competencies, desirable of a physician. These include medical knowledge, communication and interpersonal skills, patient care, system based practice and procedural skills (Fig. 1) (1, 2). These also encompass other interrelated minor/soft competencies including: quality of care, patient safety, documentation of care, team work, population health, health policy, and organization of health services. If we look

at the current curriculum of undergraduate medical education in Indian universities, there is hardly any emphasis on assessment of professional competencies. It is a known fact that students learn only what is assessed (3). Resultantly, what they gain is bookish knowledge. And, internship – supposedly the golden period for acquiring psychomotor skills – is wasted in preparing for postgraduate entrance examination. Ironically, a bachelor of medicine and surgery (MBBS), after getting through the final summative exams, cannot write a prescription to a child with diarrhea, administer an intradermal vaccine, put in an intravenous line, or conduct a normal vaginal delivery – few of the very basic skills needed of a fresh medical graduate. Medical Council of India (MCI), the custodian of medical education in India is concerned more with accreditation of

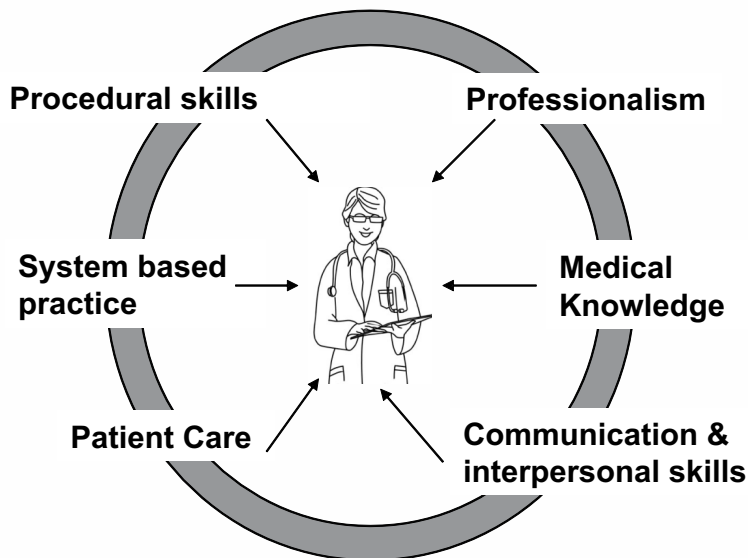


Figure 1: ACGME Model of Competencies

Institutions (that too, on outdated criteria) rather than concentrating on their output i.e. the medical graduate. Some efforts were made culminating in a "Vision 2015" document (4); the exercise is still cocooned in futility!

Role of Faculty :

Faculty is confused because they are supposed to be multi-tasking, tangled-in the webs of administration, patient-care, and research. Education, by and large, always takes a backseat. Their promotion hangs by the thread of 'number of published papers'. They have less time available for studying and teaching. The problem is more acute in institutions where the faculty members also have a private practice. Clearly, teaching by most faculty members in a medical school setting in India remains a secondary outcome of their activities; the primary motive may differ as to patient care, research, administration, or even politics. The end result is that students are taught by those who have their primary interests, elsewhere. Assessment tools, devised more than a century ago, have not kept up with changing scenario of health care and demand of the consumers. The policymakers, administrators, and the faculty have no time to revise or update them.

Competency-based Medical Training :

A doctor needs to be competent enough to satisfy the patients, their relatives, and the community he/she

serves (5). Competence for physicians, as perceived by the general public- consists of skills in communication, management, collaboration, professionalism, medical knowledge, health promotion, and counseling (6). Most importantly, these competencies need to be carried on life-long in a real life situation (5, 6). In the present scenario, what is tested is a one-time assessment at the exit examination as a surrogate marker for real and observable competence.

Most Indian medical schools employ the traditional (first generation) assessment tools (Table 1) that hardly permit testing of most competencies desirable of a physician. A few universities and medical schools have tried to bridge the gap by introducing the second generation tools, such as objective structured clinical/practical examination (OSCE/OSPE), specifically aimed at testing skills related to medical practice and communication (7). These tools do permit evaluation of certain competencies, yet the overall approach and methodology is fraught with major drawback of *fragmentation* and *non-contextualization*. Let's understand what I mean. For this we first need to know what are the expectations of a physician.

What is Required of a Physician?

Put yourself in a patient's shoes, or merely traverse through your experiences to a time when *you* were a patient. Now ask yourself: what does a patient need, or expect of his doctor?

Table 1: Assessment in Medical Education

<p><i>1st Generation Tools</i></p> <ul style="list-style-type: none"> · Theory: Essay type question unstructured · Practical: long case, short case, spotting · Oral examination: Viva-voce · Log-books <p><i>2nd Generation Tools</i></p> <ul style="list-style-type: none"> · Theory: Multiple choice question (MCQ) <ul style="list-style-type: none"> ○ Modified essay question (MEQ) ○ Short answer question (SAQ) ○ Structured essay question (SEQ) · Practical: Objective structured clinical examination (OSCE) <ul style="list-style-type: none"> ○ Objective structured practical examination (OSPE) ○ Objective structured long examination record (OSLER) <p><i>3rd Generation Tools</i></p> <ul style="list-style-type: none"> · DOPS (direct observation of practical skills) · Mini CEX (clinical evaluation exercise) · Portfolio-based assessment · 360° (multisource) assessment · EPA (entrustable professional activities)assessment

Discounting the outside environment of a doctor's room to be outside the doctor's control, the first stage comes when the patient comes into direct contact with the doctor. That first impression, or the 'vibes' the patient gets from the doctor consist of a plethora of sub-factors: body language, appearance, mannerisms, attentiveness, cleanliness, the first greeting, etc. The patient, more

often than not, relates these to professionalism, and forms a part of his opinion on the doctor's proficiency. Next is communication, perhaps the single-most important factor on the 'feel-good' antenna for the patient. Other than being coherent and considerate of the patient's limitations of comprehending medical jargon, the doctor also needs to be compassionate, patient, a good listener,

empathetic and not judgmental. Thirdly, how does the doctor handle the patient physically? How does he examine him? Is the patient's privacy and comfort a priority in the doctor's mind? Before he does something that may induce pain, does he prepare the patient for it? After this comes the diagnosis—more importantly, the right diagnosis. This depends on the knowledge, experience and skills of the doctor. In the current system of evaluation of medical graduate students, this is the only factor a doctor's ability is gauged upon. As can be seen, it is just one of the many considerations a patient values.

Then comes the way a doctor treats the patient. Besides offering a rational evidence based therapy, the physician also has to be mindful of functional parameters like legibility and clear instructions of the prescription; as well as more indistinct constraints like the patient's income. And if a procedure is advised, is the physician competent enough to handle not only the intervention, but also its complications, if the need arises. The next stage would be to counsel the patients on all the possible courses of action and helping/advising them to choose between them. The doctor has to do his possible best in helping the patient make an informed decision in an evidence-based manner. Cure from a disease is not *just another* part of satisfying the patient; it is the most crucial one and needs to be handled appropriately. It is important to develop that bond of **trust** between the doctor and the patient.

Trust implies that the patient thinks of the doctor as part of the family, is not hesitant in calling him up for advice in the related field of expertise.

Assessment Needs to be Global :

The physician is supposed to satisfy the patient in a holistic manner (8). Or in other words, win the trust. It is this trust primarily which needs to be assessed. It will not do good to be proficient in one competency and a failure in others. Competencies, however, can be categorized as “must have”, “good to have” and “desirable”. Experts (those devising the curriculum) can draw strict boundaries between the three categories as most of them would agree on the content of each compartment. In real life context, the consumers (patients) differ in what they perceive as “must have”, “good to have”, and “nice to have” competency for their physician. For example whereas for one patient, the professionalism of the physician is more important, for the other, the communication skills matter more. Another patient may be more impressed or at least /satisfied only if the physician is a competent scholar. Most of the time, it is the overall satisfaction, that keeps a patient to the physician. Individual competencies of a physician in different areas become redundant. That's why at times the assessment needs to be 'global' (2). The second generation assessment tools rely primarily on fragmented assessment, and evaluate only one or two competencies at a time.

Assessment needs to be Contextual :

In the current scenario, the assessment of competency takes place in a simulated/artificial environment created especially for the purpose of examination. Competencies are not assessed in the real context where they are going to be practiced. And the assessment is also not being done by the ultimate end-user. Two issues are raised: Where to assess? And who should assess?

Where to assess?

Miller's pyramid of assessment is a hierarchical frame work of assessment (9), where 'doing' a task is ahead of 'showing how to do', 'knowing how to do', and 'knowing', in that sequence. Top of the pyramid consists of 'doing'; however, it

fails to mention the contextual relevance of this 'doing', which is more important.

Can I trust a student who is proficient in the top level of Miller's Pyramid with the life of a newborn infant? A student may 'do' a resuscitation process on a manikin in a copybook manner and score 100%, but may start perspiring or develop slippery palms, when faced with an asphyxiated newborn in the delivery room. Or can I trust a would be physician to be as polite and a thorough gentleman in dealing with patients in a busy OPD, in the same way he/she has demonstrated in a OSCE station during assessment; on a simulated patient. Assessment therefore needs to be done in the context where the competency is to be practiced (10). We thus propose to add another story to the Miller Pyramid, i.e., “imbibed in

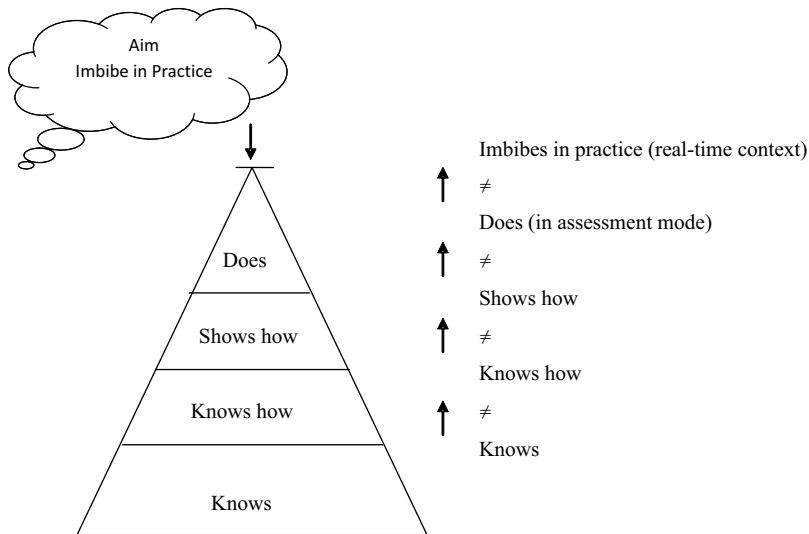


Figure 2 : Miller Pyramid: 'Does' is also not the ultimate.

practice.” (Fig. 2). This is possible only when the competencies are performed “in Context.”

Who should assess would-be doctors?

Akin to most professions where regular assessment is carried out, medicine also employs its experienced members to measure the caliber of their newer counterparts. The proof of a doctor's proficiency, however, can't just be the theoretical or practical knowledge. At the risk of sounding morally naïve, it isn't the mere curing of disease that makes a doctor; because the entire function of a doctor isn't only the elimination of disease, but the overall satisfaction of the patient. It is the reason why the patient is in a unique position of ascertaining whether a doctor is fulfilling his/her purpose or not.

In the current scenario of the assessment of doctors, much like is the case with a broken car and a mechanic, the

patient is treated as someone to be fixed, and the doctor's ability lies in his effectively fixing the patient. Unlike the car, though, a patient is capable of experiencing and expressing emotions; also, the patient's mental calm is part of their health, which the doctor aims to restore. It is but natural that their view be taken into account.

Still, in today's assessment of a medical graduate, there is no provision for the patient's opinion or satisfaction. The assessment, which ideally should be consumer-driven, is actually provider-driven. It is done by medical teachers, and even if they wanted to gauge the patient's opinion, there are no defined, well-known factors to do so.

What needs to be Done?

We have seen above that it is essential that competencies be assessed in an integrated and contextualized manner. To be declared as being proficient, a given

Box 1: How to Assess ?

1. Use a variety of methods in different environments and context
2. Assess on a repeated and ongoing basis
3. Assess with a mix of real life situations with focused assessment of knowledge, attitude, and practice
4. Assess by directly observing the behavior
5. Use appropriate standards for pass-fail and provide feedback for further improvement

Adapted from: Epstein RM. Assessment in Medical Education. NEJM 2007; 356:394.

task has to be done in professional manner, communicated well, thought well, executed well and finally appreciated by the consumer. Also, competencies are dynamic and not static (5) and therefore need to be assessed on an ongoing/periodic basis rather than a one-time assessment (11).

Many more third generation assessment tools have been developed specifically to test the competencies. In a mini clinical evaluation exercise (mini-CEX), the observer assesses a trainee on history-taking and physical examination over 10-15 minutes, followed by discussion on the diagnosis and management, in a structured format (12). Direct observation of procedural skills (DOPS) aims to specifically assess procedural competencies. Multisource (360°) assessment is probably the only tool that dwells on evaluation by the peers, patients, and self. A number of such evaluations are needed and will require some modifications to be of utility for a summative examination (13). The process also includes generation of a portfolio that covers domains of all aspects of competence and serves as a display project for review. Portfolio is a window for self-reflection and also includes plans for future learning. Portfolios demonstrate the development and professional capacity of the student (14, 15). Close monitoring is a necessary pre-requisite for portfolio to be effective in assessment and further learning (16).

Assessment of entrustable professional activities (EPAs) :

If we can depend on someone to do a task, he/she can be said to be 'entrustable'. We want physicians who can be entrusted to take care of us, our family, the community, and the society at large. However, their competency in treating an illness is only one pillar on which 'Trust' is based. Other pillars, of this "trust-building" involve their body language, communication skill, medical professionalism, and confidence. We would entrust a doctor who, when in dilemma and time in favor, prefers to obtain a second opinion, rather than plunging into a hasty and risky decision on his/her own. Of the two students, whom you ask to order a set of investigation for diagnosing a patient, the first one writes all the 5 tests that can help in diagnosis; the second student also knows that there are 5 tests but will order only the first two (the most reliable ones)-whom are you going to trust more. Both know the subject well, thus both are competent; however their "professional activities" differ. It is up to you whom do you trust more? Competence thus may not necessarily translate into entrustable professional activities (EPA).

The concept of EPA has been conceived to facilitate the transition of individual competencies as outlined in ACGME model into a framework that defines the overall professional qualities of a physician. The concept helps integrate the theoretical concepts of individual competencies into a measurable

parameter of *Trust*. Olle ten cate has defined EPA as “unit of professional practice defined as tasks or responsibilities to be entrusted to the unsupervised execution by a trainee once he or she has attained sufficient specific competence. EPAs are independently executable, observable, and measurable in their process and outcome, and therefore suitable for entrustment decisions. Sequencing EPAs of increasing difficulty, risk, or sophistication can serve as a backbone for graduate medical education” (17). Assessment of EPA, though subject to variability of student, examiner, context, and the activity itself, can be defined and utilized for graduate medical education program. EPA has emerged as the vital link between competencies and clinical practice (18). This can serve as a useful tool in reforming medical education in India. Box 1 summarizes the most important tips needed to bring out a change in the current assessment practices.

Lay public, i.e. the consumers, the sole beneficiary of medical education is hardly a stakeholder in planning of making a doctor. Abraham Flexner, more than a century ago released a report in US (19), primarily addressed to public that fueled the change and changed the face of medical education in America. Similar situation is prevailing in India at present, with mediocre quality of most medical schools, profit motive of many such institutions in private domain, inadequate facilities at many state-run schools, stress on postgraduate admission, and unfocussed faculty and student. It's time

for the consumers to get up from slumber and play a pro-active role, demand what they need, create what they desire, and discard what they don't want. Government, experts, and regulatory bodies have not been able to do this on their own. The people of India need to exercise their mandate for a healthy nation.

Competing interests: None stated.

Funding: None.

REFERENCES :

1. Batalden P, Leach D, Swing S, Dreyfus H, Dreyfus S (2002). General competencies and accreditation in graduate medical education. *Health Aff (Millwood)* **21**:103-111.
2. Farrell SE (2005). Evaluation of student performance: clinical and professional performance. *Acad Emerg Med.* **12**:302e6-10.
3. Cooke M, Irby DM, Sullivan W, Ludmerer KM (2006). American medical education 100 years after the Flexner report. *N Engl J Med* **355**:1339-1344.
4. Medical Council of India. Vision 2015. Available from: http://www.mciindia.org/tools/announcement/MCI_booklet.pdf. Accessed 15 June, 2014.
5. Epstein RM (2007). Assessment in medical education. *N Engl J Med* **356**:387-396.

6. Ten Cate O (2011). Competency-based medical training and evaluation. Definitions and correlations with real clinical practice. *Revista Argentina de Cardiologia* **79**:405-407.
7. Gupta P, Dewan P, Singh T (2010). Objective Structured Clinical Examination (OSCE) revisited. *Indian Pediatr* **47**: 911-920.
8. Ten Cate O (2006). Trust, competence, and the supervisor's role in postgraduate training. *BMJ* **333**: 748-751.
9. Miller GE (1990). The assessment of clinical skills/competence/performance. *Acad Med* **65**(9 Suppl):S63-S67.
10. Klass D (2000). Reevaluation of clinical competency. *Am J Phys Med Rehabil* **79**:481-486.
11. Leach DC (2002). Competence is a habit. *JAMA* **287**:243-244.
12. Norcini JJ, Blank LL, Duffy FD, Fortna GS (2003). The mini-CEX: a method for assessing clinical skills. *Ann Intern Med* **138**:476-481.
13. Dannefer EF, Henson LC, Bierer SB, *et al.* (2005). Peer assessment of professional competence. *Med Educ* **39**:713-722.
14. Mathers NJ, Challis MC, Howe AC, Field NJ (1999). Portfolios in continuing medical education--effective and efficient? *Med Educ* **33**: 521-530.
15. Challis M (2001). Portfolios and assessment: meeting the challenge. *Med Teach* **23**:437-440.
16. Challis M (1993). *Introducing Apel*. London: Routledge.
17. Ten Cate O (2013). Competency-based education, entrustable professional activities, and the power of language. *J Grad Med Educ* **5**:6-7.
18. Ten Cate O (2013). Nuts and bolts of entrustable professional activities. *J Grad Med Educ* **5**:157-158
19. Flexner A (1910). *Medical education in the United States and Canada. A Report to the Carnegie Foundation for the Advancement of Teaching*. New York: Carnegie Foundation for the Advancement of Teaching.