

Editorial

Thoughts about assessment in undergraduate Medical Education

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The undergraduate medical program in Nepal is of four and half year's duration followed by a year of rotating internship [1]. Since 1990 a number of medical colleges have been opened in Nepal predominantly in the private sector. The latest statistics from the Nepal medical council, the regulatory body shows 21 medical colleges in the country [2]. The undergraduate medical (MBBS) curriculum is divided into the integrated basic sciences of two years duration followed by two and half years of clinical rotations. Early clinical exposure and community postings are offered during the basic science years. Community medicine also continues to play an important role during the clinical phase. Traditional written examinations using short answer questions, viva-voce and practical examination in individual subjects play an important role in assessment during the basic sciences. Community diagnosis and community medicine field visits play an important role in assessment in the subject. Even though subjects are taught in an integral manner (mostly temporal integration as organ systems) the subjects are assessed independently. During the clinical phase written examinations and long cases and short cases are the major methods of assessment.

In this editorial, authors briefly mention newer methods and recent developments in

undergraduate medical student assessment. For many years there was a movement toward objectivity in assessment and structured and standardized assessments were strongly recommended. The focus was primarily on instruments and the validity and reliability of assessments. We used to break down complex competencies and behaviours into simple component parts and concentrated on measuring each individual component of a complex behaviour [3]. The underlying assumption was that if a student could carry out the various components of a task correctly, they will be able to carry out the entire complex competency at an adequate level. There was and is a trend toward assessment in standardized conditions. Each student is assessed using the same clinical case and a standardized patient reducing variation and subjectivity.

In clinical examinations in South Asia the long case and short cases dominates. In a recent study from Sri Lanka, approximately 90% of students were of the opinion that the long and short cases were a fair assessment of their clinical skills and knowledge [4]. The major advantage of the long case is that it encompasses different aspects of the clinical encounter ranging from communication skills, history taking, physical examination, and creating a plan for diagnostic work up and management. The major challenge is that

only a limited selected of conditions can be assessed and the assessment was subjective and based on the examiners' perceptions and judgment.

Validity and reliability are two important concepts in assessment. Validity means that the assessment measures what it is intended to measure. Validity can be improved by defining clearly what competencies we want to measure and which assessment methods can best do so. Medical educators and curriculum developers should have a clear idea of competencies which students should develop at different stages of the educational program. Often competencies are defined at the stage of entering clinical postings (completing the basic sciences) and at the stage of graduation. Entrustable professional activities (EPAs) are increasingly being used. EPAs are 'professional activities that together constitute the mass of critical elements that operationally define a profession' [5]. EPAs provide a means to integrated competencies into units of work which are observable, measurable and independently executed [6]. Most students after completing their undergraduate education will enter supervised practice during postgraduation, residency or house postings.

For assessment to be reliable an adequate sampling of cases and activities are required. The use of a large sample across the content areas to be tested can ensure reliability of assessment [7]. Sampling across a large content area during the limited time period of a summative examination can be difficult and there is an increasing interest in conducting multiple, longitudinal assessments in clinical settings. General competencies are becoming increasingly important in medicine. These include the ability to work together in interprofessional teams, metacognitive skills,

self-appraisal, professional behaviour and the ability to reflect. These skills are complex and more challenging to measure. Multiple methods of assessment are recommended and triangulation of data obtained from these different methods can be used to make a final decision.

Assessment is increasingly seen as a method to trigger, support and direct student learning and skill development. Medical students work toward developing a portfolio which can be electronic and is periodically discussed during interactions with the mentor and assessed at intervals. Assessment is increasingly context-rich and context-specific and clinical vignettes are often used as the lead-in to short answer or multiple-choice questions. Contextualization of questions is considered an important indicator of the quality of assessment [8]. Assessment of clinical skills in the clinical workplace setting using mini-clinical examination exercise, video assessment and multisource feedback is being increasingly used especially in postgraduate education. These methods are also being used in undergraduate assessment in many settings.

For long there was a 'fear' of assessors making judgments and a trend toward objectivity in assessment. Recent research highlights the importance of global and holistic judgment of competence [9]. Using multiple examiners who agree on a working definition of the competence or skill to be measured is important. Assessment has been combined with artificial intelligence to support and guide learning. Many commercial preparation programs for the United States Medical Licensing Exams (USMLE) use a diagnostic test at the beginning to identify areas of student strength and weakness. Periodic assessments throughout the course

help students identify their strengths and areas requiring attention and help to create a study plan. On completion of the course, the final examination serves as a surrogate measure of whether the student is ready to appear and be successful in the licensing exam.

Most examinations in Nepal have 50% of the total marks as the cut-off for passing. However, when using a criterion-reference standard the importance of a task, the consequences of not doing it properly, the level of practitioners who carry out the task are among different factors which can influence the passing standard. The standard can be higher than the common 50% for important and critical tasks. Some schools especially the Patan Academy of Health Sciences are doing standard setting for their examinations.

The recent and ongoing COVID-19 pandemic has moved most of medical education online. The challenges of assessing student learning through online methods has been addressed [10]. Open-book examinations, conducting examinations under online and remote proctoring, structured online viva-voce, assessing higher order cognitive skills, assessing communication skills and history taking skills online have all been suggested.

These developments have to be considered for possible discussion and implementation. The existing structure of universities, colleges and departments, issues of objectivity, bias, subjectivity, available resources, faculty and student inputs and need for training have to be considered. These modern developments in assessment in medical education may require careful thought from universities and curriculum developers in Nepal to ensure the creation of competent, empathetic doctors

with well-developed lifelong learning skills who will be adequately equipped for practice during the challenging times of tomorrow.

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