Direct Observation and Focused Feedback for Clinical Skills Training

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Direct observation of the medical trainee by an expert assessor and providing authentic feedback is considered an important tool for development of clinical and procedural skills. Mini-clinical evaluation exercise and Direct Observation of Procedural Skills are two important tools to observe the trainee during a clinical encounter or during a procedure, make an expert standardized (though subjective) observation, and use it to provide developmental feedback. Both can be easily integrated into routine work of clinical departments, and both provide a reliable assessment if 6-8 such encounters are used.

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Traditional case-presentations have been the mainstay of assessment in medicine for a long period of time. Despite their use over a long period of time and wide acceptability, case presentations have certain inherent flaws [1]. The trainee is not observed during interaction with the patient, and so the assessment is not based on history taking, physical examination or counselling skills; rather, most of the assessment focuses on the presentation skills. Residents' poise, confidence and linguistic skills – in addition to the luck factor in getting an easy or a complicated case – affect such assessments. Sometimes, patients with rare diseases are used in the assessment, many of these diseases the trainee is unlikely to see again during his/her career. Also, the trainee is not told about the strengths and weaknesses of his presentation and how it can be made better. All these factors make the assessments summative in nature, with no opportunity to use assessment as a learning tool. Objective structured clinical examination (OSCE) can help to compensate for these weaknesses to some extent but again has certain limitations [2]. It de-constructs the task into smaller components, which may not necessarily add up to the whole. Preparations for OSCE are even more elaborate than those required for a long case.

Importance of acquiring core clinical skills can never be overemphasized. In over three - fourths of the cases at primary care level, a diagnosis can be made by a good history and clinical examination [3]. Still, none of our currently used assessment tools makes an attempt to assess acquisition of skills. Sometimes and at some places, there are few OSCE stations to assess skills but these are in an artificial and controlled environment. Many skills like endotracheal intubation, central line insertion, lumbar puncture, or intramuscular injection cannot be replicated in an OSCE setting, except on a dummy. Residents learn it from their seniors and the mistakes are passed down for generations. There is no observation and feedback from faculty. Additionally, a physician also needs to learn a number of soft skills, which are important for practice of medicine and patient safety [4]. Soft skills make the difference between a successful and not so successful physician. When things go wrong in practice, it is generally attributable to lack of soft skills rather than to lack of technical knowledge [5]. In our assessments, soft skills are never assessed. This can be attributed to non-availability of suitable tool(s) and more importantly, a fear of subjectivity.

Attributes of good assessment tool: Deciding the right assessment tool for clinical competence is an enigma. There is enough material in the literature to pick assessment tools based on the notional concept of 'utility'. Utility of assessment [6] is conceptualized as a product of its validity, reliability, feasibility,

Editor's Note: Advances and innovations in medical education are essential to maintain and promote the professional standards for all personnel engaged in teaching and training of medical students and trainee resident doctors. The quality of learning directly contributes to improvement of health care and adherence to high ethical standards of care. In order to update our readers with these advances, we are starting a series of articles related to feedback, assessment and evaluation methods in medical education. I hope that readers will find the series useful; any comments and feedback are welcome. This may be directly communicated to the authors or to the journal office at *jiap.nic.in*. Comments can also be posted on the relevant thread on facebook page at *www.facebook.com/indianpediatrics.*

acceptability and educational impact. Viewed from this perspective, long case may be high in validity, feasibility and acceptability but is low on reliability and educational impact. The key point of this notion is that an assessment low on one of the attributes can still be useful by virtue of being high on others [7]. Thus a tool with low reliability and high educational impact (*e.g.* essay questions, long case) would be considered as much useful as a tool with low educational impact but high reliability [*e.g.* multiple choice questions (MCQs), OSCE]. This is in line with the contemporary thinking that assessment should not only tell us whether learning occurred or not, but should also help us in improving it.

A good assessment of clinical competence should be valid *i.e.* it should mimic the actual clinical encounter as closely as possible, and it should be reliable. It is now accepted that reliability is independent of objectivity of a tool [8]. It should be easy to organize, should be acceptable to the stakeholders, and should positively impact learning.

Importance of feedback: Of all factors, feedback is recognized as the single most important factor that impacts learning [9]. Veloski [10] has also demonstrated the utility of feedback in making clinical learning better [10]. However, to be effective, the feedback has to be authentic, based on direct observation, and provided immediately. Less than one-third of clinical encounters are actually observed during training [11,12]. At the Postgraduate level, up to 80% of Postgraduate residents may have only one observed clinical encounter [13]. Situation in Indian medical schools is expected to be no better: direct observation (structured observation of the trainee interacting with the patient, taking history, performing physical examination and giving advice and not simply being present in the same room) of skills is negligible.

MINI CLINICAL EVALUATION EXERCISE (MINI-CEX)

This was introduced by the American Board of Internal Medicine [14] as one of the series of assessments to address these issues. Mini-CEX is a snapshot observation of a doctor-patient encounter in a real authentic setting (outdoor or wards), lasting 15-20 minutes. Its focus is on the core clinical skills that a resident should demonstrate during clinical encounters. For each mini-CEX, a single assessor observes and evaluates a resident who conducts a focused history and physical examination on a patient. Each encounter can focus on one or more of the competencies listed in ***Box 1*** [15].

BOX1 COMPETENCIES ASSESSABLE BY MINI-CEX

1. Medical interviewing skills
2. Physical examination skills
3. Humanistic qualities/professionalism
4. Clinical judgment
5. Counseling skills
6. Organization/efficiency
7. Overall clinical competence

All competencies need/may not be tested during each encounter and a choice can be made depending on the case and the seniority of the resident (*e.g.* history taking during early residency while counseling skills can be assessed during latter part). After asking the resident for a diagnosis and treatment plan, the faculty member completes a short evaluation form and gives feedback to the resident. The competencies picked up for that encounter are rated on a 9-point scale, where 1-3 are considered unsatisfactory, 4-6 are satisfactory, and 7-9 are considered superior. It uses global ratings and subjective expert judgment rather than checklists. The results are recorded on a generic form, which can be downloaded from ABIM website [16]. The form also records the resident's identification data, complexity of the case and the site where the encounter was held (outpatients, wards, emergency *etc*). The form also details the list of competencies and their brief description to provide guidance in evaluation.

To build generalizability and to provide reliable and valid assessment, 6-8 encounters per year are recommended [17]. Each encounter should be observed by a different assessor and entail a different clinical problem. The process can be initiated by the residents (so that each one completes 6 cases a year) or by the department (a designated day for the encounter depending on availability of the patients and assessor). We find the outpatient department to be the best place for a mini-CEX. A resident working up a new case can be observed by an assessor and provided feedback on the clinical encounter. In either situation, it is the flexibility and ease of integrating mini-CEX within the routine working of department without any special preparation that stands out as a positive point. The filled up rating forms provide a documentation of the resident's progress and can be stored either in personal file or as part of a learning portfolio. Sample mini-CEX clip [18] and the method of providing feedback [19] – provided by St. George's University of London – are available for online viewing.

Mini-CEX uses a different assessor and a different case for each encounter. Over a year, each resident is

assessed by 6-8 assessors on 6-8 different cases. This is considered as the biggest strength of mini-CEX as each teacher brings a distinct way of thinking and approaching a patient [20]. Although many of the items on the rating forms are subjective, reliability of mini-CEX has been reported to be much higher than that of an OSCE [8]. Similarly the assessment is based on a different patient and a different setting each time, further building the validity and reliability of the judgments. It may be pertinent to reiterate that the best way to augment validity and reliability of the assessments is to increase the breadth and depth of sample for tasks and assessors [7].

Mini-CEX has several advantages over other forms of assessment of clinical competence. By assessing the residents in the real-life settings on a variety of cases and in a variety of settings, validity is ensured. Mini-CEX looks at the entirety of the clinical task rather than breaking it into components, which also contributes to its construct validity. Large number of assessments using different cases and different assessors ensures reliability and generalizability. It is easier to organize a mini-CEX than OSCE or a case presentation. Residents see value in it by way of immediate feedback in a non-threatening situation, making it more acceptable. It contributes to better learning by aligning working and learning in the workplace. It also has the advantage of exposing the residents to different ways of thinking about problems. A number of publications have established its utility in the West [14,15]; experiences about its applicability, acceptability and utility have also been reported from India [22]. In our experience, mini-CEX was found to be feasible and acceptable to faculty and the trainees. ***Table* I** compares the 3 commonly used assessment tools.

Feedback has very important role in utility of mini-CEX. In line with attributes of an effective feedback, feedback in mini-CEX is based on direct observation rather than historical facts, and is available immediately after the encounter [9]. The assessors can use various tweaks to enhance the value of feedback by using one of the various models like Pendleton's framework [24]. Here the assessor first asks the trainee to rate his/her performance and how he could have done better. He then provides positive re-enforcement for what was done right, corrective advice for what was wrong, and suggestions to improve. The whole process takes about 5-7 minutes. The recording form also has a provision to ask the trainee about his/her satisfaction with the entire learning process, which provides a feedback to the assessor as well.

There are certain limitations of mini-CEX. Various residents are assessed on different patients by different assessors, which make comparison between the residents difficult. For this reason, mini-CEX is currently used only for formative purposes rather than summative [25]. Standardization is difficult with mini-CEX given its flexible logistics. Mini-CEX is not a replacement for other assessment tools. It only compliments the information generated by other tools. The results of mini-CEX also need to be supplemented by other measures of performance and knowledge like case presentation, OSCE and MCQs/essays.

While mini-CEX targets clinical, analytical and counseling skills, procedural skills is another area which is not adequately represented in current assessment. Simulations in skill laboratories can assess these to some extent but this is not possible in real life setting. This leads to a generation of physicians who may have theoretical knowledge but who are deficient in procedural skills. This led to development of direct observation of procedural skills (DOPS) as another important tool for directly observing these skills as part of workplace-based assessment.

DIRECT OBSERVATION OF PROCEDURAL SKILLS (DOPS)

This was developed by the Royal College of Physicians [26] as part of assessment for its foundation program. DOPS refers to observation and evaluation of a procedural skill performed by a resident on a real patient. The assessor directly observes and assesses residents' skill performance, usually focusing on a single procedural skill. DOPS, like mini-CEX, serves the twin purpose of assessment as well as enhancing skill learning.

The focus of DOPS is common procedures which are usually performed by physicians in practice. A list of such procedures can be drawn out for each specialty. The assessor rates the procedure using a checklist or a global rating scale. Though both can be used but there is a possibility that the resident may perform a procedure, which may be correct as per checklist, but there may be technical errors and the required sequence may not be followed. Unlike mini-CEX, the same assessor- trainee pair can have multiple encounters involving different skills.

The DOPS assessment is also recorded on a standard assessment form, which has place for trainee identification, name of the procedure, its complexity and the place where performed. The procedure is graded on attributes like 'demonstrates understanding of the procedure', 'obtains informed consent', 'makes appropriate preparations', 'gives adequate analgesia/ sedation', 'uses aseptic techniques', using a 6 point

TABLE I COMPARISON OF COMMON TOOLS FOR PERFORMANCE ASSESSMENT

	Long case	*OSCE*	*Mini-CEX*
Purpose	Assessment	Assessment (sometimes feedback)	Assessment and feedback
Occasion	Specific time allotment	Specific time allotment	Integrated into daily clinical activities
Task	Real but limited	Artificial	Real and authentic
Time	1-2 hrs	3-4 hrs for adequate reliability	6-8 encounters of 20 min each
Focus	Presentation skills	Skills in isolation	Performance
Basis of assessment	Examiner judgment	Checklists	Examiner judgment on global ratings
*Reported reliability	0.60, 0.75	0.47, 0.64	0.46, 0.63

M*odified from Singh and Norcini [23]; *for 1 and 3 hours of testing time.*

scale, with 1-2 indicating unsatisfactory, 3-4 as satisfactory and 5-6 as superior. Assessor can mark unobserved if any of the procedure is not observed. An overall score is given for the technical aspects of the procedure (not for each of the steps). In order to rate a procedure as satisfactory, most (but not necessarily all) competencies should have been rated as satisfactory. Achieving a satisfactory level on one occasion does not confirm that the trainee is competent to perform that procedure unsupervised. This judgment requires repeated assessments by more than one assessor.

The type of procedures to be observed can be staggered, taking into account the progression of the trainee. During early years, emphasis can be on basic procedures (IV cannulation, endotracheal intubation, neonatal resuscitation etc) and with increasing experience, more complex procedures (central line placements, ventilation etc) can be considered. The completed forms [27] are stored in personal files or in a portfolio and provide evidence of residents' progression. Ideally, all residents should be observed on all procedures required for that course. Senior residents or sometimes senior nurses can also function as assessors.

There are no formal studies on the validity and reliability of DOPS. However, it appears to have face validity and its reliability can be improved by increasing the number of procedures and assessors. Residents; however, feel that DOPS helps them in learning the skills better [28]. To a great extent, this might be related to the feedback provided to the trainee. All the arguments regarding utility and use of feedback advanced for mini-CEX are equally applicable to DOPS.

Faculty training: Both mini-CEX and DOPS rely heavily on examiner judgment – therefore some form of training is required for getting reliable results. The assessors need to be trained for direct observation and for the ability to discriminate between levels of performance. For initial iterations, rater accuracy and inter-rater reliability may need to be monitored. Assessors also need training in providing developmental feedback based on direct observation, rather than on historical facts [29]. The residents also need sensitization regarding potential benefits of this tool.

Direct observation of the residents can go a long way in improving clinical competence. The major factor for this benefit is the provision of immediate feedback based on direct observation in the vicinity of the assessment opportunity. This also helps to amalgamate learning and assessment, making assessment more valid. Both these tools can be integrated with the regular working of the clinical unit, without having to make any special preparations for assessment.

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