

MINI-CEX: AN ASSESSMENT TOOL FOR OBSERVED EVALUATION OF MEDICAL POSTGRADUATE RESIDENTS DURING THEIR TRAINING PROGRAM: AN OVERVIEW AND RECOMMENDATIONS FOR ITS IMPLEMENTATION IN CPSP RESIDENCY PROGRAM

Intekhab Alam¹, Zafar Ali², Riaz Muhammad³, Muhammad Abdur Rahman Afridi⁴, Farooq Ahmed⁵

¹⁻⁵ Department of Medicine, Medical Teaching Institute, Lady Reading Hospital, Peshawar - Pakistan.

Address for correspondence:

Dr. Intekhab Alam

Professor and Head, Department of Medicine, Postgraduate Medical Institute, Lady Reading Hospital, Peshawar - Pakistan.

E-mail: profintekhab@gmail.com

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ABSTRACT

The mini-CEX is a workplace-based assessment to assess professional performance of medical trainees. Proper reporting of the gap between desired and observed performance forms the basis and the incentive for the trainees to improve their skills. It plays a key role by combining learning with assessment. There is an urgent need for including this form of assessment in our clinical training programs especially postgraduate residents training.

Key Words: Assessment, Mini-CEX, Workplace-based assessment, Clinical competencies, Constructive feedback

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INTRODUCTION

Mini clinical evaluation exercise (mini-CEX) is an assessment or instructional tool or an instrument used to assess professional performance of postgraduate residents (PGRs) while they perform their routine clinical duties in their wards, OPDs or emergency department (ED) during their training period¹.

It provides an excellent opportunity to evaluate PGRs habitual performance in everyday practice and forms the crucial element of outcome based education and certification^{2,3}. It is usually conducted through direct and formal observation of the encounters of the residents with their patients in their daily routine work that they perform in their assigned duties.

After being first developed in the United States³, continued research has confirmed strong validity, reliability, and feasibility of mini-CEX⁴⁻⁸.

It is a form of a formative workplace based assessment that, ideally, should be applied at least 8 times in an academic year of the trainee to assess the clinical

skills and providing subsequent immediate feedback⁹.

It is a directly observed assessment for 10-20 minutes or "snapshot" of a trainee-patient encounter. The assessor and the trainee are considered to have crucial roles in successfully carrying out mini-CEX sessions.

As the encounters are relatively short and take place in daily routine settings, it is reasonable to have trainees evaluated by different supervisors at different occasions on different patients during their residency program. The faculty gives precise feedback to the trainee immediately after the observed performance and at the end the deficiencies and weaknesses of the trainee are highlighted for improvement and thereby contributing to the professional development. To standardize the instrument, the performance of all the PGRs are recorded in a set of competencies laid down in an already constructed proforma containing checklists and rating scales. Considering the fact that practicing mini-CEX doesn't need special arrangements, it seamlessly fits in the usual routine of any clinical setting¹⁰.

There are 03 components of conducting mini-CEX:

- Clinical performance
- Direct observation
- Constructive Feedback

CLINICAL COMPETENCE: It is defined as “the degree to which a doctor can use their knowledge, skills and attitude in an integrated way to successfully accomplish complex professional tasks in their daily practice”. It is a multidimensional performance involving different task components like communication skills, bedside manners and a professional physical examination. However, as the applied knowledge and clinical methods of diverse diseases in different patients are not the same, a single or a few encounters may not be able to assess the trainee as a whole. This problem of lack of “content specificity” in mini-CEX can be overcome by exposing the trainees to various patients in different settings or scenarios at different times for overall assessment of the trainee by different supervisors¹¹.

DIRECT OBSERVATION: It forms an integral part of mini-CEX and is an exercise of immense learning value in enhancing the clinical skills of the PGRs. Direct observations of a trainee while they perform different clinical tasks and regular counseling regarding the deficiencies and their rectification on regular basis give the trainees a solid platform for improving their overall clinical day to day performance¹².

CONSTRUCTIVE FEEDBACK: it is defined as “the act of giving information to a resident by describing their performance in an observed clinical situation”. The validity and importance of the feedback are enhanced when the residents compare their supervisor’s feedback with the self-assessment of the same performance. There are three steps in a constructive feedback:

1. Observation of the event,
2. Recording it in a standardized proforma and
3. Recommendations for improvement.

Effective feedback regarding strengths and weaknesses of the trainees helps in closing the gap between desired and observed performance. Discord between the desired result and the observed performance and their proper reporting, forms the basis and the incentive for the trainees to improve their skills¹³⁻¹⁵.

USEFULNESS OF MINI-CEX: Considering the brief introduction of mini-CEX given above, it can be adjudged that it is a valid and reproducible assessment tool with an educational impact that is both supervisors and trainee friendly with almost no or minimal extra cost. Several studies have confirmed its validity and reliability in clinical settings^{7,8,16}.

It’s high time that we, the faculty of medicine of CPSP, incorporate this very useful and inexpensive tool

in our residency program and practice it regularly in the routine assessments of our trainees and once conducted proficiently and repeatedly, aim to incorporate it in their e-log system. The description of the competencies of the trainees at different level should be discussed and agreed upon by the user of this instrument i.e. the supervisors and the faculty of medicine that is duly approved by the council of the CPSP. In this regard it is highly recommended that workshops are conducted in all regional centers of CPSP for brainstorming of the supervisors and the trainees at the same time.

Formal examination always poses a high degree of mental stress and anxiety in the trainees being examined, putting them, most of the times, under tremendous pressure affecting their performance and thereby the result of their evaluation¹⁷⁻¹⁹. Experiences with mini-CEX may be related to varied assessment process, the skills of the assessors, training year of the trainees and their level of motivation^{12,20,21}. The mini-CEX can be applied in a friendly environment in their workplaces and if conducted diligently, after some time of its implementation, some weightage may be assigned for the final exit assessment of the residents.

HOW TO IMPLEMENT MINI-CEX IN OUR SYSTEM: as discussed above, to be of some value, at least 8 mini-CEX encounters are recommended for each trainee in an academic year⁵. Considering the fact that on average each medical unit has four supervisors and 26 trainees, who can be sub fragmented, one can plan execution of mini-CEX as follows:

- Number of 1st year trainees: 4...number of encounters: 2/year = 8/year
- Number of 2nd year trainees: 6...number of encounters 4/year = 24/year
- Number of 3rd year trainees: 8...number of encounters 8/year = 64/year
- Number of 4th year trainees: 8...number of encounters 8/year = 64/year
- Total number of PGRs: 26...total number of encounters = 160/year
- For an academic year consisting of 52 weeks = an average of 3 encounters/week

To accomplish this task of implementing three mini-CEX encounter/week in our system, supervisors at different levels may be assigned trainees of different year of residency; e.g. 1st year trainees can be handled by the senior registrar, second year by assistant professor, third year by associate professor and final or fourth year by the professor of the unit, regardless the supervisor-ship of the trainee being examined. As different supervisors would be assessing all the trainees in a given unit at different level, it will ensure the transparency of

the assessment as well. The supervisors should be given the task of making one year planner for each trainee covering all the systems at a given competency level. Dates should be fixed for each trainee and the registrar of the unit can be given the duty of assigning the patients to different trainees in a week, making sure that no repetition takes place.

To avoid the latter, each trainee would keep with them a log book duly signed by the supervisor, showing the previous topics covered. However, for any adverse or unsatisfactory feedback in a given system or disease in the past, repetition can be requested or separately arranged in future for demonstrating an improvement from the previous assessment. So, once put into practice, each resident would precisely know the date, the topic covered and the name of the supervisor who would be assessing him/her in that given week. The mini-CEX would take place in the routine teaching round or session, spending 10-15 extra minutes at a given case for discussion in the middle of the round, an OPD clinic or in ED.

The above account is for a full-fledged execution of this assessment tool. However, to initiate the process one can settle, say, for half or one third of the recommended encounters to be meaningful and gradually boosting the system to full throttle once all the supervisors and the trainees get used to it. Brainstorming workshops would pave the way for its implementation.

GUIDELINE FOR IMPLEMENTING MINI-CEX

Settings to Conduct Mini-CEXs

- Out-patient departments (OPD)
- General medical units or specialty units like cardiology, pulmonology etc
- Accident & Emergency department

Clinical Skills Evaluated (table 1)

- Bedside manners and history taking
- Physical examinations (clinical methods)
- Constructing a differential diagnosis and planning investigations
- Clinical judgment/reasoning/counseling skills and attitude

Mini-CEX Evaluators

- Medical faculty/supervisors
- Sub-specialty supervisors

Rating Scale

A rating scale consisting of nine-points is used in Mini-CEX

- unsatisfactory =if score is <4

Table 1: Specific competencies assessed on mini-CEX

Medical Interviewing	Facilitates accurate collection of a patient's history Effectively uses questions to obtain accurate information needed Responds appropriately to non-verbal cues Shows respect, compassion, empathy and establishes trust Attends to a patients needs confidentiality and information
Physical Examination	Follows efficient, logical sequence Balances screening/diagnostic steps for problem Sensitive to a patient's modesty and comfort
Informed Decision Making/ Counseling Skills	Communicates effectively with patients and their relatives. Explains rationale for test/treatment, obtains a patient's consent Educates/counsels regarding disease management
Clinical Judgment/ Reasoning \	Makes appropriate diagnosis and formulates a suitable management Selectively orders/performs appropriate diagnostic studies Considers risks and benefits of prescribed treatment
Professionalism	Has professional and respectful interactions with patients, their attendants and members of the inter professional team (e.g., peers, consultants, nursing, ancillary professionals and support personnel) Accepts responsibility and follows through on tasks Exhibits integrity and ethical behavior in professional conduct
Organisation/ efficiency	Prioritizes; is timely and succinct; summarizes
Overall Clinical Competence	Demonstrates judgment, synthesis, caring, effectiveness and efficiency in patient care

- satisfactory = scores of 4-6 (however 4 is considered "marginal" and improvement in performance is suggested)
- superior = scores of 7-9

A two-step approach for accomplishing above scale will be:

1. The performance of trainee is rated as satisfactory, unsatisfactory or superior
2. Decide regarding which score best reveals trainee-patient interaction

DOPS (Directly Observed Procedural Skills): A workplace based/ formative assessment tool for postgraduate residents' procedural skills evaluation.

Introduction: It is the counterpart of mini-CEX on the practical skills side as a part of the quality assurance process. The evaluation may be the trainee led i.e. they choose the procedure to be observed and evaluated or supervisor initiated in the form of one year academic program enlisting both mini-CEX and DOPS encounters^{21,22}. Just like mini-CEX, the trainee is observed in their daily routine performance in their workplaces and immediate constructive feedback given to the trainee for maximal educational impact.

DOPS evaluation is conducted noting the following points:

- Number of times the trainee has performed the procedure.
- Defining the difficulty of the procedure
- Trainee's theoretical knowledge of the procedure regarding its indications, contraindications, precautions and its complications.
- Knowledge and practical demonstration of post procedural management (e.g. safe disposal of needles and blades, CXR check, instructions to the nurse and junior doctors and documentation of the procedure and post procedure orders in the patient file)
- Giving immediate feedback to the trainee regarding the grading of the satisfaction of the procedure in terms of the strength, weaknesses and areas for improvement.

Trainees can be observed undertaking one of the following procedures:

1. Venipuncture.
2. SC Injection
3. ID Injection
4. IM Injection

5. IV Injection
6. Passing IV cannula.
7. Collecting blood for blood culture.
8. Putting up IV drips.
9. Arterial blood sampling (Radial/Femoral)
10. Urethral catheterization
11. Passing an NG tube.
12. Pleuro-centesis (diagnostic or therapeutic)
13. Peritoneal tap (diagnostic or therapeutic)
14. Airway insertion.
15. Tracheostomy care

SUMMARY

It cannot be over-emphasized that performance of trainees needs to be made up to the mark. Given the well-recognized benefits of WPBA, there is an urgent need for including this form of assessment in our clinical training programs especially postgraduate residents training.

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CONTRIBUTORS

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