Initiating Formative Assessment of Postgraduate Students In Obstetrics & Gynecology

Dr.Madhuri Chandra

Professor, Department of Obstetrics & Gynecology, Gandhi Medical College, Bhopal 462001.

Abstract: Background and Objectives: Postgraduate (PG) students, in India have a vast clinical exposure & see a diversity of cases, yet lack confidence during practical assessments. There is an observed gap between their performance in exams and performance in actual workplace.Some aspects of their clinical skills are never observed or assessed. MCI guidelines emphasize that the Postgraduate training be competency based & formative assessment be done.The mini-CEX involves direct observation of student's skills in authentic setting with immediate feedback and has been used in a variety of clinical settings, and levels of training with documented validity and reliability. As we are in the implementation stage of formative assessment, we initiated with mini-CEX as a tool of performance assessment, to evaluate its feasibility, and acceptability in our setup. Methodology: After an orientation workshop on mini-CEX, PG students of obstetrics were given 'schedule plan' of 1 mini-CEX per month, each to be taken by a different faculty and address a different clinical problem. The faculty observed while resident performed a focused history taking and physical examination over 15-20 minutes. The resident presented a diagnosis & treatment plan. Faculty member rated the resident using the mini-CEX evaluation form and provided educational feedback. After 6 months, the perceptions of the faculty and the students were noted. Results: 22 residents took part in the study. 83% of scheduled mini-CEX took place. The mean time taken for observation and feedback was 18.56 and 7.25 minutes respectively. The residents and faculty perceived need for such assessments, and improvement in clinical skills. The residents reported increased communication skills, thought organization and confidence levels. Residents first apprehensive, were later comfortable being observed during their clinical encounters and welcomed the one to one interaction with faculty. Initial difficulties the faculty faced, improved with provision of rating scale and structuring feedback. Observation of performance in authentic clinical settings, case diversity, flexibility of time and multiple encounters with different assessors contributed to the utility of mini-CEX. The faculty & residents reiterated their willingness to continue with mini-CEX as one of the tools for formative assessments of clinical skills. [Chandra M et al NJIRM 2013; 4(5) : 132-137]

Key Words: Formative Assessment, Postgraduate Students, mini-CEX.

Author for correspondence: Dr. Madhuri Chandra, Professor Obstetrics & Gynaecology, Gandhi Medical College, Bhopal. Address:- E-1/104 Arera Colony, Bhopal 462016.e- mail: drmadhurichandra@gmail.com

Introduction: Assessments are an integral part of medical education, enabling us to make decisions about the trainees - whether and how much they have learnt and whether they have reached the required standard. Assessment drives learning[1]**.** It serves as a tool for student motivation, retention & transfer of learning.

The current assessment of post graduate students by a traditional end of term examination is a test of student's knowledge and rote learning with little assessment of their clinical competency, attitudes or procedural/technical competency. There is no uniformity of testing, certification is subjective and rests on a single days' performance. Students are not observed as they perform clinical examination and there is no room for feedback or improvement. Our students are not motivated to learn skills, which are not assessed during end of term examination. Thus, we may be certifying students as MD Obstetrics & Gynecology, who lack clinical competency and required surgical skills. There is a need for work place assessment of day to day *performance*, with regular feedback that can play an integral role in helping students identify and respond to their own learning needs, specially the acquisition of practical skills.

The Medical Council of India has specified that the postgraduate curriculum shall be competency based, learning autonomous & self directed and a combination of both formative & summative assessment is vital[2]. There is a need to restructure the post graduate examination pattern to emphasize skill development and introduce continuous internal assessment, which test all three domains – knowledge, skills & attitude. Assessment procedures should be integrated

within the curriculum and preferably also be an integral part of routine practice[3]. In Miller's Pyramid of Competence[1], the highest level of assessment lies in "does", where the student is assessed while performing an actual clinical task in an authentic setting[4].

Mini Clinical Evaluation Exercise or mini-CEX is a method of clinical skills assessment developed by American Board of Internal Medicine to assess resident's clinical skills and give valuable feedback[5]. mini-CEX is a "snapshot" of a doctor/patient interaction. Its validity and reliability derives from the fact that the trainees are observed while engaged with a series of real patients in different practice settings and judgment about quality of those encounters are made by skilled educator clinicians[5].

Material and Methods: The focus of this study is to address the need to develop a system of continuous structured formative assessment with regular feedback for postgraduate students in Obstetrics & Gynecology at Gandhi Medical College, Bhopal, such as to improve their clinical skills.

Mini Clinical Evaluation Exercise has been used in a variety of countries, clinical settings, and levels of training[5]. As we are still in introductory phase of formative assessment of postgraduate students, this study was planned to determine the feasibility and acceptability of mini-CEX in our setup, after due approval of Institute Review Board & Ethical Committee. The implementation involved:

1, Orientation of faculty: A departmental meeting was held and the faculty oriented on need of formative assessment and Medical Council of India's recommendation on the same. On discussion it was observed that all felt regular assessment of postgraduates would improve the resident's clinical competency and their end of tenure performance. The mini-CEX, mini-CEX form and its different components was explained with the help of a power point presentation. All agreed to take part in the mini-CEX encounters, the schedule was explained, the Rating scale was provided and the need for giving constructive feedback agreed on.

The MEU of Gandhi Medical College organized a one day Workshop on Student Assessment – OSCE and mini-CEX, where we were fortunate to have experienced Faculty from CMC Ludhiana for a very interactive session, it helped to clear doubts about assessment, feedback, and mini-CEX in particular.

2, Orientation of students: The PG students were introduced to concept of mini-CEX by a role play depicting a student performing an observed history taking and examination and the faculty giving feedback, both constructive feedback and negative feedback were given to emphasize the importance of feedback in improving clinical skills. They were informed that regular mini-CEX would take place as per the schedule and list of obstetric cases to choose from were provided. It was left to the student and faculty to decide the exact time, place and case for a particular encounter and the focus of encounter. As this was a first exposure to formative assessment, it was decided to concentrate on history and clinical examination for the first few encounters. The observation & feedback of other components like counseling skills and professionalism were optional. Residents were also explained that after the scheduled mini-CEX, their feedback on perceptions about mini-CEX would be collected, for which an informed consent will be required.

3, mini-CEX assessment: As per schedule plan, One mini-CEX was planned per student per month, each mini-CEX to be taken by a different faculty and address a skill/clinical problem not previously examined. The exact time, place and case was left to be decided by student and observing faculty. The faculty observed while resident performed a focused history taking and physical examination over 15-20 minutes. The resident then presented a diagnosis and treatment plan. Faculty member rated the resident using the mini-CEX evaluation form and provided educational feedback. An adaptation of the ABIM mini-CEX form was used, for which prior permission was taken from ABIM.The ABIM mini-CEX evaluation form has a

nine point rating scale with 1-3 being unsatisfactory, 4-6 being satisfactory and 7-9 being superior. Based on the observation the assessor rates the trainee on seven competency domain - history taking, examination, clinical judgment, professionalism, counseling, organization and overall clinical competencies. The assessors record the clinical setting of the encounter, complexity of the case and the medical problem or diagnosis. The time taken for observation and giving feedback is noted. At the end, there are items to record the satisfaction level of the assessor and trainee on a nine point scale, 1 being lowest and 9 highest.

The assessor also gave immediate feedback and recorded his opinion in "comments", which were in 3 parts - anything especially good, suggestions for development and agreed action. At the end of 6 months, the perceptions of the faculty & the students were taken regarding their experiences with mini-CEX and their desire to continue with same.

4, Student's feedback: A student feedback form was designed and validated. The feedback form evaluated the student's perceptions on need of formative assessment and mini-CEX, adequacy of mini-CEX in evaluating clinical competency, any difficulties with mini-CEX like patient non cooperation, discomfort in performing while observed, faculty response or unavailability. The feedback questionnaire was administered after prior written consent of resident.No consent for administering mini-CEX was deemed required as they had been incorporated in the department's teaching schedule along with OSATS and Log Books as formative assessment.

5, Faculty feedback: At the end of six months, the Faculty were asked their perceptions on need of formative assessment, adequacy & efficacy of mini-CEX in evaluation of clinical skills, and giving feedback, any difficulties in actual encounters, any improvement in residents history taking, examination, communication skills they observed & their willingness to continue with mini-CEX.

Completed mini-CEX forms were collected, and analysis was done using descriptive statistics and qualitative methods.

Results: Of the scheduled 132 encounters, 110 actually took place i.e. 83.3%, probably reflecting the fact that students knew the mini-CEX and scores obtained do not count for final grades. Similar completion rates are reported by previous studies.

The OPD or out patient department (80/110) was the most convenient setting for mini-CEX, with none of the disturbances that usually occur in a busy obstetric ward. (Figure 1)All patients were new patients i.e. the resident had not examined them before, and of different complexity. The cases were divided into low, moderate and high complexity (Figure 1).Different cases, reflect different competencies and a broader range of challenges[5]. While exposure to different assessors, introduces different viewpoints and way of thinking. Use of multiple encounters and multiple examiners helps to overcome inter rater bias[4]. Different patients require different skills from trainees and this significantly broadens the range and richness of feedback that they receive[5]. The higher reliability of mini-CEX is attributable to variety of cases, examiners and repeated observation[7].

Table 1 Participant Details

Faculty Trained in Mini-CEX	09
Residents oriented to mini-CEX	37
Residents in Study	22
Mini-CEX scheduled/actually took pace	132/110 (83.33%)
Patient approached / agreed	135/123 (91.11%)
Satisfaction Rates (Scale of 1=9)	Faculty-6.2. Residets 7.4

As this was a preliminary study and the first exposure of faculty and post graduates to formative assessment, we decided to restrict the focus to history taking and physical examination. In 1975 Hampton and colleagues demonstrated that

a good medical history produced the final clinical diagnosis in 82% of 80 patients interviewed and examined[8].Beyond diagnostic accuracy, physician-patient communication is a key component of health care. The ability to competently interview a patient and perform a physical examination thus remains the cornerstone of clinical practice[9]. The ability of faculty to accurately observe trainees performing these tasks and provide effective feedback is therefore one of the most important aspects of medical training[9].

Figure 1

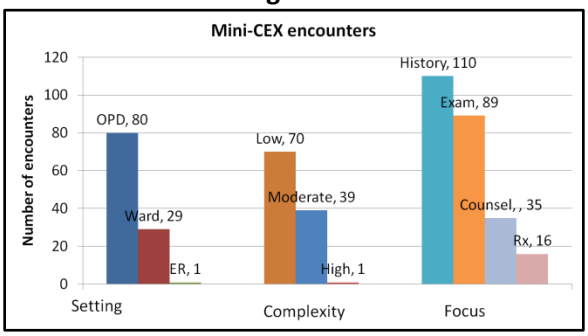


Figure 2

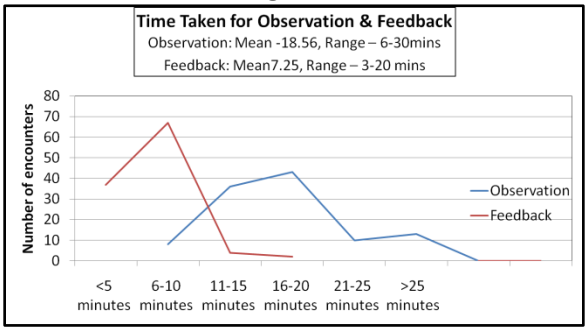
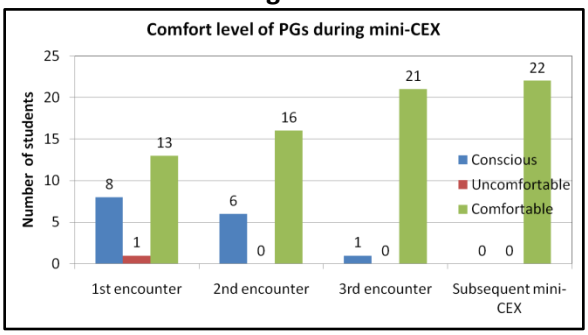


Figure 3



In the six months of study the residents faced mean of 5 mini-CEX encounters, each with a different faculty (range of 2-6 mini-CEX and mode of 5). In a study by Nair, the G coefficient for eight encounters was 0.88, suggesting that the reliability of the mini-CEX was 0.90 for 10 encounters[10].

The residents and faculty perceived a need for such assessments, and an improvement in history taking, examination, and counseling skills. The residents reported increased communication skills, thought organization and confidence levels. To some extent the dread of examination was alleviated. Residents at first apprehensive, were later comfortable being observed during their clinical encounters and welcomed the one to one interaction with faculty and the feedback given. Initial difficulties the faculty faced in allotting grades improved with provision of Rating Scale and first rating the mini-CEX performance, as unsatisfactory, satisfactory and superior and then allotting the appropriate score. The quality of feedback improved with a workshop on mini-CEX, discussions amongst faculty and structuring feedback into what was good, areas for improvement and agreed action.

Discussion: The utility of an assessment has been defined by van der Vleuten as a product of its reliability, validity, cost-effectiveness, acceptability and educational impact.[11] In later years the term 'feasibility' has been added.T his study seeks to emphasize the feasibility and acceptability of mini-CEX for formative assessment of clinical competency.

The residents were asked to take a different obstetric case each time, of different complexities (routine antenatal patient, preterm labor, previous cesarean section, antenatal with medical disorder or obstetric complication), with different examiner. Thus a variety of cases that the resident would encounter in day to day practice could be covered. The validity of the mini-CEX is essentially by virtue of being conducted in authentic setting. This is supported by strong and significant correlations with other valid assessment instruments, as is well evidenced in literature[6,12,13]. Mini-CEX has good face validity as it involves the observation of a real patient encounter in a real clinical environment.

Scores do improve over time[6] and more experienced trainees receive higher ratings[12].

For feasibility we took three elements into consideration. First the time required per encounter (Figure2). The time taken for observation was of range 6-30 minutes with mean of 18.56 minutes, mode of 15-20 minutes, the time taken for feedback was 3-20 minutes with mean of 7.25 minutes and mode of 6-10 minutes. Average time varied with faculty assessor, clinical setting and case complexity. Second the possibility of achieving the target encounters, we had a completion rate of 83.3% which compares well with 64.4%[4], 89%[12]and 96.4%[13] reported in other studies. Third the satisfaction rates reported were mean of 7.4 by residents and 6.2 by the faculty. High satisfaction rates are also reported by other studies[5, 6, 12,]. Time constraints due to a busy ward, hectic labor room were the reasons cited for postponement of mini-CEX by resident.

Acceptability: The residents rated mini-CEX observation and feedback as useful to extremely useful and found it compared better than the other forms of assessment like case presentation, case based discussion, audits and the informal feedback they received from faculty. The found no difficulty in getting the faculty to evaluate them, though there were some cancelation on their side due to busy ward.

Malhotra has reported increased stress among residents regarding mini-CEX which reduced with time, his residents reported mini-CEX to be an important exercise providing opportunities for interaction with faculty and thus enabling better learning[14]. Our residents reported that initially they felt conscious performing under observation but by the third encounter all were comfortable and liked the one to one interaction with faculty (Figure 3). Nair also reported that acceptance of the mini-CEX by both supervising physicians and IMGs was strong, and both rated it as a highly effective technique for stimulating learning and providing feedback[10].

Perceptions of faculty regarding mini-CEX were taken in a feedback form, all faculty were satisfied with mini-CEX and felt that it should be extended to undergraduates and all 3 years of postgraduate tenure. About half felt that it should contribute to final grades, such that the resident would attach more seriousness to the assessment. The faculty were willing to continue with mini-CEX because of the perceived improvement in clinical skills of the residents.

The residents reported that, mini-CEX had improved their history taking & examination skills. Built confidence in their clinical skills and helped in personality development. It improved doctor patient interaction and communication skills, and should be a regular practice.

Our faculty attended a one day workshop on student assessment – OSCE & mini-CEX. Though a structured or standardized feedback is not favored by experts, we divided it into 3 components – anything specially good, areas for improvement and agreed action. There is much debate on whether training of faculty would improve feedback. Feedback training is important because the quality of feedback determines the quality of benefits that the residents derive from an encounter[4]. Discussion among faculty will improve quality of assessments and feedback[5]. Training of assessors is helpful to some degree but much larger improvement in reliability and validity of the ratings was achieved by including different faculty members[5]. Assessors need training to reliably rate learners' performance and discriminate between performance levels.

Educational impact: Though our experience is short and we have not been able to compare mini-CEX scores with final grades, faculty perceived an improvement in clinical skills of residents. There is some evidence that mini-CEX promotes deep learning, and encourages self reflection. Other studies have reported mini-CEX to be of formative educational value as it provides opportunities for performance under direct supervision with inbuilt feedback from faculty[5].

Conclusion: Mini-CEX is a simple effective efficient way of observation of resident's performance of

clinical examination and providing immediate feedback, so as to enhance future performance. An advantage is the performance on actual patients in clinical settings similar to their future clinical environment. It requires low expertise, low resources and does not require any special preparation[4]. Observation of performance in authentic clinical settings, case diversity, flexibility of time and multiple encounters with different assessors contributed to the utility of mini-CEX for formative assessment of clinical skills. The faculty and residents reiterated their willingness to continue with mini-CEX as one of the tools for formative assessments.

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