



The Mini Clinical Evaluation Exercise (mini-CEX)

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INTRODUCTION

The mini Clinical Evaluation Exercise or mini-CEX is a method for simultaneously assessing the clinical skills of trainees and offering them feedback on their performance. It is a simple modification of the traditional bedside oral examination and because of that, it relies on the use of real patients and the judgments of skilled clinician educators. This article describes the mini-CEX, recounts how it was developed, and then illustrates its use in the Modernising Medical Careers (MMC) Foundation Programme Assessment.

BACKGROUND

How the mini-CEX works

In the mini-CEX, a single faculty member observes the trainee

interact with a patient in any of a variety of settings including the hospital, outpatient clinic, and A&E. The trainee conducts a focused history and physical examination and after the encounter provides a diagnosis and treatment plan. The faculty member scores the performance using a structured document and then provides educational feedback. The encounters are intended to be relatively short, about 15 minutes, and to occur as a routine part of the training programme. Each trainee should be evaluated on several different occasions by different faculty examiners.

Development of the mini-CEX

For the first four decades of its existence, the American Board of Internal Medicine administered a traditional bedside oral examination as part of its certification

process. By 1972, the problems of assessing thousands of doctors annually had become so great that the oral examination was discontinued. In its place, the Board asked training programme directors to assess the clinical competence of candidates for certification and recommended the use of a clinical evaluation exercise, or CEX, for trainees in their first postgraduate year.

The CEX was based on the bedside oral examination that was part of the certification process. A single faculty member evaluated the trainee as he or she performed a complete history and physical examination on a pre-selected patient in the hospital. Trainees were then expected to reach diagnostic and therapeutic conclusions, present their findings, and produce a written report of the

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patient. The faculty member then assessed the trainee's performance along several dimensions. The CEX took about two hours and by the early 1990s the vast majority of first year internal medicine trainees in the United States were being assessed by this method.

The CEX has at least three important strengths.

- It evaluates the trainee's performance with a real patient. In medical school, the Objective Structured Clinical Examination (OSCE) is often used and it does an excellent job of assessing clinical skills. As trainees approach entry to practice, however, their education and assessment needs to be based on performance with real patients who exhibit the full range of conditions seen in the clinical setting.
- The trainee is observed by a skilled clinician-educator who both assesses the performance and provides educational feedback. This enhances the validity of the results and ensures that the trainee receives the type of constructive criticism that should result in a reduction of errors and an improvement in quality of care.
- The CEX presents trainees with a complete and realistic clinical challenge. They have to get all of the relevant information from the patient, structure the problem, synthesise their findings, create a management plan, and communicate this in both oral and written form.

Despite its strengths, a growing research literature through the 1980s and 1990s showed that the results of CEX were not likely to generalise very far beyond the single encounter that was observed. This conclusion was based on numerous studies of the assessment of doctors.

- The research showed that trainees' performances with one patient were not a very good predictor of their performances with other patients. Consequently, they needed to be observed on different occasions with different patients before drawing

reliable conclusions about their competence. Observing each trainee with several patients was also desirable from an educational perspective, since different patients require different skills from trainees and this significantly broadens the range and richness of feedback they receive.

- The research showed that the assessors did not agree with each other even when they were observing exactly the same performance. Training of assessors is helpful to some degree but much larger improvements in the reliability and validity of the ratings was achieved by including different faculty members in

the overall assessment of each trainee. This was also useful from the perspective of education, since trainees received feedback from different assessors, each with their own specialties, strengths, and perspectives.

- In terms of the method itself, the CEX focused on the trainee's ability to be thorough with a single new patient in a hospital setting that is uninfluenced by time constraints. In contrast, different patients pose different challenges and the tasks or competencies required of doctors vary considerably depending on the setting in which care is rendered. Further, most patient

encounters are much shorter than two hours so the CEX does not assess the trainee's ability to focus and prioritize diagnosis and management.

The mini-CEX is a response to some of the shortcomings of the CEX and it is based on the educational interactions faculty routinely have with trainees during teaching rounds. As in the CEX, one faculty member observes a trainee-patient encounter. However, the encounter is focused, lasts roughly 15 minutes, and several encounters are included in the overall assessment of a trainee. The encounters will portray a broader range of challenges because they can occur in a variety of settings (i.e., ambulatory/out-patient,

The assessor and trainee must agree to and record an educational plan of action



Routine discussion among faculty will improve the quality of the assessments

Table 1

Competence	Descriptor of a Satisfactory Trainee
History Taking	Facilitates patient's telling of story, effectively uses appropriate questions to obtain accurate, adequate information, responds appropriately to verbal and non-verbal cues.
Physical Exam	Follows efficient, logical sequence; examination appropriate to clinical problem, explains to patient; sensitive to patient's comfort, modesty.
Professionalism	Shows respect, compassion, empathy, establishes trust; Attends to patient's needs of comfort, respect, confidentiality. Behaves in an ethical manner, awareness of relevant legal frameworks. Aware of limitations.
Clinical Judgment	Makes appropriate diagnosis and formulates a suitable management plan. Selectively orders/performs appropriate diagnostic studies, considers risks, benefits.
Communication skill	Explores patient's perspective, jargon free, open and honest, empathetic, agrees management plan/therapy with patient.
Organisation/Efficiency	Prioritises; is timely. Succinct. Summarises.
Overall Clinical Care	Demonstrates satisfactory clinical judgment, synthesis, caring, effectiveness. Efficiency, appropriate use of resources, balances risks and benefits, awareness of own limitations.

primary care, A&E department, and inpatient). The fact that several encounters are observed increases the quality of both the assessment and the educational feedback. It also offers the opportunity to include different faculty members in any one trainee's evaluation.

Foundation Programme Assessment

The mini-CEX has been used in a variety of countries, specialties, clinical settings, and levels of training. It is currently being evaluated as part of the National Health Service's Modernising Medical Careers Foundation Assessment Programme and its use in this programme illustrates many of the issues involved in implementing the mini-CEX.

What does the mini-CEX assess?

Consistent with the quality improvement model used in the Foundation Programme, the mini-CEX is intended to identify areas of strength and weakness. The

competencies assessed and descriptions of them can be seen in Table 1.

What must the trainees do?

Over the period of a year, the trainees must get at least six different doctors (SpRs, Specialist Associate/Staff Grades, consultants, GPs) to assess them towards the end of their rotation through different posts. For example, trainees could ask a doctor to observe them with the last patient on a ward round or the next patient coming to the GP surgery. They should be performing a task routinely expected of them (e.g. clerking a new patient) and the six encounters must cover the main areas of the curriculum (<http://www.mmc.nhs.uk/curriculum>). After the encounter, trainees keep one copy of the structured evaluation form for their portfolios, give one to their educational supervisor, and one goes to the Trust Foundation Coordinator for forwarding to the central administrative centre.

What must the assessors do?

The assessor must ensure that the patient is aware of the mini-CEX and is typical of the trainee's workload. After observing the encounter, the assessor completes the form in Table 1. As can be seen, all of the competencies are rated on a six-point scale where 1 and 2 are 'below expectations', 3 is 'borderline', 4 is 'meets expectations', and 5 and 6 are 'above expectations' for the end of the second foundation year.

The assessor is also required to give the trainee feedback immediately following the assessment. He or she must note particular strengths and suggestions for development on the form. In addition, the assessor and trainee must agree to and record an educational plan of action. This feedback structure is in line with evidence-based good practice.

The assessor is also responsible for recording information about the encounter itself. This information ensures that there is sufficient coverage of the curriculum, provides some notion of the nature and complexity of the patient's problems, and provides information on mini-CEX knowledge and experience. There is also research indicating that some of these factors are related to performance on the mini-CEX. For example, previous work has shown that assessors tend to overcompensate by giving higher grades when the patients' problems are more complicated.

What guidance is given?

Written guidance is given to both the trainees and the assessors. A description of the Foundation Assessment Programme can be found at <http://www.mmc.nhs.uk/>. Trainees are provided with a description of the mini-CEX, advised about whom they should invite to be the assessor, what they should be assessed doing, when it should be used,

Mini-Clinical Evaluation Exercise (CEX)

Please complete the questions using a cross: Please use black ink and CAPITAL LETTERS

Doctor's Surname

Forename

GMC Number: **GMC NUMBER MUST BE COMPLETED**

Clinical setting: A&E OPD In-patient Acute Admission GP Surgery

Clinical problem category: Airway Breathing Circulatory Neuro Psych/Behav Pain

New or FU: New FU Focus of clinical encounter: History Diagnosis Management Explanation

Number of times patient seen before by trainee: 0 1-4 5-9 >10

Complexity of case: Low Average High Assessor's position: Consultant SASG SpR GP

Number of previous mini-CEXs observed by assessor with any trainee: 0 1 2 3 4 5-9 >9

Please grade the following areas using the scale below:		Below expectations for F2 completion		Borderline for F2 completion	Meets expectations for F2 completion	Above expectations for F2 completion		U/C*
		1	2	3	4	5	6	
1	History Taking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Physical Examination Skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Communication Skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Clinical judgement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Professionalism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Organisation/Efficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Overall clinical care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*U/C Please mark this if you have not observed the behaviour and therefore feel unable to comment.

Anything especially good?

Suggestions for development

Agreed action:

Trainee satisfaction with mini-CEX: Not at all 1 2 3 4 5 6 7 8 9 Highly 10

Assessor satisfaction with mini-CEX: 1 2 3 4 5 6 7 8 9 10

Have you had training in the use of this assessment tool?: No Yes: Face-to-Face Yes: Web/CD rom

Time taken for observation: (in minutes)

Assessor's Signature:

Date: / /

Time taken for feedback: (in minutes)

Assessor's Surname:

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Mini-Clinical Evaluation Exercise (CEX). Courtesy of Department of Health, England.

and how it should work. They are given copies of the forms that need to be completed and responsibility for having them done in a timely fashion.

Assessors are also given written guidance that contains a description of the mini-CEX and how it works. They receive information about the development of

the method, its purpose, and its place in the overall Foundation programme. The competences to be assessed are listed and described for the satisfactory trainee



and special stress is placed on the feedback to be given to trainees. Details of the administration are also provided.

Although exhaustive training of the assessors is unlikely to be productive, a workshop to start the process and routine discussion among faculty will improve the quality of the assessments and the feedback. Evidence-based training should focus on four aspects of the process.

- Reducing common errors (e.g. being too severe or too lenient)
- Understanding the dimensions being assessed and the standard of assessment

- Improving the accuracy of ratings
- Improving the detection and recall of performance

A number of national training days have been provided and further training is planned.

What happens with the results?

Each of the rating forms is returned to a central location and the data are entered into the computer. When six encounters have been completed, the data are collated for the whole year and returned to the trainee via his/her programme director. The educational supervisor will discuss the feedback with the trainee. In addition, the mini-CEX

results will be incorporated into an overall assessment profile for each trainee.

CONCLUSION

The mini-CEX is a way of simultaneously assessing the clinical skills of trainees and offering them feedback intended to enhance their future performance. Its validity and reliability derives from the fact that trainees are observed while engaged with a series of real patients in different practice setting and judgments about the quality of those encounters are made by skilled educator-clinicians. Its educational effect is based on a significant increase in the number of occasions on which trainees are directly observed with patients and offered feedback on their performance.

FURTHER READING

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