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### Use of Mini-CEX as a Direct Observation Tool to Assess & Give Feedback to Interns in A Case of *Sandhivta* (Osteoarthritis)

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#### ABSTRACT

Learner assessment in medical education is becoming increasingly oriented towards defined outcomes, including adequate application of skills and knowledge. Students must learn Clinical skills for better patients care. Clinical skills can be evaluated by observations.

In the old methods, a case was allotted to students, after that students taking detail history of the patients and making final diagnosis using diagnostic procedure. At the end of the allotted time, students are presenting the case. This traditional method of assessment only considers the final outcome and not how the students have reached it.

Mini-CEX is a structured assessment of an observed clinical encounter. The mini CEX can assess a range of core competencies that a trainee uses during day to day encounters with patients. The trainee conducts a focused history and physical examination and then provides a diagnosis and treatment plan. The faculty member (observer) scores the performance using a structured document and then provides educational feedback.

#### KEYWORDS

*Assessment, Mini-CEX, Medical Education, Core Competencies*



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## INTRODUCTION

Essentially, the mini CEX is an assessment form, originally devised by John Norcini and co-workers at the American Board of Internal Medicine (ABIM).

The ABIM Mini-Clinical Evaluation Exercise (Mini-CEX) is intended to facilitate formative assessment of core clinical skills. It can be used by a faculty as a routine, seamless evaluation of trainees in any setting.

The Mini-CEX is a 10 to 20 minute direct observation assessment or “snapshot” of a trainee-patient interaction. Faculties are encouraged to perform at least one per clinical rotation. To be most useful, faculty should provide timely and specific feedback to the trainee after each assessment of a trainee-patient encounter<sup>1</sup>.

The CEX has been criticized as an evaluation instrument because the results are unlikely to be generalized beyond the observed encounter<sup>3-6</sup>. The Mini-Clinical Evaluation Exercise (Mini-CEX) was designed to overcome these limitations.

The Mini-CEX (clinical evaluation exercise) designed to conduct work based assessment of clinical performance was originally developed in 1995 in the USA for the evaluation of Internal Medicine residents' clinical skills<sup>5, 6</sup>. The principal

characteristics of Mini-CEX are direct observation of real patient encounters, applicability in a broad range of settings and immediate structured feedback to the learner after the encounter<sup>7-8</sup>. The Mini-CEX assess the student at the higher level of Miller's Pyramid<sup>9</sup>. Several studies reported evidence for the reliability and validity of mini-CEXs<sup>10-14</sup>.

## MATERIALS AND METHODS

### Materials

1. The proforma of Mini-Clinical Evaluation Exercise (Mini-CEX) prepared by American Board of Internal Medicine
2. Various books & articles on internet about Mini-CEX

### Methods

This study is carried out at Kayachikitsa ward and OPD of Dr. D. Y. Patil College of Ayurved, Pimpri, Pune

- Study is approved by Scientific & Research committee of our College.
- An orientation session was conducted for faculty & intern students.
- For this study 5 intern students were selected randomly.
- Observer observed every student for one day per week.



- Every student was observed **six times** to achieve Reliability Coefficient > 0.80
- **20 minute** was allotted for each observation.
- Observer observed the student's interaction with Sandhivata patients of OPD, IPD.
- The intern student conducted a focused history and physical examination and then provided a diagnosis and treatment plan.
- Both the assessor and the intern sign the form. The signature of the intern simply means that they have discussed the matter with the assessor and gone through the form, not that they necessarily agree with the perspectives of the assessor.
- The observer scored the performance using a structured document (The Mini-CEX form developed by American board of Internal Medicine-ABIM) and then provided educational feedback within **5 minutes**.  
Action plan was prepared on the basis of feedback & observation

#### DESCRIPTIONS OF COMPETENCIES DEMONSTRATED DURING THE MINI-CEX

- **Medical Interviewing Skills:** Facilitates patient's telling of history;

effectively uses questions/directions to obtain accurate, structured and objective, adequate information needed; responds appropriately to affect, non-verbal cues.

- **Physical Examination Skills:**

Follows efficient, logical sequence; balances screening/diagnostic steps for problem; informs patient; sensitive to patient's comfort, modesty.

- **Humanistic**

**Qualities/Professionalism:** Shows respect, compassion, empathy, establishes trust; attends to patient's needs of comfort, modesty, confidentiality, information.

- **Clinical Judgment:** Selectively orders/performs appropriate diagnostic studies, considers risks, benefits.

- **Counseling Skills:** Explains rationale for diet modification, explain need for Panchakarma therapy, explain need of Yog therapy and exercise, need of regular follow up, need to take medicines timely, the student uses the language that is comprehensible to the patient.

- **Organization/Efficiency:**

Prioritizes; is timely; succinct.

- **Overall Clinical Competence:** Demonstrates judgment, synthesis, caring, effectiveness efficiency.

- **Ratings were on a 9-point scale**

- 1–3 = unsatisfactory performance;



- 4–6 = satisfactory performance; and
- 7–9 = superior performance

## RESULTS

- Feedback was given to intern student with every encounter, due to feedback, every skill was increased.
- Understanding of Sandhivata (Osteoarthritis) & its treatment was improved and increased related clinical skills competency.
- In first encounter two students were given unsatisfactory performance & three

students were given satisfactory performance.

- After giving feedback, in second and third encounter, all the students were shown satisfactory performance.
- In fourth encounter, one student showed superior performance.
- In fifth encounter, four students were showed superior performance.
- In last encounter all remaining students were showed superior performance.
- Overall score in mentioned in table-1

**Table 1** Overall score after each encounter

Students	Score Week 1	Score Week 2	Score Week 3	Score Week 4	Score Week 5	Score Week 6
1	3	4	4	5	7	7
2	4	4	5	6	6	7
3	3	5	5	6	7	8
4	4	4	5	6	7	8
5	4	5	6	7	7	8

## FEEDBACK

The feedback session is the most important part of the Mini-CEX & it was given immediately within five minutes after the every encounter. The observer discussed both the positive & negative aspects of encounter with the Intern students. The observer also discussed a plan to improve any areas of weakness. By considering each times feedback, action plan was prepared. The feedback process of a formative mini-CEX helped trainees to grow professionally

by providing them with insights into their strengths and weaknesses of their skills. Feedback of Intern students in each encounter is presented in table no.-2.

## DISCUSSION

We used Mini-CEX as a direct observation tool to asses & give feedback to Interns in a case of Sandhivta (Osteoarthritis). After every encounter of Mini –CEX, feedback was given to students. Due to these feedback students avoided mistakes and every-time



showed improvement in the scoring scale of Mini-CEX. It improved the understanding of

Sandhivata (Osteoarthritis) & its treatment.

**Table 2** Feedback of Intern students in each encounter

Students	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
1	Greet the patient	More focus on symptoms	Follow the sequence	Exam properly	Examine properly	Explained diagnosis, treatment
2	Greet the patient	Listen to patient	Advice diet modification	Improve counseling skill	Explain diagnosis	Explained diagnosis, treatment
3	Take adequate information	Show respect to patient	Exam patient properly	Explain diet	Explained diagnosis well	Chosen specific medicines
4	Improve history taking skill	Exam properly	Asked specific questions	Examined patient properly	Explained diagnosis well	Chosen specific medicines
5	Ask specific questions	Exam properly	Explain about Panchakarma	Ask related questions	Explained diagnosis well	Chosen specific medicines

Due to improvement in the Intern student's performance, it is found that Mini-CEX tool to be valuable in Intern student's development. The adapted Mini-CEX is also a valid Intern students training tool for faculty to assess skills competency with real-time experiences

Our overall teaching goal was met to improve the understanding of Sandhivata (Osteoarthritis) & its treatment and to increase related clinical skills competency. Mini-CEX facilitated training and significantly improved knowledge, attitudes, skills development and self-awareness. Learning plan for teaching Sandhivata (Osteoarthritis) and its treatment is developed, based on strength & weakness observed.

### LEARNING EXPERIENCE

Initially Mini-CEX was a newer observation and training tool for the faculties and

students. After the introductory lecture, all of them come to know its importance. When the actual encounter started, Dept. colleague, intern students were ready to take part.

### Annexure-I

**The Mini-CEX form developed by American board of Internal Medicine-ABIM and feedback**

### Annexure-II

**DESCRIPTIONS OF COMPETENCIES DEMONSTRATED DURING THE MINI-CEX**

**Medical Interviewing Skills:** Facilitates patient's telling of story; effectively uses questions/directions to obtain accurate, structured and objective, adequate information needed; responds appropriately to affect, non-verbal cues.



ADAPTED COMPETENCIES								
Evaluator: _____ Date: _____		Setting: Ambulatory _____ In-Patient _____ ED _____ Other: _____		Patient Problem/Dx: _____		Patient: Age _____ Sex _____ New _____ Follow-up _____		Complexity: Low _____ Moderate _____ High _____
<b>I. Medical Interviewing Skills</b>			1 2 3 4 5 6 7 8 9			Unsatisfactory Satisfactory Superior		
Facilitates communication using open questions Responds appropriately to non-verbal cues Effectively uses reflective listening								
<b>II. Physical Examination Skills</b>								
Not observed								
<b>III. Humanistic Qualities/Professionalism</b>			1 2 3 4 5 6 7 8 9			Unsatisfactory Satisfactory Superior		
Express empathy Shows respect Responds appropriately avoiding argumentation								
<b>IV. Clinical Judgment</b>			1 2 3 4 5 6 7 8 9			Unsatisfactory Satisfactory Superior		
Gauge readiness to change habits Develop discrepancy Support self-efficacy Rolls with resistance								
<b>V. Counseling Skills</b>			1 2 3 4 5 6 7 8 9			Unsatisfactory Satisfactory Superior		
States conclusion and recommendation clearly Encourage reflection Elicits change talk Delivers feedback Help set a goal Provide educational material								
<b>VI. Organization/Efficiency</b>			1 2 3 4 5 6 7 8 9			Unsatisfactory Satisfactory Superior		
Summarizes Schedules follow up or referral Agrees on a plan								
<b>VII. Overall Clinical Competency</b>			1 2 3 4 5 6 7 8 9			Unsatisfactory Satisfactory Superior		
Observing: _____ Minutes. Providing Feedback: _____ Minutes Evaluator Satisfaction with Mini-CEX LOW 1 2 3 4 5 6 7 8 9 HIGH Resident Satisfaction with Mini-CEX LOW 1 2 3 4 5 6 7 8 9 HIGH								
Comments: _____ _____								
Resident Signature _____					Evaluator Signature _____			

**Physical Examination Skills:** Follows efficient, logical sequence; balances screening/diagnostic steps for problem; informs patient; sensitive to patient's comfort, modesty.

**Humanistic Qualities/Professionalism:** Shows respect, compassion, empathy, establishes trust; attends to patient's needs of comfort, modesty, confidentiality, information.

**Clinical Judgment:** Selectively orders/performs appropriate diagnostic studies, considers risks, benefits.

**Counseling Skills:** Explains rationale for diet modification, explain need for Panchakarma therapy, explain need of Yog therapy and exercise, need of regular follow up, need to take medicines timely, the student uses the language that is comprehensible to the patient.

**Organization/Efficiency:** Prioritizes; is timely; succinct.

**Overall Clinical Competence:** Demonstrates judgment, synthesis, caring, effectiveness efficiency.

#### Ratings were on a 9-point scale

1–3 = unsatisfactory performance;  
4–6 = satisfactory performance; and  
7–9 = superior performance

#### Annexure-III

#### INFORMATION SHEET

This is to inform you that we are conducting a study on Use of Mini-CEX as a direct observation tool to assess & give feedback to Interns in a case of Sandhivata (Osteoarthritis). To do this we need the help from you to take part in the study. You are being asked to participate because the application of Mini-CEX would help the students and teachers assess the competency of the student for diagnostic skills. The purpose of this study is immediate feedback provided by the Teacher shall be benefit to



the student improve his/her skills build confidence .

If you take part in this study your work shall be directly observed by the faculty member and feedback of the work would be given by them.

The following seven competencies will be assessed namely interviewing, physical examination, professionalism, clinical judgment, counselling, organization and efficiency, and overall competence. History taking, examination of the patient, diagnosis & treatment plan according to Ayurveda shall be demonstrated and assessed.

Your participation in the study is entirely voluntary. It is your choice whether to participate or not, there would be no change in the teaching programme as well as their assessment.

#### **Annexure-IV**

#### **CERTIFICATE OF CONSENT**

I have gone through the information about Mini- CEX. I have the opportunity to ask questions till my satisfaction. I consent voluntarily to participate as a Participant in this study.

Name of the Participant:

Signature of the Participant:

Date:



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