

## Teaching and assessment of core residency competencies by Ophthalmic Clinical Evaluation Exercise (OCEX)

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### Abstract

**Introduction:** The Ophthalmic Clinical Evaluation Exercise (OCEX) checklist is like mini-CEX developed for ophthalmology by American Board of Internal Medicine's Clinical Evaluation Exercise. It is a validated checklist used to observe resident-patient interactions.

Most of the assessments during residency program are based on cognitive domain and lack psychomotor and affective domain. The present study assessed the utility of OCEX as a learning and assessment tool for ophthalmology residents.

**Material and Methods:** This study was carried out in ophthalmology department of NKP SIMS & LMH Nagpur for a period of six months. It was a Quasi Experimental (Before and after) study. Seven ophthalmology residents (second or third year of residency) participated in the study. Each resident had three OCEX encounters, four weeks apart over the period of three months. Two faculty members were assessors for OCEX encounters. Data was collected on interview skills, clinical examination, interpersonal skills (professionalism) and case presentation. The performance was rated and feedback was shared with resident after every encounter.

**Results:** On analysing the results, it was found that there was a significant difference in the performance of residents between initial and final OCEX encounter. Statistical significance was measured using Friedman ANOVA test for difference in mean performance score between initial and final encounter. Faculty and students had good satisfaction with OCEX system of learning cum assessment tool.

**Conclusion:** The present study demonstrated that OCEX leads to clinical competency improvement in ophthalmology residents by providing critical formative feedback immediately after the encounter. The resident feedback towards OCEX was favourable.

**Keywords:** OCEX, Ophthalmology, Residents, Assessment tool, Competency.

### Introduction

The residency years are the most important years for any specialty training where a post graduate student learns desired competencies in history taking, clinical examination, interpersonal skills, communication skills, and presentation of cases in that particular specialty. As most of the current assessments are based on cognitive domain and do not assess psychomotor and affective domain, post graduate students lack competencies in these areas.

The Ophthalmic Clinical Evaluation Exercise (OCEX)<sup>1,2</sup> is a validated and reliable method used for quality improvement in ophthalmology residents. It facilitates supervised learning environment (SLE) involving direct observation of a doctor-patient clinical encounter by a junior resident to improve competencies in interview skills, clinical skills and professionalism through immediate and formative feedback.

It has shown to be content valid and reliable assessment strategy for improving clinical case presentation. The results are fairly reliable on three or four encounters. An advantage of OCEX is that it fulfils all the three basic requirements of assessment techniques which facilitates learning. 1) the content of the training program, the competencies expected as outcomes 2) trainee feedback after the encounter 3) the

objective method of assessment steer trainee towards the desired outcomes.<sup>3</sup>

Competency based medical education (CBME) also target towards the programs which promotes adequate learner supervision. Traditionally, senior learners teach and supervise junior learners with increasing responsibility during training. Frequently, this occurs with limited faculty supervision. This activity is seen as critical to the learner's professional development and is believed to be a vital component of the learning community and culture of training programs (American Board of Internal Medicine 2009).<sup>4</sup>

It is important to understand that supervision for all levels of learners can enrich learning and will ensure the delivery of safe and effective patient care. Assessment of a student's competency for psychomotor and affective domain in ophthalmology is a real challenge for teachers. Eye being a sensory organ these two domains play a vital role in the management of patient who is visually compromised. Assessment should also balance issues of validity and reliability.

Many of the assessment methods are variations on the traditional oral examination which is time consuming and where no feedback is given to the students. In 1998, the Accreditation Council of Graduate Medical Education (ACGME) began an initiative, called the Outcome Project, which fostered

residency training with a focus on development and assessment of the six competencies, including medical knowledge, patient care, interpersonal and communication skills, systems-based practice, professionalism, and practice-based learning and improvement.<sup>5</sup>

Among the assessment tools targeted on various competencies evolving for years, the direct observation at workplace has played an important role in the process of these educational reforms.<sup>6</sup>

As proven by many studies that providing feedback to the students is most influential factor for their learning and achievement<sup>7</sup>. More attention should be paid on the assessment to improve learning.

Out of many assessment tools OCEX could be one of the tool which can be used for learning and assessment for the postgraduates in Ophthalmology. An OCEX assessment involves the observation of a patient-doctor encounter performed by the trainee. The key features of OCEX include assessment of interview skills, clinical examination, interpersonal skills and case presentation on actual patient and immediate feedback on his/her performance. The assessor's evaluation is recorded on a checklist which enables the assessor to provide verbal developmental feedback to the trainee. The data and feedback enable the learner to assess themselves and learn better. OCEX is generally led by the trainee i.e trainee chooses the patient, timing and assessor. In USA, the assessment of residents, and increasingly of students as well, is largely based on a model that was developed by the Accreditation Council for Graduate Medical Education (ACGME)<sup>8</sup>. This model uses six areas of competence and some means of assessing them (ACGME Outcome Project 2000). These are medical knowledge, patient care (including clinical reasoning), professionalism, interpersonal and communication skills, practice-based learning and improvement (including information management) and systems-based practice (including health economics and teamwork).

Hence, the present study was planned to facilitate competence in six vital areas of learning and assessing them using OCEX.

### Aim

To study effectiveness of Ophthalmic Clinical Evaluation Exercise (OCEX) as a teaching cum assessment tool for core competencies in Ophthalmology residents

### Material and Methods

**Ethical considerations:** An approval was sought from the institutional review board (IRB) before starting the study. Informed consent was taken from the residents before inclusion in the study.

**Study design:** Quasi experimental (before & after) study

**Study duration and area:** Department of Ophthalmology of NKP Salve Institute of Medical Sciences, Nagpur for a period of 6 months from March 2016 to September 2016.

**Study population:** Residents of department of Ophthalmology

**Inclusion criteria and exclusion criteria:** All residents who gave consent were included in the study.

**Sample size:** The current batch strength of residents undergoing training under Ophthalmology departments at NKP Salve Institute of Medical Sciences, Nagpur in the academic session 2016-17 is 11. Since, we targeted residents who had finished minimum twelve months of training in Ophthalmology to be able to train on OCEX, we included all junior residents of second and third year (Seven). After explaining to them the purpose of the study a written informed consent was taken. All seven residents (by convenience sampling method) and two assessors (faculty) consented to participate and were enrolled in the study.

**Sampling and randomization:** Out of the seven junior residents (JR2 and JR3) who consented to be included in the study three were then randomly assigned to assessor 1 and the other four were assigned assessor 2.

**Study tool: OCEX form** (Annexure 1)

The pre-validated Ophthalmic Clinical Evaluation Exercise (OCEX) checklist was used for second and third year residents in Ophthalmology. OCEX is developed by International Council Ophthalmology (ICO) to assess a resident's patient care skills, medical knowledge, and interpersonal skills.

Step 1: After sensitizing the assessor and residents to the OCEX tool, after 2 weeks, the principal investigator and an evaluator observed the resident-patient interaction for 15-20 min and gave performance feedback on OCEX using following scale:

1. Does not meet expectations
  2. Meets some expectations
  3. Meets all expectations
  4. Exceed expectations
- na: not applicable

**Step 2:** The assessor used OCEX encounters for three such sessions, four weeks apart, over period a period of three months. The feedback was given after every encounter.

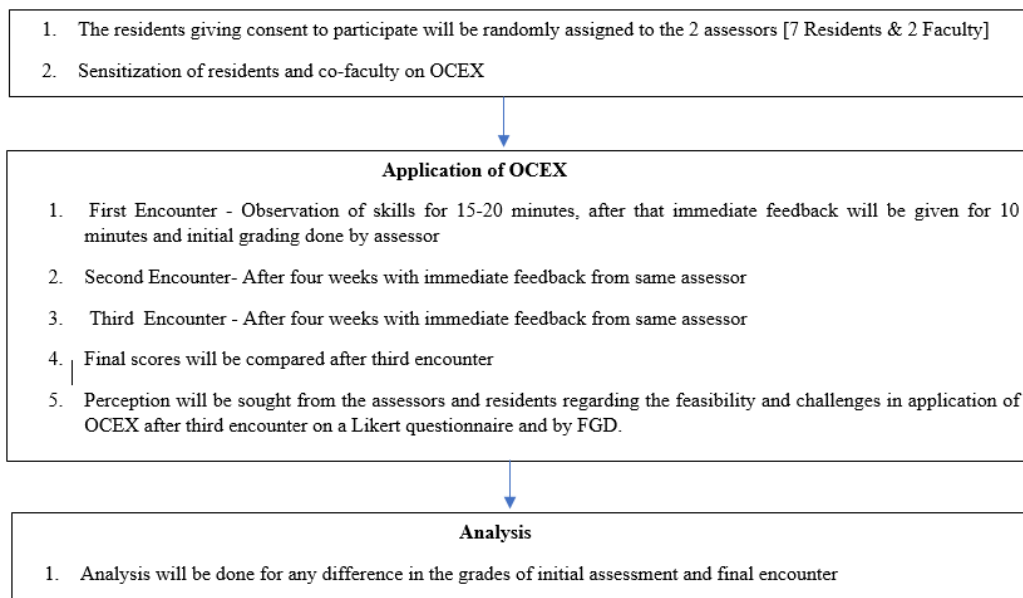
The perception of the residents and faculty on OCEX as a method of teaching and learning was obtained after the last encounter.

### Statistical Analysis

The ratings on different questions related to interview, examination, professional and presentation skills were obtained by students and summarized in terms of mean, median and inter-quartile range (IQR) for each stage. The comparison of ratings and total score across stages was performed for each question and the statistical significance was obtained using

Friedman ANOVA. Significance was evaluated at 5% level and the analysis was carried out using SPSS ver 20.0 software.

**Flow chart**



**Results**

Seven Ophthalmology residents participated in the study of which 2 were males and 5 were females. All the residents were assessed for various skills related to Ophthalmology i.e. interview skills, examination, interpersonal skills and case presentation. The skills were assessed using the OCEX tool.

Table 1 provides the descriptive statistics like mean, median and inter-quartile range (IQR) for ratings obtained on different questions related to interview skills at three distinct time points. A comparison of score distribution across times was performed for each

question, which resulted into statistical significance ( $p < 0.05$ ) using Friedman ANOVA. The median score for each question increased at follow up 1 as compared to baseline (initial), and then further increased or remained same at follow up 2, as compared follow up 1. The median total score at follow up 2 (47) was significantly higher than that of follow up 1 (41) and baseline (28). Fig. 1a depicts the change of median scores across time points for each question through line plots, while Fig. 1b gives the column chart of mean scores for each question at baseline and final follow up.

**Table 1: Descriptive statistics for ratings obtained on different questions related to interview skills**

Interview Skills	Mean [Median (IQR)]			P-value*
	Initial	Follow Up 1	Follow Up 2	
Q1	2.86 [3 (0.5)]	3.86 [4 (0)]	3.86 [4 (0)]	0.008
Q2	2.71 [3 (0.5)]	3.57 [4 (1)]	4.00 [4 (0)]	0.002
Q3	2.43 [2 (1)]	3.43 [3 (1)]	4.00 [4 (0)]	0.002
Q4	2.00 [2 (1)]	3.14 [3 (0)]	4.00 [4 (0)]	0.002
Q5	2.43 [2 (1)]	3.43 [3 (1)]	4.00 [4 (0)]	0.003
Q6	1.86 [2 (0)]	3.00 [3 (0)]	4.00 [4 (0)]	0.001
Q7	2.00 [2 (0)]	3.29 [3 (0.5)]	3.86 [4 (0)]	0.001
Q8	2.00 [2 (1)]	3.43 [3 (1)]	3.71 [4 (0.5)]	0.002
Q9	2.57 [3 (1)]	3.43 [3 (1)]	4.00 [4 (0)]	0.004
Q10	2.29 [2 (1)]	2.71 [3 (0.5)]	3.71 [4 (0.5)]	0.004
Q11	2.43 [2 (1)]	2.86 [3 (0.5)]	4.00 [4 (0)]	0.004
Q12	2.86 [3 (0)]	4.00 [4 (0)]	4.00 [4 (0)]	0.001
Total score	28.43 [28 (1.5)]	40.14 [41 (3.5)]	47.14 [47 (1.5)]	0.001

\*Obtained using Friedman ANOVA; P-values in bold indicate statistical significance

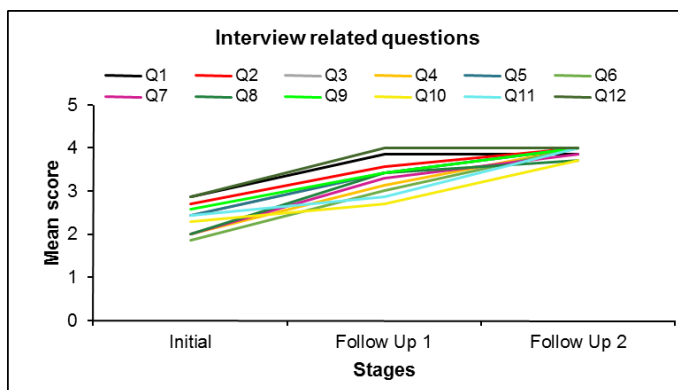


Fig. 1a: Line plot showing change of mean scores on questions related to interview skills across stages

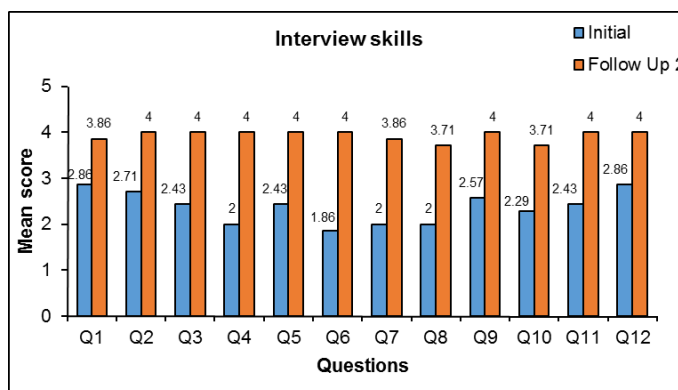


Fig. 1b: Column chart showing mean scores on questions related to interview skills at initial stage and final follow up 2

On similar lines, Table 2 provides the mean, median and IQR values for questions related to examination. It is evident that the median scores across time points for each question were statistically significantly different ( $p < 0.05$ ). The median scores increase with time and were maximum at final follow up 2 for each question. The overall score at final follow up (31) was significantly higher than follow up 1 (25) and baseline (17). Fig. 2a provides the line chart for examination related questions across time, while Fig. 2b gives the column chart of mean scores at baseline and follow up 2.

Table 2: Descriptive statistics for ratings obtained on different questions related to Examination

Examination	Mean [Median (IQR)]			P-value*
	Initial	Follow Up 1	Follow Up 2	
Q1	2.71 [3 (0.5)]	4.00 [4 (0)]	4.00 [4 (0)]	0.001
Q2	2.29 [2 (0.5)]	3.43 [3 (1)]	4.00 [4 (0)]	0.001
Q3	1.71 [2 (0.5)]	3.00 [3 (0)]	4.00 [4 (0)]	0.001
Q4	2.43 [2 (1)]	3.00 [3 (0)]	4.00 [4 (0)]	0.001
Q5	2.57 [3 (1)]	3.71 [4 (0.5)]	4.00 [4 (0)]	0.002
Q6	2.00 [2 (0)]	3.14 [3 (0)]	4.00 [4 (0)]	0.001
Q7	1.57 [2 (1)]	2.57 [3 (1)]	3.43 [3 (1)]	0.002
Q8	1.57 [2 (1)]	2.43 [2 (1)]	3.57 [4 (1)]	0.002
Total score	16.86 [17 (2)]	25.29 [25 (2)]	31.00 [31 (0)]	0.001

\*Obtained using Friedman ANOVA; P-values in bold indicate statistical significance

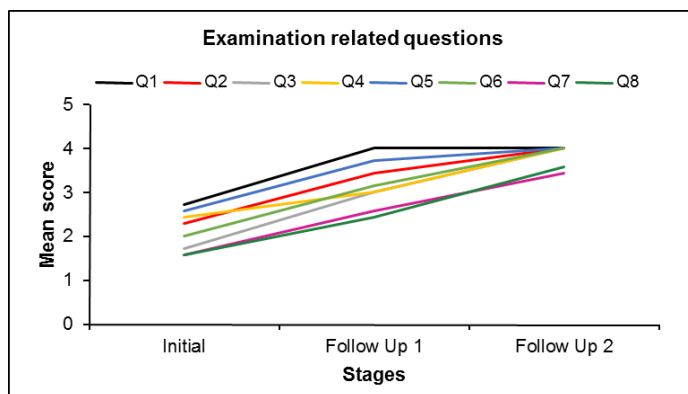


Fig. 2a: Line plot showing change of mean scores on questions related to examination across stages

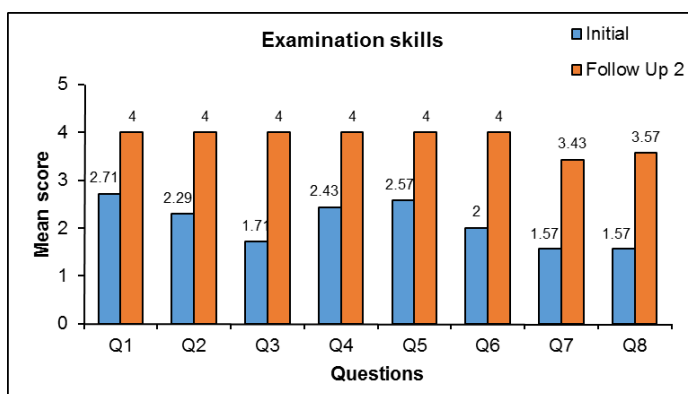


Fig. 2b: Column chart showing mean scores on questions related to examination skill at initial and final follow up 2

Table 3 provides the descriptive statistics for questions related to professional skills. It is evident that the median scores across time points for each question were statistically significantly different ( $p < 0.05$ ). The median scores either increased with time or were constant in the follow up. The overall score at final follow up (27) was significantly higher than follow up 1 (22) and baseline (15). Fig. 3a provides the line chart for median scores of questions related to professional skills across time, while Fig. 3b gives the column chart of mean scores at baseline and follow up 2.

Table 3: Descriptive statistics for ratings obtained on different questions related to Professional skills

Professional skills	Mean [Median (IQR)]			P-value*
	Initial	Follow Up 1	Follow Up 2	
Q1	2.57 [3 (1)]	3.43 [3 (1)]	4.00 [4 (0)]	0.003
Q2	2.57 [2 (1)]	3.86 [4 (0)]	3.71 [4 (0.5)]	0.010
Q3	2.86 [3 (0.5)]	3.57 [4 (1)]	4.00 [4 (0)]	0.008
Q4	1.86 [2 (0.5)]	3.00 [3 (0)]	4.00 [4 (0)]	0.002
Q5	1.86 [2 (0)]	2.86 [3 (0)]	4.00 [4 (0)]	0.001
Q6	1.71 [2 (0.5)]	2.86 [3 (0)]	3.71 [4 (0.5)]	<b>0.001</b>
Q7	1.71 [2 (1)]	3.29 [3 (1)]	3.71 [4 (0.5)]	<b>0.004</b>
Total score	15.14 [15 (3)]	22.86 [22 (2.5)]	27.14 [27 (0)]	<b>0.001</b>

\*Obtained using Friedman ANOVA; P-values in bold indicate statistical significance

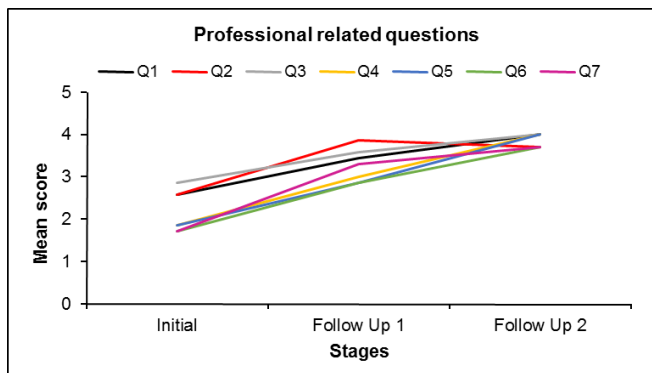


Fig. 3a: Line plot showing change of mean scores on questions related to professional skills across stages

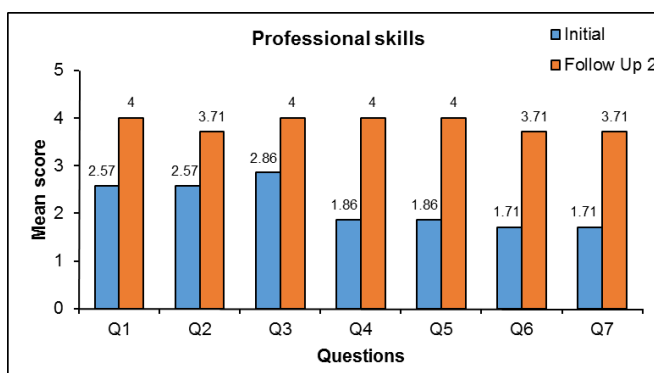


Fig. 3b: Column chart showing mean scores on questions related to professional skills at initial and final follow up 2

Table 4 provides the descriptive statistics for questions related to case presentation. It is evident that the median scores across time points for each question were statistically significantly different ( $p < 0.05$ ). The median scores either increased with time or were constant in the follow up. The overall score at final follow up (23) was significantly higher than follow up 1 (20) and baseline (13). Fig. 4a provides the line chart for median scores of questions related to case presentation across time, while Fig. 4b gives the column chart of mean scores at baseline and follow up 2.

Table 4: Descriptive statistics for ratings obtained on different questions related to Case presentation

Case Presentation	Mean [Median (IQR)]			P-value*
	Initial	Follow Up 1	Follow Up 2	
Q1	2.43 [2 (1)]	4.00 [4 (0)]	4.00 [4 (0)]	0.001
Q2	2.14 [2 (0)]	3.00 [3 (0)]	4.00 [4 (0)]	0.001
Q3	2.00 [2 (0)]	2.86 [3 (0)]	4.00 [4 (0)]	0.001
Q4	2.29 [2 (0.5)]	3.43 [3 (1)]	4.00 [4 (0)]	0.003
Q5	1.86 [2 (0)]	3.00 [3 (0)]	3.43 [3 (1)]	0.002
Q6	2.57 [3 (1)]	3.71 [4 (0.5)]	4.00 [4 (0)]	0.001
Total score	13.29 [13 (1.5)]	20.00 [20 (0.5)]	23.43 [23 (1)]	0.001

\*Obtained using Friedman ANOVA; P-values in bold indicate statistical significance

Table 5: Descriptive statistics for overall ratings obtained on different questions

Overall skills	Mean [Median (IQR)]			P-value*
	Initial	Follow Up 1	Follow Up 2	
Grand Total	73.71[73(3.5)]	108.29[110(5.5)]	128.71[129(1)]	0.001

\*Obtained using Friedman ANOVA; P-values in bold indicate statistical significance

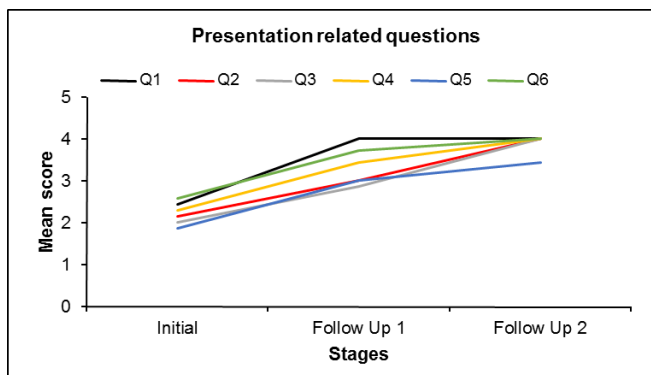


Fig. 4a: Line plot showing change of mean scores on questions related to Case Presentation across stages

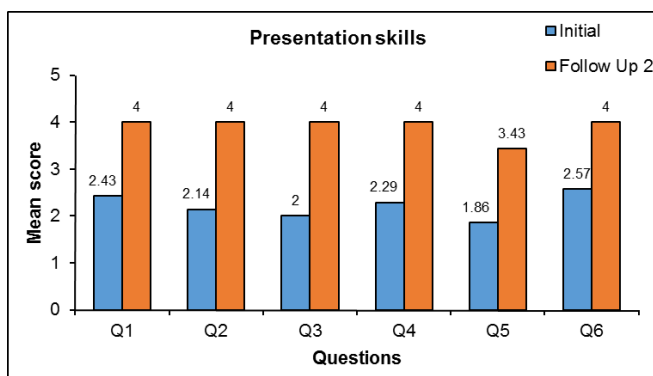


Fig. 4b: Column chart showing mean scores on questions related to Case Presentation skill at initial and final follow up 2

The grand total was obtained at all the three encounters and compared statistically. The difference of score distribution was significant across times with p-value of 0.001. The median at follow up 2 (129) was significantly higher than that of follow up 1 (110) and baseline (73).

**Discussion**

Medical education currently is changing from the traditional teaching to competency-based medical education (CBME).<sup>9</sup>

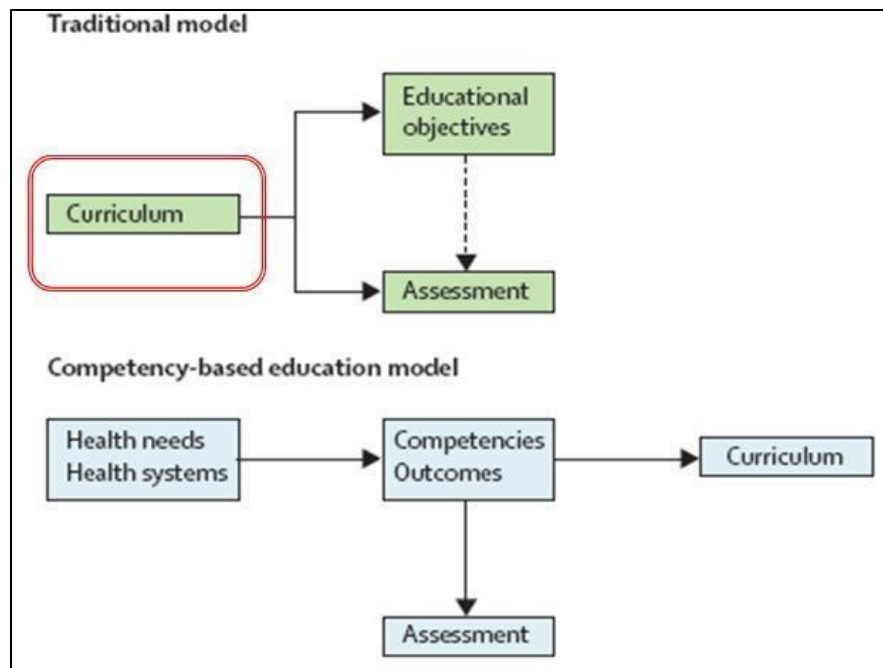
The old style of medical education was originally outlined by Abraham Flexner in 1910, to a competency-based system of education and it is referred to as “Structure/Process” education.<sup>10</sup>

There are four components - (1) identifying the outcomes; (2) defining performance levels for each competency; (3) developing a framework for assessing

competencies; and (4) continuous evaluation of the CBME program to see if it is indeed producing the desired outcomes.

Recent advances in medical technology have identified mini-CEX, as a tool for learning and assessing students. Evaluation refers to the interpretation of data as it relate to the utility of a curriculum. Although Mini-CEX is likely to play an increasingly important role in competency assessment over time as the direct observation of learners providing care will remain a cornerstone of assessment and evaluation process.

As Carraccio and colleagues (2002)<sup>9</sup> have noted, competency-based education requires greater involvement by the faculty because of the need for direct observation, feedback and increased frequency and quality of formative assessment.



Competence builds on a foundation of basic clinical skills, scientific knowledge and moral development. Epstein and Hundert proposed a definition of professional competence as the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values and reflection in daily practice for the benefit of the individual and community being served.<sup>11</sup>

The American Board of Internal Medicine distinguished between the four different dimensions of clinical competence, where problem solving was the core aspect.<sup>12</sup> These included abilities (i.e. knowledge, technical skills and interpersonal skills), problem-solving skills (i.e. data gathering and diagnosis), the nature of the medical illness (problems encountered by physicians) and social and psychological aspects of the patients' problems. In a later report, more elements were added—communication skills, professionalism (e.g. ethical practice, understanding diversity, responsible attitude), and system-based practice (i.e. understanding of the healthcare system to improve and optimize healthcare).<sup>13</sup>

Assessment of a student's actual performance after graduation and post-graduation in the consulting rooms is a real challenge for teachers. Increasing attention is being placed on this type of assessment (highest level of Miller's pyramid) because of its possible high consequential and predictive Validity. Attempts at performance assessment have to balance issues of validity and reliability.

**OCEX:** The CEX (clinical evaluation exercise) was developed as a way to assess internal medicine residents in America. It required direct observation of a resident obtaining a complete history and performing examination. The problems encountered with CEX in

internal medicine included long hours needed for it, limited reliability and inter-rater variability.<sup>14</sup> Due to this The American Board of Internal Medicine devised the mini-CEX which is a shorter version of CEX. It is also used to provide immediate formative feedback to the resident. The mini-CEX has been used as a learning tool and evaluation device for medical students.<sup>15,16</sup>

The American board has assigned valid and reliable tools to assess resident competence in 6 general areas: (1) medical knowledge, (2) patient care, (3) practice-based learning, (4) interpersonal and communication skills, (5) professionalism, and (6) systems-based practice.<sup>8</sup> Surgery is considered as a seventh competency for ophthalmology programs by the American Board of Ophthalmology.<sup>1</sup>

An OSCE uses direct observation of a resident performing an examination on a standardized patient. But the time required is a major drawback to this method. Most of the Ophthalmology programs have relatively small resident group and hence OSCE seems to be expensive method in terms of time and money.<sup>1</sup>

The OCEX attempts to combine the comprehensiveness of CEX and shorter duration and feedback of mini-CEX in one assessment tool. It assesses ACGME patient care requirements, professionalism, interpersonal skills and medical knowledge competency. Thus, it has been validated and suggested by panel of experts to be implemented for ophthalmology residents, as it is a brief method for assessing four vital out of seven general competencies. It also allows to provide a critical, instant and formative feedback to the resident.<sup>1</sup>

The ACGME has suggested that assessment tools should have an alpha greater than 0.8. The OCEX alpha was found to be 0.81. The alpha statistics for the



interpersonal skills/professionalism and case presentation subscales were 0.73 and 0.70, respectively. Although these do not reach the alpha value of 0.80, it is agreed that a value of 0.70 for a newly developed scale is still acceptable.<sup>2</sup>

The alpha statistic provides us with an indication of how well the items in a scale hang together as one unit and reliably measure the underlying construct of interest. But looking at the OCEX, one could argue that a student may be quite competent at asking about the history of a patient's present illness, but not be good about asking the patient about pain. Similarly, a student may be proficient in slit-lamp examination, but not on a patient's motility assessment. In both situations, an assessor would rate the student high in one area and low in another, resulting in a low alpha statistic. Therefore, the low alpha statistics for these scales might not be indicating a poor performance per se, but rather it may suggest that in addition to using the OCEX to assess a resident's competence in carrying out these skills, additional objective methods should also be used. Or, if time is limited for conducting the resident evaluation, perhaps the evaluator should use the OCEX to assess only the interpersonal skills/professionalism and case presentation skills and assess the resident's interview and examination skills using a more objective manner.

We used OCEX in the present study to sensitize the students and staff to this method of learning cum assessment tool. We also compared the results of initial encounter with final encounter for each area.

In the present study we found that for interview skills, the median score for each question increased at first follow up encounter were better than baseline (initial) encounter, and they further increased or remained same at second follow up encounter. The median total score at follow up 2 (47) was significantly ( $p < 0.05$ ) higher than that of follow up 1 (41) and baseline (28).

Similarly, the median scores for clinical examination skills increased with time and were maximum at final encounter for each question. The overall score at final follow up (31) was significantly higher ( $p < 0.05$ ) than follow up 1 (25) and baseline (17). As there are very few studies on OCEX which are reported in literature we could not compare our results point by point with earlier studies. We compared with mini-CEX studies reported earlier. A previous study using mini-CEX also reported a statistically significant improvement in cognitive knowledge on comparing the pre-test and post-test results ( $67.35 \pm 15.25$  versus  $81.22 \pm 10.34$ ,  $p < 0.001$ ) after application of mini CEX.<sup>17</sup>

Related to interpersonal skills and professionalism in our study we noted that the overall mean score at final follow up (27) was significantly higher than follow up 1 (22) and baseline (15). The median scores of questions related to professional skills across time also improved significantly in our study.

We also studied clinical case presentation and judgement. It was evident that the median scores for each question were statistically significantly significant ( $p < 0.05$ ). The median scores either increased with time or were constant in the follow up. The overall score at final follow up (23) was significantly higher than follow up 1 (20) and baseline (13).

In the present study, a total score was also obtained for all four assessment parameters and mean performance scores at all three encounters were compared. The difference of score distribution was significant across times with p-value of 0.001. The median at follow up 2 (129) was significantly higher than that of follow up 1 (110) and baseline (73).

A study reported in the literature by Kogan JR et al on implementation of mini-CEX to evaluate medical students' interview skills, clinical skills, professionalism and clinical judgement improved significantly after 3 months of mini-CEX encounters.<sup>16</sup>

In the present study none of the resident /assessors rated mini CEX as unsatisfactory. Similarly, mini-CEX used for common primary eye care disorders in internship program also found that interns and faculty were satisfied with this type of assessment.<sup>18</sup>

The OCEX does require an assessor to observe patient resident encounter which may take 30-45 minutes. Many faculty members had concern over this. Hence to decrease the time requirement, residents might be evaluated on only one out of four subscales of OCEX at one time (i.e. interview skills, clinical examination, professionalism and case presentation). Future research will be able to highlight advantages and disadvantages of OCEX in a more elaborate manner.

As OCEX targets "does" level of Miller's pyramid, it can be applied as an appropriate method of resident assessment tool enhancing their competency.

## Conclusion

The OCEX is the first assessment tool available with good validity and reliability to assess four of the seven ACGME competencies for ophthalmology. It also provides critical formative feedback after the encounter. Most residents and faculty members expressed their willingness to implement the OCEX for enhancing the competency-based skills in ophthalmology.

## Recommendation

Medical educational unit should incorporate the OCEX (mini-CEX) as teaching-learning tool to promote competency based medical education in all departments.

## Acknowledgments

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**Annexure 1: Ophthalmic Clinical Evaluation Exercise (OCEX)**

The OCEX is an observed encounter between a resident and a new patient. The evaluator should be present in the exam room for the entire interaction. The intent is to rate the resident in all the categories listed below compared to a graduating resident and then provide immediate performance feedback. The rating system is:  
**1 - Does Not Meet Expectations 3 - Meets All Expectations**  
**2 - Meets Some Expectations 4 - Exceeds Expectations**  
**na - Not Applicable**

	Interview Skills										
1. Introduced self	1	2	3	4	na	7. Review of systems	1	2	3	4	na
2. Obtained chief complaint	1	2	3	4	na	8. Med list	1	2	3	4	na
3. History of present illness	1	2	3	4	na	9. Past medical history	1	2	3	4	na
4. Pertinent negatives	1	2	3	4	na	10. Social history	1	2	3	4	na
5. Pain inquiry	1	2	3	4	na	11. Family history	1	2	3	4	Na
6. Allergies	1	2	3	4	na	12. Washed hands	1	2	3	4	Na
	Examination										
1. Best corrected Va	1	2	3	4	na	5. External	1	2	3	4	na
2. Pupils / RAPD	1	2	3	4	na	6. SLE	1	2	3	4	na
3. Visual Fields	1	2	3	4	na	7. IOP (+/- gonioscopy)	1	2	3	4	na
4. Motility	1	2	3	4	na	8. Funduscopy	1	2	3	4	na
	Interpersonal Skills / Professionalism										

1. Empathetic	1	2	3	4	na	5. Explained diagnosis	1	2	3	4	na
2. Respectful & courteous	1	2	3	4	na	6. Explained plan/options	1	2	3	4	na
3. Used language the pt Understands	1	2	3	4	na	7. Asked if patient had questions	1	2	3	4	na
4. Explained findings	1	2	3	4	na						
<b>Case Presentation</b>											
1. Concise & clear	1	2	3	4	na	4. Appropriate differential Dx	1	2	3	4	na
2. Pertinent facts	1	2	3	4	na	5. Appropriate plan	1	2	3	4	na
3. Pertinent pos & negs	1	2	3	4	na	6. Response to attending's questions/suggestions	1	2	3	4	na

**Comments:** \_\_\_\_\_  
**We have reviewed this OCEX together. Resident initials:** \_\_\_\_\_ **Evaluator initials:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Interpersonal Skills				
	1 Does not meet	2 Meets some expectations	3 Meets all expectations	4 Exceeds all expectations
Respectful	Disrespectful	Curt, does not listen to all of patient's questions/concerns	Listens to patient, responds to patient questions/concerns	Extremely attentive to patient's questions, concerns
Understandable	Constantly uses medical jargon the patient doesn't understand	Occasionally uses medical jargon the patient doesn't understand	Avoids or explains medical terms when used	Avoids or explains medical terms when used and frequently asks whether they are understood
Explained Findings	No explanation	Cursory explanation	Thoroughly explained all pertinent findings	Thoroughly explained all findings and used models/photos
Explained Diagnosis	No explanation	Cursory explanation	Thoroughly explained diagnosis	Thoroughly explained diagnosis and used models/photos
Explained Plan	No explanation	Cursory explanation	Thoroughly explained plan	Thoroughly explained plan and scheduled tests
Asked if Patient Had Questions.	Does not ask	Asked if patient had questions but didn't answer completely	Asked if patient had questions and answered questions thoroughly	Asked if patient & family had questions. And answered thoroughly. Gave phone # for patient to call with questions
Case Presentation				
Concise/Clarity	Unintelligible	Somewhat Disorganized	Clear, concise, organized	Meticulous, exact, succinct but complete
Pertinent Facts	Omits pertinent facts	Omits minor supporting facts	Covers all pertinent facts	Covers all pertinent facts and omits all irrelevant data
Pertinent Positives & Negatives	Does not mention	Mentions some pertinent positives & negatives	Covers all pertinent positives & negatives	Covers all pertinent positives & negatives, and omits irrelevant data
Differential Diagnosis	Does not mention	Provides basic but incomplete differential Dx	Provides appropriate differential Dx	Exhaustive differential Dx and cites literature
Appropriate Plan	Does not mention	Provides basic but incomplete plan	Provides appropriate plan	Provides detailed plan and cites literature
Response to Attending	Inappropriate	Listens but little response	Listens and responds appropriately	Responds appropriately and cites relevant literature

OCEX Scoring Rubric				
	1 Does not meet	2 Meets some expectations	3 Meets all expectations	4 Exceeds Expectations
<b>Interview Skills</b>				
Introduction	Does not introduce him/her self	Introduces self as Dr. not as resident	Introduces self as resident physician	Introduces self to patient & family and shakes hands
Chief Complaint	Does not elicit a CC	Elicits CC but lacks relevant details.	Elicits CC & details	Elicits CC and subtle, relevant details
HPI	Does not elicit HPI	HPI lacks relevant details	HPI includes most important details	HPI includes all relevant details
Pertinent Negatives	Does not elicit pertinent negatives	Elicits some pertinent negatives	Elicits important pertinent negatives	Elicits even subtle pertinent negatives
Pain Inquiry	Does not elicit.	Pain is elicited, not characterized	Elicits scaled rating of pain (0-10)	Elicits scaled rating/ relieving/exacerbating factors
Allergies	Does not elicit.	Elicits medical allergies without symptom detail	Elicits medical allergies with symptom detail	Elicits medical & environmental allergies/symptoms
ROS	Does not elicit.	Elicits incomplete ROS	Elicits most important items in ROS	Leaves no stone unturned
Medication List	Does not elicit.	Obtains list, no dosages/frequency	Obtains list with dosages/frequency	Obtains list of meds/ & herbal remedies
Social History	Does not elicit.	Omits important details	Obtains important details	Elicits even subtle relevant details
Family History	Does not elicit.	Omits important details	Obtains important details	Obtains subtle relevant details of family tree
Hand Washing	Does not wash hands.	Washes his/her hands, no soap	Washes hands with soap	Washes hands before and after encounter
<b>Exam</b>				
Visual Acuity	Does not check	Checks, but not best corrected	Checks best corrected	Does additional, appropriate testing relevant to patient's history/exam
Pupils	Does not check	Checks light reaction, does not swing light	Checks light reaction and for RAPD	Does additional, appropriate testing relevant to patient's history/exam
Visual Field	Does not check	Confrontational VF done but incompletely	Confrontational visual fields done correctly	Does additional, appropriate testing relevant to patient's history/exam
Motility	Does not check	Checks ductions or versions	Checks ductions / versions and alignment in primary position	Does additional, appropriate testing relevant to patient's history/exam
External	Does not check	Observes without measurements	Checks lid fissures & for proptosis	Does additional, appropriate testing relevant to patient's history/exam
SLE	Does not check	Doesn't check all depths of AC and/or checks only 1 eye	Checks both eyes, entire anterior segment	Does additional, appropriate testing relevant to patient's history/exam
IOP	Does not check	Poor applanation technique	Checks IOP correctly OU	Does additional, appropriate testing relevant to patient's history/exam
Fundus	Does not check	Indirect or slit lamp biomicroscopy	Indirect and slit lamp biomicroscopy	Does additional appropriate testing relevant to patient's history/exam

### Descriptors of competencies demonstrated during the OCEX

#### Medical Interviewing Skills:

Facilitates patient's telling of story; effectively uses questions/ directions to obtain accurate, adequate information needed; responds appropriately to affect, non-verbal cues.

**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.

**Counselling Skills:** Explains rationale for test/treatment, obtains patient's consent, educates/counsels regarding management.

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

#### Annexure 2:

##### Patient informed consent form

Patient identification number for this trial: \_\_\_\_\_

Title of project: Teaching and assessment of core residency competencies by Ophthalmic Clinical Evaluation Exercise (OCEX)

Name of Principal Investigator: Dr Rekha Khandelwal  
Mobile No.09823261794

The contents of the information sheet “Teaching and assessment of core residency competencies by Ophthalmic Clinical Evaluation Exercise (OCEX)”

As a teaching learning tool in enhancing skills of residents dated 15<sup>th</sup> May 2016 that was provided have been read carefully by me / explained in detail to me, in a language that I comprehend, and I have fully understood the contents. I confirm that I have had the opportunity to ask questions. The nature and purpose of the study and its potential risks / benefits and expected duration of the study and other relevant details of the study have been explained to me in detail. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason. I understand that the information collected about me from my participation in this research may be looked at by responsible individuals. I give permission for these individuals to have access to my records. I agree to take part in the above study.

Name of the participant \_\_\_\_\_

Address: \_\_\_\_\_

Mobile: \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_

This is to certify that the above consent has been obtained in my presence.

– ----- Signature of Principal Investigator

Date: \_\_\_\_\_

Place: NKP SIMS, Nagpur

Signature Witness – 1

Date: \_\_\_\_\_

Place: NKP SIMS, Nagpur

Signature Witness – 2

Date: \_\_\_\_\_

Place: NKP SIMS, Nagpur