

# A Comparative Study of Formative Assessment in Medicine Using Conventional Long Case Examination and Objective Structured Long Examination Record (OSLER) Among Final Year MBBS Students

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## Abstract

**Background:** Most medical colleges in India traditionally use the Long Case Examination (LCE) in both formative and summative patterns of assessment in clinic. This age-old issue has been addressed over the years by the introduction of several modifications of the LCE such as OSCE and OSLER. OSCE, though attractive in its brevity and specificity of focus, falls short in terms of being comprehensive. This study was taken up to compare conventional LCE to OSCE and OSLER. **Subjects and Methods:** Final year MBBS students, posted to Department of General Medicine, HIMS, Hassan were studied for 5 months. Type of study: Prospective observational study Four examiners were selected for the formative assessment: Examiners 1 and 2 were asked to assess the students assigned to Group 1; Examiners 3 and 4 were asked to assess Group 2. The OSLER method concentrates on the following ten items: (1) pace and clarity of presentation, (2) communication process, (3) systematic approach, (4) Establishment of case facts, (5) systematic examination, (6) Examination technique, (7) Establishment of correct physical findings. **Results:** The mean time taken for the assessment in Group 1 was 28.22 minutes and the SD was 7.588. The mean time taken for the assessment in Group 2 was 17.09 minutes and the SD was 4.546. **Conclusion:** In our study, the students seem to prefer the time-tested long case examination and did score better marks with the conventional method than with OSLER.

**Keywords:** Long Case Examination, OSLER, OSCE

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## Introduction

Assessment of academic performance is a vital part of any education system. When done periodically, in the form of formative assessment, it aims at improving the student's performance in subsequent assessments. A summative assessment, carried out at the end of the academic year, helps to judge the student's level of competence.

Most medical colleges in India traditionally use the Long Case Examination (LCE) in both formative and summative patterns of assessment of clinical competence in subjects like Medicine, Surgery, Obstetrics and Gynecology. However, this conventional pattern is prone to several shortcomings such as inter-case variability, inter-assessor variability and a lack of consistency in assessment criteria. Moreover, it does not foster individual attention and observation by the assessor while the student elicits history and examines the patient.

This age-old issue has been addressed over the years by the

introduction of several modifications of the LCE such as OSCE (Objective Structured Clinical Examination) and OSLER (Objective Structured Long Examination Record). OSCE, though attractive in its brevity and specificity of focus, falls short in terms of being comprehensive. On the other hand, OSLER retains the comprehensiveness of LCE, while boasting of a better quality of assessment.

This study was taken up to analyze both conventional Long Case Examination (LCE) and Objective Structured Long Examination Record (OSLER) and to compare their merits in terms of quality of assessment, performance of the students, perception of the students and assessors and the time taken for assessment.

### Objectives:

- To compare the time taken for assessment by conventional long case examination and OSLER.
- To compare the marks obtained by Final Year MBBS Students in a formative assessment examination in Medicine with conventional long case examination and

OSLER.

- To analyze the perception of students and assessors about using conventional long case examination and OSLER.

**Review of literature:**

OSLER was originally proposed in 1997 as a practical approach to what is universally recognized as an ongoing assessment challenge by Fergus Gleeson in his landmark paper titled ‘Assessment of Clinical Competence using OSLER’.

Since then, OSLER has been studied exhaustively by a number of studies across the world.

Rita Sood et.al, in a study titled ‘Long Case Examination-Can It Be Improved?’, suggested OSLER as an improvement over the traditional LCE used for assessment of clinical skills in the examination. ‘Evaluating the OSLER for Nurse Education’ by Traynor M et.al indicates that OSLER ensures a more holistic assessment of the students clinical and communication skills.

For meta-analysis, MedLine, PubMed, Embase, Blackwell, Synergy, Ask Eric and Google Scholar were searched for articles published between 1991 and 2011 using key words ‘long case’, ‘OSLER’, ‘clinical assessment’ and ‘clinical examination’.

The conclusion drawn is that, despite LCE being viewed as a relatively authentic assessment system, the concerns regarding its reliability have led to questions over its acceptability as a fair assessment tool. However there is evidence that with the simple modifications inculcated in OSLER, the reliability of the LCE can be improved to be as good as the OSCE.

**Subjects and Methods**

Settings and Study population: Final year MBBS students, posted to Department of General Medicine, HIMS, Hassan  
 Study period: 5 months [1-11-2015 to 31-3-2016]

Type of study: Prospective observational study

Sample size: 62 (33 girls and 29 boys)

Group 1- 31 students for conventional LCE (16 girls and 15 boys)

Group 2- 31 students for OSLER (17 girls and 14 boys)

Four examiners were selected for the formative assessment: Examiners 1 and 2 were asked to assess the students assigned to Group 1; Examiners 3 and 4 were asked to assess Group 2. The OSLER method concentrates on the following ten items: (1) pace and clarity of presentation, (2) communication process, (3) systematic approach, (4) Establishment of case facts, (5) systematic examination, (6) Examination technique, (7) Establishment of correct physical findings, (8) Formulation of appropriate investigation, (9) Formulation of appropriate treatment, and (10) Clinical ability to identify and solve the problem.

Printed handouts containing all these ten items with a separate column for the grading in each item were given to examiners assessing by OSLER method.

Grading was given to each component of OSLER: P for pass, P+ for above pass and P- for below pass.

Percentage of marks scored as per the grading: P+ = more than 65%, P = 55% to 65%, P- = 35% to 45%

Examiners 3 and 4 were asked to observe the Group 2

students while they were eliciting the history and examining the patient.

Time given to each student for examining the patient was 60 minutes for both Group 1 and Group 2.

Case standardization for OSLER group was done. A patient with single system involvement was considered as standard case; a patient with two-system involvement was considered as difficult case; a patient with more than two system involvement was considered as very difficult case.

**OBJECTIVE STRUCTURED LONG EXAMINATION RECORD (OSLER)**

DATE: .....

CANDIDATE'S : NAME	EXAMINATION NO.
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Examiners are required to **GRADE** each of the ten items below and assign an overall **GRADE** and **MARK** concerning the candidate **PRIOR** to discussion with their co-examiner as follows:

	<b>GRADES</b>	<b>MARKS</b>	
P+	VERY GOOD/EXCELLENT	(60-80+)	See over page for specific mark details.
P	PASS/BORDERLINE PASS	(50-55)	
P-	BELOW PASS	(35-45)	

**EXAMINER:** .....

**CO-EXAMINER:** .....

	GRADE	AGREED GRADE
<b>PRESENTATION OF HISTORY</b>		
PACE/CLARITY		
<b>COMMUNICATION PROCESS:</b> <small>( history e.g. CVS, investigation e.g. endoscopy, management e.g. patient education)</small>		
SYSTEMATIC PRESENTATION		
CORRECT FACTS ESTABLISHED		
<b>PHYSICAL EXAMINATION</b>		
SYSTEMATIC		
TECHNIQUE <small>(Including attitude to patient)</small>		
CORRECT FINDINGS ESTABLISHED		
APPROPRIATE INVESTIGATIONS <small>IN A LOGICAL SEQUENCE (Communication Process option)</small>		
APPROPRIATE MANAGEMENT <small>(Communication Process option)</small>		
CLINICAL ACUMEN <small>(Problem identification/Problem solving Ability).</small>		
ADDITIONAL COMMENTS:-		

Please Tick (✓) For CASE DIFFICULTY

	For CASE DIFFICULTY		INDIVIDUAL EXAMINER		PAIR OF EXAMINERS	
	Individual Examiner	Agreed Case Difficulty	OVERALL GRADE	MARK	AGREED GRADE	AGREED MARK
Standard	<input type="checkbox"/>	<input type="checkbox"/>				
Difficult	<input type="checkbox"/>	<input type="checkbox"/>				
Very Difficult	<input type="checkbox"/>	<input type="checkbox"/>				

**1. OSLER Assessment Format**

Perception regarding both examination methods was assessed among the students as well as the examiners by using standardized Likert’s Questionnaires Scale.

Time taken for assessment by examiners in both the groups was recorded.

**Statistical analysis:**

Standard deviation and p -value were calculated for the mean marks obtained and the mean time taken for each of the two groups. Differences in means were analyzed by using independent sample t- test.

Cronbach’s alpha was used to assess the reliability of each method

**Results**

The mean time taken for the assessment in Group 1 was 28.22 minutes and the standard deviation was 7.588. The

mean time taken for the assessment in Group 2 was 17.09 minutes and the standard deviation was 4.546 (Independent sample t- test value : 7.066, p-value < 0.05, actual p-Value <0.03). Standard deviation in Group1 is more than that of Group 2, indicating a wider range of variability in the time taken for the assessment in Group 1 (depicted in the line chart)

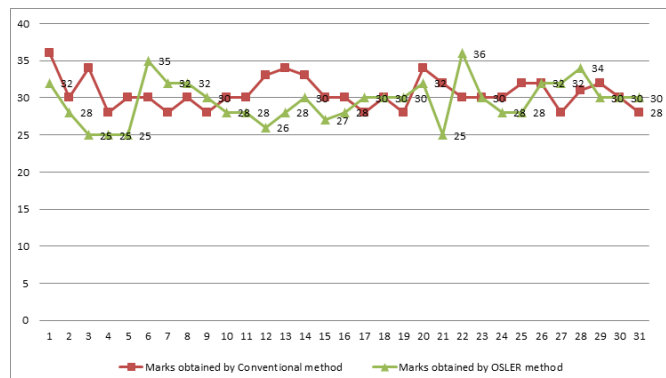


Figure 1: Line graph showing Marks obtained by LCE and OSLER

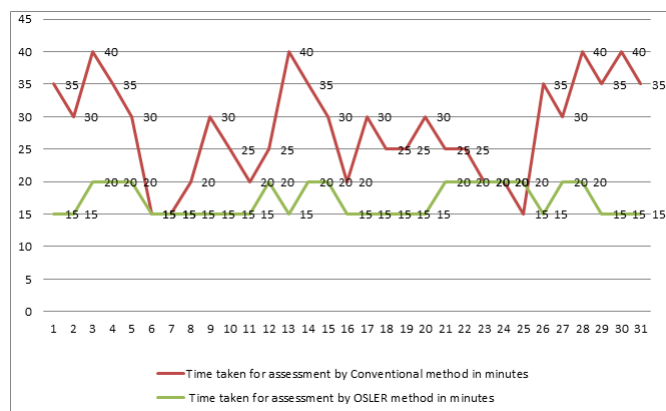


Figure 2: Line Graph showing time taken for assessment by LCE and OSLER

Mean marks scored in Group 1 amounts to 30.54 with a standard deviation of 2.121. Mean marks scored in Group 2 amounts to 29.54 with a standard deviation of 3.902 (p-value > 0.05, actual p-value > 0.2). There is a marginal difference in the mean marks scored among the two groups, but the Standard deviation in Group 2 [minimum score- 25, maximum score- 36 in Group 2] was higher than in Group 1, indicating the ability of OSLER in discriminating between the high performer and the low performer.

Table 1: Student perception regarding LCE and OSLER compared using Likert's Questionnaires Scale

Student perception Total 62	Poor (1)	Average (2)	Good (3)	very Good (4)	Excellent (5)
Conventional (Group-1) 31	1 3.2%		14 45.16%	15 48.38%	1 3.2%
OSLER (Group-2) 31	-	4 12.9%	13 41.93%	13 41.93%	1 3.2%

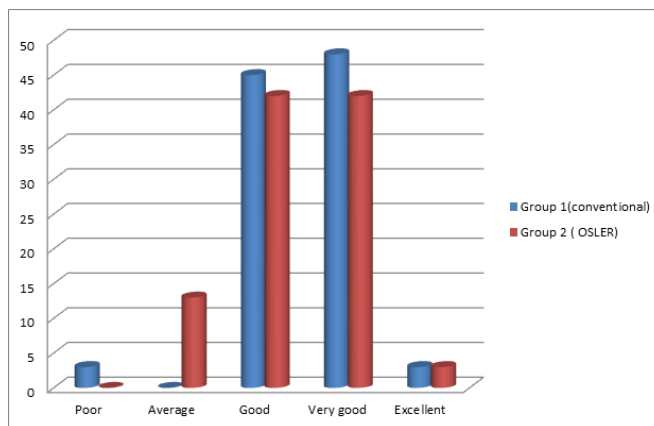


Figure 3: Graph showing student perception regarding LCE and OSLER

Table 2: Assessor perception regarding Conventional LCE and OSLER compared using Likert's Questionnaires Scale

Faculty perception Total 62	Poor (1)	Average (2)	Good (3)	Very good (4)	Excellent (5)
Conventional (Group-1) 31	1 3.2%	17 54.83%	13 41.93%	-	-
OSLER (Group-2) 31	-	5 16.12%	26 83.87%	-	-

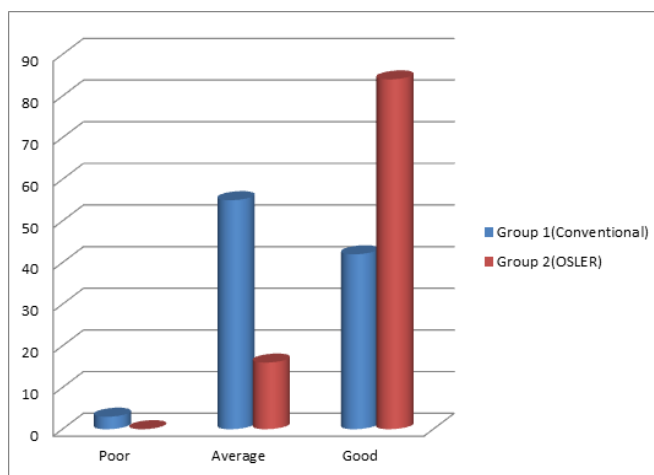


Figure 4: Graph showing assessor perception regarding LCE and OSLER

### Discussion

The individual scores of the students assessed using conventional LCE seemed higher than the marks scored by the students evaluated using OSLER. However, the difference was not statistically significant. The comparatively wider range of the scores secured by the students evaluated by OSLER indicates OSLER's ability to discriminate between high performers and low performers. The mean time taken for assessment was higher for conventional method than for the OSLER method. This difference is statistically significant.

When students were interviewed about the methods of assessment, most of them favored the conventional method. A possible reason for this is that the students are more familiar with this pattern during their routine bedside clinical discussions.

The assessors, however, felt that OSLER was preferable owing to its comparative merits in terms of the quality and the swiftness of assessment.

## Conclusion

In our study, the students seem to prefer the time-tested long case examination and did score better marks with the conventional method than with OSLER.

However, OSLER fared as a much better tool for discriminating between high performers and low performers. OSLER also aided assessors to perform the evaluation with greater speed.

While both methods are fairly reliable, the quality of assessment was found to be much better with OSLER than with the conventional method.

## Recommendations:

While quality of assessment in the existing conventional LCE can be improved by incorporating structured items, and by observing the students while they take history and examine the patient, this is highly time-consuming. In a setting with deficient teaching staff and time constraints, the practicability of the observed LCE is debatable. However, by adopting the succinct yet comprehensive pattern of OSLER, assessment can be done in short period without compromising on the quality. There is a good reason to believe that a wider acceptance of OSLER in medical education will go a long way in bringing much-needed objectivity and reliability in the way our future doctors are assessed.

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