

## An Objective Structured practical Examination (OSPE) to evaluate students in Ziehl Neelsen Staining Procedure

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### I. Introduction :

Evaluation system is direct reflection of the success of fulfillment of the predetermined educational objective. The conventional clinical and practical examination is beset with several problems. Although marking should depend only on student variability, examiner variability significantly affect scoring.<sup>1,2</sup> The Objective Structured Practical Examination (OSPE) can assess practical competencies in an appropriate, step-wise, methodical, objective and time-orientated manner with direct observation of the student's performance during planned practical test stations. OSPE is a good teaching tool that helps students to reinforce learning leading to better performance in practical exams.<sup>3,4</sup>

### AIMS & OBJECTIVES :

- To evaluate the student's performance in practical exercise of Ziehl Neelsen staining by Objective Structured Practical Examination. (OSPE)
- To take feedback after OSPE from students and teachers.

### II. Materials And Methods :

This randomised prospective observational pilot study was done in Department of Microbiology for the first time. 30 students were randomly selected and trained for Ziehl Neelsen (Z N) staining and were already exposed to Traditional Practical examination (TPE) one week back. Ready-made and peer agreed upon check list formed the basis of assessment in procedure station. Structured questions were formed for question stations and key answers for the same were also prepared. Students were circulated through three stations of 5 marks each. Their was observer at each station who observed the student as they performed staining. Each observer was provided with a checklist which was marked according to the student's performance. Student's were given feedback forms after OSPE. Feedback was taken from student's as well as observer staff.

#### STATION 1 . CHECKLIST

(Total 5 marks)

1	Identifies the correct side of slide & floods entire slide with carbol fuchsin. (0.5m)
2	Heats intermittently till fumes appear without boiling for 5 minutes. (1m)
3	Washes under slow running tap water . (0.5m)
4	Decolourises with 20% H <sub>2</sub> SO <sub>4</sub> till faint pink colour of smear seen. (1m)
5	Washes under slow running tap water. (0.5m)
6	Counterstains with methylene blue for 30 seconds. (1m)
7	Washes under slow running tap water . (0.5m)

#### STATION 2 . CHECKLIST

(Total 5 Marks)

1	After drying the slide screens the slide under low power. (1m)
2	Lowers the stage, puts oil on the smear, focuses under 100X. (1m)
3	Screens the slide in zig zag manner & focuses acid fast bacilli. (1m)
4	Draws neat labelled diagram of acid fast bacilli. (2m)

#### STATION 3 .CHECKLIST

(Total 5 marks)

Question 1	Write principle of Z N Staining. (2m)
Question 2	Name any 2 culture media used for growth of M.tuberculosis (2m)
Question 3	Name two modifications of Z N Staining. (1m)

### III. Results :

All the students performed well in OSPE. Out of 30 students 15 students (50 %) students scored 15 marks (100%). Out of 30 students 28 (93.33%) scored more than 10 marks. Ninety-nine percent of students believed that OSPE helps them to improve and 5% felt that this type of assessment fits in as both learning and evaluation tools. However, 60% of students expressed that OSPE to be introduced partially in the final exams. A vast majority of students enjoyed OSPE because of its objectivity, more student assessment in less time, and uniformity. A positive perception of the OSPE as a better stimulus to learning was shown by 12 students (40%), with satisfactory content of OSPE (72%) , OSPE being objective, fair and unbiased (93.33%). All students felt OSPE being better than TPE (100%). Time provided at each station should be more was felt by 14 students (46.6%). They felt lack of fear of facing the examiner which relieved their anxiety for the examination. Majority of faculty felt that such exercises need to be given more frequently. All the faculty felt that such assessment tested objectivity and eliminated examiner bias.

#### **IV. Discussion :**

Evaluated marks of question station and check list of procedure station were made available to the students, who appreciated what they achieved and identified where they need to improve. Feedback given by students was constructive and showed high acceptance. Majority of students appreciated orientation toward OSPE, syllabus and relevance of questions asked. Many students found that the manner in which the assessment was conducted was comfortable. This was similar to other studies where students performed well and found OSPE as a better method for practical evaluation.<sup>5,6</sup> From the students' point of view, the OSPE was acceptable and generated wide appreciation. Feedback from the students indicated that students were in favour of the OSPE. The feedback provided scope for improvement. As far as the time at each station was considered, either station 1 for staining could be split up into 2 stations of 5 minutes each or time at each station could be increased by one minute. This study reveals the importance of the role of students in developing new assessment tool. The study provided scope for refining the method. All the teaching faculty however felt that it was good assessment tool and should be carried out frequently in the department. This feedback was similar to other studies which found OSPE as better method for practical assessment of students.<sup>7,8</sup> Objective structured practical examination is a better tool for the formative assessment of practical skills of undergraduate student compared to traditional methods is also suggested by other similar studies.<sup>9,10</sup>

#### **V. Conclusion:**

In conclusion, OSPE has several distinct advantages. From our first experience, we found that OSPE was more objective, measured practical skills better, and eliminated examiner bias. Student feedback reflects that such assessment helps them to improve as it is effective both as teaching and evaluation tools. According to them OSPE is an objective based, unbiased and consistent method of evaluation. Faculty participated in organizing OSPE felt that such exercises can be given frequently for formative evaluation before introducing it in summative evaluation. We have outlined the features of the evaluation system followed in our setup, and based on the feedback, we consider that it would help students to develop different learning skills and make them better learners. Experience and experimentation will inevitably result in the refinement of the OSPE as a tool for learning and evaluation.

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