

Direct Observation Of Procedural Skills (Dops) As An Assessment Tool For Postgraduate Students In Ophthalmology

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Received: 20th Feb, 2026; Revised: 4th Mar, 2026; Accepted: 25th Mar, 2026; Available Online: 10th Apr, 2026

Abstract

Background: Assessment is an essential and integral part of competency based medical education. The concept of methods of assessment associated with higher levels of 'shows how' and 'does' of miller pyramid are being highly recommended. Direct observation of procedural skills (dops) allows structured assessment of procedural competence of students with immediate feedback.

Methodology: A quasi-experimental study was conducted in the department of ophthalmology among 17 junior residents and 6 faculty members. Two core ophthalmic procedures—peribulbar anaesthesia for second-year residents and small incision cataract surgery (sics) for third-year residents were assessed using dops. Students were first assessed using the traditional method followed by dops based assessment with structured feedback. Reassessment using dops was performed after three weeks to evaluate improvement in procedural skills. Perceptions of students and faculty regarding the feasibility and acceptability of dops were collected using structured questionnaires and analyzed.

Results: There was an improvement in mean score with reassessment using dops. Student feedback revealed that in 82.4% of students, dops helped them identify their weak areas and 94.1% had improvement in their skill after feedback. Faculty feedback indicated that dops checklists effectively achieved skill learning objectives in 100% and observed improvement in performance of the residents in 83.3% of postgraduates.

Conclusion: Dops is a very effective method to assess procedural skills of ophthalmology postgraduates and is a better method compared to the traditional method as it provides a feedback thus improving the skills.

Keywords: Dops, Oscar, Work Placed Based Assessment.

How To Cite This Article: Rashmi G, Athira K. Direct Observation Of Procedural Skills (Dops) As An Assessment Tool For Postgraduate Students In Ophthalmology. *Int J Drug Deliv Technol.* 2026;16(26s):266-269. Doi: 10.25258/ijddt.16.26s.26

INTRODUCTION

Assessment is an integral part of medical education. Traditional methods of procedural assessment often lack structured observation and timely feedback. Competency-based medical education emphasizes assessment strategies focused on the higher levels of Miller's pyramid, particularly "shows how" and "does"¹.

Direct Observation of Procedural Skills (DOPS) is a workplace-based assessment tool designed to evaluate procedural competence through real-time observation and focused feedback. It was developed by the Royal College of Physicians (Norcini & McKinkley 2007). In ophthalmology, where microsurgical and diagnostic precision is critical, formative assessment methods that promote skill acquisition and reflective practice are particularly valuable².

Direct Observation of Procedural Skills (DOPS) is a student-centred formative workplace-based assessment method that promotes self-directed learning by enabling

trainees to identify their learning needs and participate in selecting the timing and context of assessment. DOPS facilitates active learning, performance monitoring and targeted feedback³. It involves structured, direct observation of learners while performing real clinical procedures in authentic clinical settings using a validated checklist, followed by immediate constructive feedback aimed at improving the procedural competence.

This study assessed the effectiveness of DOPS in improving procedural skills and perception of postgraduates and faculty regarding the conduct of DOPS in Ophthalmology.

METHODOLOGY:

A comparative study was conducted among 17 postgraduate students and 6 faculties in Department of Ophthalmology, R. L. Jalappa Hospital and Research, Kolar from April 2025 to August 2025, after obtaining ethical clearance from Institutional Ethical Committee of

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Sri Devaraj Urs Medical College and written informed consent from the participants. The study included second year and third year Postgraduates and faculties in the department of Ophthalmology. Residents who were not willing to participate in the study were excluded. Two commonly performed core skills required in Ophthalmology- Peribulbar block for second year residents and Small Incision Cataract Surgery for third year residents were selected for assessment. Faculty validated Ophthalmology Surgical Competency Assessment Rubrics(OSCARs) checklist was used for both the procedures. Faculties were oriented about conducting DOPS and the use of checklist. They were trained to give constructive feedback after conducting DOPS. After getting informed consent from residents, they were assessed with traditional method first which was followed by assessment of the same procedure by DOPS using a checklist. Students were provided with the feedback after the procedure. After three weeks, residents were reassessed with DOPS to check for improvement. The feedback forms for both the students and faculty pertaining to their perception regarding feasibility and acceptability of DOPS as assessment tool in comparison with traditional method was collected after the assessment and analyzed.

DATA ENTRY AND ANALYSIS

Data were analyzed using SPSS version 22. Independent t-test was used to compare scores between traditional assessment and first DOPS. Paired t-test was used to compare first and second DOPS scores. Chi-square test was used for qualitative data. A p-value < 0.05 was considered statistically significant.

RESULTS:

A total of 17 postgraduate students (10 first-year and 7 second-year residents) and 6 faculty members in the Department of Ophthalmology participated in the study.

The mean score obtained after assessment by the traditional method was 63.12 ± 27.62 , whereas the mean score after the first DOPS assessment was 51.47 ± 20.49 . The difference between the two methods was not statistically significant ($p = 0.172$). On reassessment using DOPS after 3 weeks, the mean score improved to 55.88 ± 23.18 compared to the first DOPS score of 51.47 ± 20.49 . This improvement, however, was not statistically significant ($p = 0.162$).

Table1 –Comparison between traditional method and DOPS

	Mean	Std. Deviation	P value
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Traditional method	63.12	27.629	0.172
1 st DOPS	51.47	20.485	

Table 2 :- Comparison between 1st DOPS and 2nd DOPS

	Mean	Std. Deviation	P value
1 st DOPS	51.47	20.485	0.162
DOPS after 3 week	55.88	23.181	

Perception of faculty and students regarding DOP was also assessed. Most of the responses were found to be positive. Among the postgraduates 94.1% reported marked improvement in skill after feedback, 82.4% felt DOPS was feasible, 82.4% stated that DOPS helped them identify weak areas and 64.7% preferred DOPS over the traditional assessment method. But 23.5% reported disadvantages mainly due to time constraints and operational feasibility.

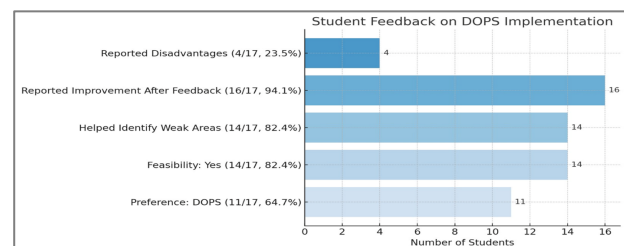


Chart 1 – showing student feedback on DOPS implementation

All faculty members (100%) agreed that DOPS helped to identify student's weak areas and led to observable improvement in student performance. Hence it was preferred to traditional method of procedural assessment. Two faculty members (33.3%) reported disadvantages, primarily related to time limitations in a busy operation theatre setting.

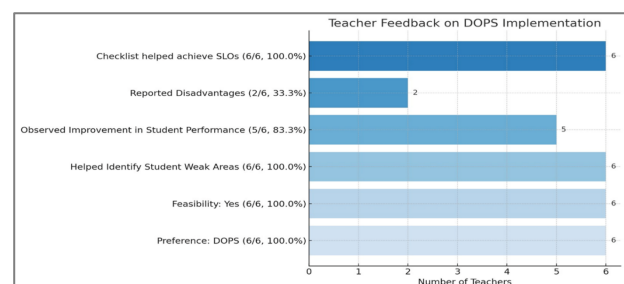


Chart 2 :-Faculty feedback on DOPS

DISCUSSION:

The present study evaluated the effectiveness of Direct Observation of Procedural Skills (DOPS) as a formative assessment tool for ophthalmology postgraduates. Although the improvement in scores following DOPS was

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not statistically significant, both postgraduate students and faculty perceived DOPS as a useful, acceptable, and educationally valuable method of procedural assessment.

A study by Kamat C et al revealed that there was significant improvement in the procedural skill performance after DOPS feedback with a statistically significant difference. Students and faculty gave positive feedback about DOPS⁴. Morris et al concluded that DOPS have significant positive feedback, results in improving competence-based learning among interns. The advantages of DOPS noted were short time commitment for the procedural observation and practice opportunities for the commonly performed procedures⁵.

Rathod S et al observed DOPS helped the students to develop and improve their clinical skills, patient examination, decision making and treatment⁶. A study by Vijay N et al showed 94% perceived DOPS as an effective teaching-learning tool similar to our study while 100% reported improvement in skills, receipt of constructive feedback, adequate time for feedback, increased confidence, and assessment in a non-threatening environment. Faculty responses were similarly favorable, with all faculty members reporting an improved attitude toward teaching, usefulness of DOPS as a teaching-learning tool, and its effectiveness in identifying students developmental needs⁷.

Lagoo JY et al found that constructive feedback and analysis of students performance helped to formulate a plan for improvement and DOPS was perceived as motivating exercise to further enhance the clinical skills of the students². The results of our study was similar to the findings by Jafarpoor H et al in terms of improving the skills among nursing students compared with the traditional method³.

Profanter and Perathoner in their benchmark study of prospective randomized trial in small groups of undergraduates, concluded that DOPS is an efficient tool in teaching clinical skills as compared to OSCE⁸.

DOPS requires an initial commitment to the development of validated, structured checklists for specific procedures, along with a defined period of direct observation. It also need systematic coordination between the learner and the assessor to determine a mutually convenient time for assessment. Appropriate patient selection is essential, as emergency cases and exceptionally difficult or rare cases are not suitable for evaluation.

In this study, over 90% of students reported improvement after feedback, and more than 80% stated that DOPS

helped them identify weak areas. These findings highlight the importance of workplace-based assessments that shift the focus from summative evaluation to guided skill development, reflection, and targeted remediation. The lack of statistically significant improvement in scores may be attributed to the small sample size, short duration of follow-up, and variability in baseline skill levels. Nevertheless, the observed numerical improvement in scores after three weeks, along with overwhelmingly positive feedback, suggests that DOPS has the potential to enhance procedural learning when implemented longitudinally. Variability of assessors may have led to variable scores.

A drawback of DOPS is that it evaluates a specific encounter, which might not be representative of the trainees' overall performance, rather than rating based on assessment over a longer period of time and that specific encounter. Also, it might be that trainees' behavior might be influenced when they know that they are being observed⁸.

Future studies should include a larger sample size, multicentric participation and longer follow-up periods to better evaluate the impact of DOPS on procedural competence and skill retention. Repeated DOPS encounters across multiple procedures may provide a clearer understanding of learning curves and long-term performance improvement. Standardization of assessor training and use of validated checklists could further enhance reliability.

CONCLUSION:

Direct Observation of Procedural Skills is an effective formative assessment tool for evaluating procedural competencies in ophthalmology postgraduate training. Although the improvement in scores in the present study did not reach statistical significance, both postgraduate students and faculty strongly perceived DOPS as a valuable method for structured observation, identification of weaknesses, and delivery of constructive feedback. The high level of acceptability, feasibility, and preference for DOPS over traditional assessment methods highlights its potential role in competency-based ophthalmology education. Incorporation of DOPS into routine postgraduate training may contribute to improved procedural learning, enhanced clinical confidence, and development of reflective practice.

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