

# Training and assessment of medical interns using “direct observation of procedural skills (DOPS)” tool in obstetrics and gynecology

## Abstract

**Background:** Internship programme for medical interns is designed with the aim of developing basic medical and surgical skills among graduates, so that they become competent to manage common illnesses and emergencies. Presently, medical interns are posted to the clinical departments, without adequate instructions on commonly performed procedures on patients, principles of asepsis and universal bio-safety measures. Training and assessment need was identified for interns in these subjects.

**Methods:** Hands on training programme was organized for interns that comprised of common procedures performed in wards, operation theatre and labour room on day to day basis. A pre and post test was performed to assess the gain in knowledge by interns. Subsequently, interns were directly observed by residents, nurses and faculty members in labour room, operation theatre and wards. The observations were documented, and immediate feedback was given to interns. Feedback from interns was obtained at the end of the rotation in Obstetrics and Gynaecology.

**Results:** There was significant gain in knowledge by interns following training programme. Interns adopted good aseptic precautions and followed universal bio-safety measures during their clinical posting. Compliance to aseptic precautions was significantly more in female interns as compared to male. A demand got generated from other batches of interns in conducting similar training programme for them. Nurses, faculty members and co-ordinator of internship programme gave positive feedback about the changes observed in the batch of interns, who underwent training as compared to previous batches.

**Conclusion:** The training programme for medical interns on commonly performed procedures and surgical asepsis resulted in significant improvement in their performance. It is recommended to include these topics in internship orientation programme.

**Keywords:** internship training programme, surgical asepsis, common ward procedures, universal bio-safety measures

## Introduction

In the Miller's framework for assessing clinical competence, workplace-based methods of assessment target the highest level of the pyramid and collect information about doctors' performance in their everyday practice. Direct Observation of Procedural Skills (DOPS), Mini-Clinical Evaluation Exercise (mini-CEX) and Case-based discussion (CBD) are some of the most commonly used methods of workplace-based assessments. Workplace based assessment has been introduced in various medical institutions.<sup>1-3</sup> It has been proved to improve the knowledge and skills of the trainee. Immediate feedback by the supervisors help trainee in improvement.<sup>4-6</sup> DOPS is designed to provide feedback on procedural skills essential to the provision of good clinical care. Trainees are asked to undertake practical procedures with a different observer for each encounter. Each DOPS should represent a different procedure and will normally be completed opportunistically during routine work. The trainee chooses the timing, procedure and the observer, which may be experienced Registrars, Consultants or appropriate nursing staff who are competent in the procedure assessed. The assessment involves an assessor observing the trainee perform a practical procedure within the workplace; and a structured checklist is designed to give guidance for the assessors. Most procedures take no longer than 15–20minutes. Feedback would

normally take about 5minutes. Direct observation of procedural

skills is another way of teaching, learning or assessing the trainees.<sup>7-10</sup> The study aimed to introduce DOPS as tool for formative assessment of medical interns posted in Obstetrics and Gynecology, to analyze the change in level of performance after introduction of DOPS, to get feedback about DOPS as a method of assessment from interns and assessors (reflections).

Internship programme for medical interns is designed with the aim of developing basic medical and surgical skills among graduates, so that they become competent to manage common illnesses and emergencies. Presently, medical interns are posted on rotation to the clinical departments for a subject specific variable period of 2–8weeks. They are posted without any instructions or formal training about commonly performed procedures, which they are expected to carry out on patients. They are neither taught about the basic principles of asepsis and universal bio-safety measures. Training and assessment need was identified for interns in these subjects.

## Methodology

### Setting, population and study design

An educational intervention project was carried out for a period of six months in the department of Obstetrics and Gynecology of Rural Medical College affiliated to Pravara Institute of Medical Sciences, Loni, Ahmednagar in Maharashtra.

## Institutional ethical clearance

Project was implemented after obtaining technical and ethics committee clearance from the university.

## Study participants

40 interns of MBBS course (trainees), posted in the department of Obstetrics and Gynecology from October 2016 till March 2017 were included as study participants after obtaining their consent for participation.

## Methodology

Hands on training programme on common clinical procedures using manikins and surgical and medical asepsis was organized for interns that included common procedures performed by them in wards, operation theatre and labour room on day to day basis. A pre and post test was performed to assess the gain in knowledge by interns. All interns were educated about the commonly performed procedures like female urethral catheterization, vene-puncture, setting up of an intravenous line/collection of blood samples, hand washing procedure, putting of surgical gloves and gown at the beginning of their two months rotation posting. They were educated through short videos on the procedure and demonstration of the procedures on actual patients by chief residents and faculty members. They were asked to be observant during their posting about commonly performed procedures in ward and labor room. They were asked to be non hesitant in asking questions related to the procedures. The training and assessment was performed while the interns were on duty (on job training). The assessment was performed using a standardized structured checklist prepared for each procedure. Assessment was performed by chief resident or faculty on call. The assessors were trained in assessment of trainees using pre validated checklist. The checklist was standardized keeping in mind, what the passing candidate must be able to do. The assessment was done in five grades (Not enough evidence/below expectations/borderline/meeting expectations/exceeding expectations). One assessor was allotted for assessment of one procedure/skill. The trainees were assessed as per their availability in the ward or labor room. Verbal feedback about the performance was given to the trainee immediately after the assessment, so that trainees can identify and agree strengths, areas for improvement and an action plan. If the performance fell short of accepted standard, intern was asked to perform the procedure again. Data analysis was done with SPSS software, version 21 using Wilcoxon signed rank test. Pre and post test scores were compared to find out the difference in the score. Feedback from the interns was rated on Likert scale of 5. A change in the performance level of interns after introduction of DOPS was assessed. (Kirkpatrick level 5) using standardized checklist with five gradings for each item.

## Observations and results

There was significant gain in knowledge by interns and the interns adopted good aseptic precautions during their posting. Interns exhibited good compliance with good hand hygiene, correct and consistent use of surgical gloves, proper and consistent use of mask in OT/ labour room (Table 1) (Table 2). The overall compliance of male and female interns to good surgical practices was 61% and 79% respectively (Table 3). A demand got generated from other batches of interns in conducting similar training programme for them. Nurses, faculty members and co-ordinator of internship programme gave

positive feedback about the changes observed in the batch of interns who underwent training as compared to previous batches (Table 4).

**Table 1** Showing Pre and Post test scores of interns

Test Score(Marks Range)	Pre test No. of interns (%) (n=40)	Post test No. of interns (%) (n=40)
0-10	03 (07.50)	00 (0.00)
20-10	20 (50.00)	00 (0.00)
20-30	13 (32.50)	03 (07.50)
30-40	03 (07.50)	21 (52.50)
40-50	01 (02.50)	16 (40.00)

**Table 2** Showing statistical difference between Pre and Post test scores

Parameter	Pre test	Post test
Mean	18.35	39.7
Standard deviation(SD)	7.3	5.62
Median	18	38

**Table 3** Results of the Quantitative analysis about post training practices adopted by interns

S. No	Parameter	Observation (%)	
		Male	Female
1	Good hand Hygiene	70	89
2	Correct and consistent use of surgical gloves	72	88
3	Correct surgical scrub	37	58
4	Proper blood collection by vene-puncture	63	80
5	Satisfactory technique -urethral catheterization	53	72
6	Proper donning of gown	56	78
7	Proper and consistent use of mask in OT / labour room	71	87
8	Proper disposal of used surgical material (Syringes, gloves, needles, catheters, cotton swabs)	66	82
	Average	61	79

**Table 4** Result of analysis of Feedback for (on the Scale of 0 - 10)

S. No	Assessment parameter	Average score
1	How were the contents and quality of oral presentations?	8.32
2	How were the contents and quality of video presentations?	8.66
3	How were the contents and conduct of hands on workshop?	9.33
4	Whether time allotted was adequate?	7.54
5	Whether Time management was satisfactory?	8.36
6	Did new learning happen?	8.69

Table Continued

S. No	Assessment parameter	Average score
7	How was the overall usefulness of the training?	9.65
8	How was the ambience at the training venue?	9
9	Should this training be incorporated in regular intern training programme?	9.15
10	Average of all scores	8.74

(Score range, Lowest- 0 and Highest - 10)

## Discussion

Compulsory rotational Internship, following completion of MBBS course is meant for learning of various skills and procedures performed in various department and units. Learning and practicing principles of surgical asepsis is essential component of internship programme. The interns and resident doctors learn it mainly by observing their senior colleagues. The internees practice what they observe. The internees can be assessed by direct observation of procedural skills, while they are working in hospital (DOPs). DOPS are not designed to test the person but rather provide the opportunity for that to ensure that a particular skill is performed correctly according to agreed guidelines using an agreed checklist. The procedures selected in the training programme held were from those outlined as core competencies from the Medical Council of India document. Similar skills and procedures for Tomorrow's Doctors are practiced in United Kingdom.<sup>11</sup> In the present study, for some procedures like venepuncture or cannulation and urethral catheterization, there were more opportunities available for observation at a planned time. It was appreciated at an early stage that the labour room and emergency operation theatre were areas that provided maximum opportunities for the trainees to practice their procedural skills. Routine theatre lists provided a further opportunity, where procedural opportunities could be anticipated in advance.

Multisource feedback, sometimes referred to as 360 degree appraisal, is already being used extensively in industry and has already been used for medical practice.<sup>12,13</sup> Feedback about performance of interns was obtained from various sources like nursing staff, patients, resident doctors and faculty members. It was reported that the adoption of technique of surgical asepsis was better in operation theatre as compared to labour room and wards and during day time than night time. There was good adherence to practices related to hand hygiene and proper technique and use of gloves as compared to proper disposal of used surgical material and procedure for catheterization. There was no incidence of needle stick injury during study period. The training reduced the apprehension and fear among the interns about common surgical procedures and protocols. All interns were extremely happy about the learning opportunity they got during hands on workshop before starting the internship. They felt confident in doing venepuncture and drawing blood samples in patients. There was demand from other batches of interns for organizing similar workshop for them. Few interns suggested that the time allotment for theory part should be reduced in training and provide more time for hands on training. Internship programme co-ordinator has suggested that the similar workshop be organized for every future batch of interns. Common reasons found for non compliance to aseptic precautions were forgot in hurry due to overwork, non availability of material-gloves, mask, sterilium solution, did not know the procedure/technique or non availability of waste bins for disposal of used items. The following are

the main advantages of DOPS as a valid assessment tool: The trainee is assessed during everyday work performing procedures on real patients. Not only the technical ability is observed, but also interaction with patients, colleagues and professional behaviours can be assessed. A range of skills, from simple to very complex procedures can be assessed. Many trainees will "need further development", so after receiving feedback, the strengths and weaknesses can be highlighted and the trainee can work on them and be assessed at a later date.

## Conclusion

Hands on training programme on common clinical procedures using manikins and surgical and medical asepsis resulted in significant gain in knowledge of medical interns. Interns practiced what they learnt during training and followed the principles of surgical asepsis at work. Training programme was rated high by interns through feedback. Faculty members, nursing staff and resident doctors gave positive feedback about changes in aseptic practices adopted by interns following training.

## Acknowledgements

None.

## Conflict of interest

Author declares that there is no conflict of interest.

## Ethical approval

The study was approved by the Institutional Ethics Committee.

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