

OSATS FOR ASSESSING TRAINEE'S PROCEDURAL SKILLS IN RADIOLOGY

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Introduction

Assessment of residency training at all levels is a tough and scrupulous component of the residency programme. An important part that has usually been inadequately evaluated and reported on is a resident's surgical abilities or technical skills. Faculty evaluation of the residents technical skills is generally provided at the end of rotation¹ in the form of a written assessment and is likely to be subjective with unknown validity and poor reliability and provide very little if any objective measure for assessment and most importantly do not provide any detailed feedback or comments for improvement.

Achieving technical expertise is becoming more and more difficult in the present times. It is been noticed that residents are experiencing less technical skill training due to reasons like reduced working hours, decreased caseload and increase in number of residents etc and it is feared that this will impede performance not only during residency as well as in the post residency period.² An objective assessment tool play an important role in the above mentioned situation as it helps in the learning process by providing constructive feedback on performance, by establishing competency and capability level, mark improvement and in the achievement of training goals and credentialing.³

Interventional radiology is an important section of radiology and involves performance of interventional procedures under ultrasound, CT and fluoroscopic guidance. So as in other surgical modalities, there is a need for developing teaching and learning strategy

and an assessment tool to teach, evaluate and assess the procedural skills of the residents. Performance based methods like PBA, OSATS etc. are ideal in the assessment of diagnostic and interventional radiological procedures. These can be used for assessment of residents 'performance, provision of feedback and identification of areas and gaps in teaching and learning that require improvement.⁴

Literature Review

There is a need for change in the training of medical experts to ensure the reliability of medical practice and patient safety. There is a societal demand for competency in training and continuing education of the medical experts to guarantee safe performance. For medical and surgical practice the notion has changed from the attitude of "trust me" into "test me and prove me" criterion.⁵ The traditional clinical apprenticeship model relying on experiential teaching and learning with subjective observational assessment of clinical skills is not sufficient as there are not many opportunities for assessors to observe trainees in the course of clinical encounter, hence limiting the evaluation of skills with little or no feedback.

Workplace - based assessment involves observation and assessment of performance on naturalistic setting i.e. clinical situations. Judgments are made on clinical procedural competence as well as other aspects of practice like professionalism, decision making etc. with provision of feed back to ensure achievement of a required standard. It target the top two levels of Miller's pyramid that is from "shows how" to "does".⁶ This allows a more practical and realistic assessment of clinical skill taking into consideration the disparity and

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variations due to factors such as case mix and level of difficulty.

OSATS (objective structured assessment of technical skills) is one of the work place based assessment tool developed by Martin and colleagues⁷ in 1997. It offer structured, proficiency and competency based assessment of clinical skills in the work place for regulatory purpose and provide formative feedback and supervised training opportunity. The rationale is to assist and support learning i.e. “assessment for learning” and this can be used as evidence of trainee’s progress in the annual review that is an “assessment of learning”.⁸

Competence in radiological technical skills requires knowledge of theoretical and practical aspects which are crucial to the use of imaging to guide needles, catheters and wires within a patient. As in all other fields the successful outcome is broadly defined as completion of a task and attaining the desired end point without complications. For this the key element is performance and the certification provides evidence of competence. In radiology the objective assessment of technical skills during training is lacking at present although some work has been done using time action analysis⁹ for performance assessment in interventional radiology.

The objective structured assessment of technical skills is a description of the physical tasks and the decision making steps involved in performance of the procedure. The intend is provision of knowledge base to accelerate learning, hence avoidance of mistakes and risk . From a training point of view the basis and content of mistake and inaccuracy in any step of the procedure is indispensable information to avoid future repetition of faulty technique. It also provides guidance to trainees e.g. in comprehending the steps of the procedure and the usage of instruments and hence acts as a useful training tool which will accelerate training and understanding of procedures in addition to a more rapid acquisition of skills. Before conducting the procedure on a patient, the Virtual reality (VR) simulator models can train and assess the core skills and trainees will realistically perform procedures with feedback on their performance. There is a provision of repetition of difficult procedures until a satisfactory level of expertise is achieved.¹⁰

The OSATS also verified construct validity among

residents with progress in scores and achievement with increasing seniority in training.¹¹

Outline for implementation

This assessment tool needs to be undertaken by resident according to the curriculum devised by the department and the licensing authority. More than one assessor should assess and provide feedback at the end with mutual agreement on strengths and areas for development.

The common errors in rating needs to be addressed for meaningful implementation of the process. Assessors training and familiarity with the devised form is crucial. The scoring to be done based on a five to seven point rating scale preferably and key provided for reference.

Special precautions are essential to avoid errors resulting from bias. Personal bias which may be due to generosity error , severity error or central tendency error develops due to tendency of assessor to rate all residents at the same position on the scale and therefore reliable discrimination among the residents score is not achieved. The halo effect is due to the rater’s general impression of the performer which may be good or bad resulting in high or low rating regardless of actual performance. Since this is a performance based evaluation hiding the identity is not possible. The halo effect can be avoided by knowing one’s personal bias and prejudice although it is not an easy task.

It is utmost important to take ethical issues into consideration when the procedure is to be performed on a real patient in a clinical scenario. The patient need to understand that they are not experimental subjects and the procedure is being performed under supervision of the faculty. The important ethical considerations include informed consent, explanation of the procedure to the patient and the awareness of the patient that they have the right to refuse if not satisfied by the explanations. The resident performing the procedure should be at the required level of training and education.

A number of approaches are existing to evaluate the quality of the assessment method i.e. OSATS. It involves the estimation of psychometric properties including the reliability and validity.

The reliability of an assessment method is the reproducibility of its results and outcomes and a high reliability ensures the consistency of the method and produces same result if the test was taken by performer on different occasions or rated by different assessors. The inter rater reliability refers to the degree of agreement between two or more assessors evaluating the same encounter. This can be achieved by the proper and thoughtful development of the form to remove any ambiguity in comprehension.

The test retest reliability is ensured by the consistency of the assessment tool and proper institution of the type and complexity of the procedure.

The validity of the assessment tool provides an indication as to whether the tool is measuring what it is supposed to measure and the evidence needed in its support are content validity ,criterion validity, construct and consequential.

In addition to the above mentioned variables the utility of the assessment tool is also influenced by educational impact, feasibility, acceptability and cost as these have impact on its utility in practice.

Conclusion

The OSATS for testing procedural skills in radiology is a valuable tool for identifying the learners need and deficiency and providing timely and effective feedback.

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