

Leading Article

The OSCE

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Sri Lanka Journal of Child Health, 2001; **30**: 24-7

(Key words: Objective Structured Clinical Examination, OSCE)

The evaluation procedure termed the Objective Structured Clinical Examination (OSCE) was first described in the mid seventies¹ and has been increasingly recommended by medical educationists ever since, as an objective method of assessing clinical competence. From year 2000 the Post Graduate Institute of Medicine in Colombo introduced the Objective Structured Clinical Examination for the MD (Paediatrics) entry point examination, as a method of selecting trainees into the programme leading to Board Certification as paediatricians. Accepted as an educational advance this type of clinical assessment has been incorporated into the undergraduate courses of most medical schools in Sri Lanka. What is the rationale behind this form of evaluation and what challenges do examiners and candidates face in this process?

Clinical examinations

The traditional clinical examination of 'long' and 'short' cases has been viewed with concern at both undergraduate and postgraduate levels. There are three variables in any clinical examination. The candidate, the patient and the examiner. For the examination results to be reliable, this variability should be confined to the candidates who are being assessed, while the other two factors remain constant, without variation. In addition, the examination should be able to objectively assess the different components of clinical competence such as history taking, observation skills, eliciting of physical signs, identification of problems, decision making in management issues, technical skills at diagnostic tests, ability to interpret laboratory and radiological investigations, communication skills, patient-doctor and staff relationships, interpersonal skills, and attitude to patients and clinical situations etc, separately and objectively.

Finally it should be possible to utilise the results obtained to fulfil the desired purpose of the examination; i.e. for identifying areas of deficiency in

training, for identifying borderline/average/above average candidates of a particular competence, or for selecting candidates for progress to the next stage of training.

This format of clinical examination assesses different areas of clinical knowledge, skills and attitudes. Each clinical competence that is assessed is broken down into its components and tested separately at different stations. The candidate rotates through these stations in turn, spending a specified time at each station, (usually 4 or 5 minutes). The sounding of a signal indicates the end of the time period at a given station. The number of stations is usually 20 and the time allocated is the same for every station.

The Objective Structured Clinical Examination (OSCE)

At each station is displayed material on which the clinical competence is to be tested. The variety of material may vary from live stations at which real patients, simulated patients, artificial models or manikins are utilised with an examiner present, or to stations where clinical photographs, investigation reports, radiographs, post mortem specimens etc are displayed. At the stations where charts, reports or other diagnostic equipment are kept no examiner is present. To prevent the question prompting the answer sometimes the question is asked at the next station when the material on display is no longer available to the candidate. The candidate answers the questions asked or performs a task which is scored by the examiner present at the station, according to a predetermined checklist of activities the candidate is expected to perform. These tasks may vary from the assessment of procedural skills such as endotracheal intubation to communicative skills-counselling a bereaved parent. The candidate takes around a standard answer sheet on which his/her responses are recorded according to the numbering system displayed at each of the stations. Rest stations placed between some examination stations gives the candidate extra time to think or write. Rest stations vary in number depending on the examination.

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The assessment may be held in one setting usually a side-room or ward; or, in more than one setting especially when the number of candidates to be accommodated is large. Then the setting of the examination may need to be duplicated/ triplicated.

Disadvantages of the conventional clinical examination

The conventional examination conducted at the bedside takes the form of 'long' and 'short' cases. The 'long' case is allocated to the candidate to take a history, examine and present the findings together with a management plan to a panel of examiners. 'Short' cases are usually allocated in multiples and examined by the candidate in the examiners presence and the problems and management issues discussed. The concerns regarding this type of assessment are based mainly on the possible subjective nature in awarding marks and the non uniformity of examiners and patients that are met within a given examination.

Examiner variation: it has been shown that the marks awarded by different examiners can vary for the same performance². Similarly the same examiner may award different marks for the same performance on different occasions! Some methods that have been used in the attempt to reduce or even minimise this subjective nature of the assessment are:

- Having scrutiny boards and marking schemes prior to the examination
- Categorising the different components that need to be assessed
- Using a pre determined marking scheme
- Independent marking followed by awarding a consensus mark after discussion
- Pairing examiners according to a 'dove-hawk' index of examiners!
- Ensuring that each candidate is assessed by every panel of examiners

However, there has been a tendency by many examination boards of replacing or reinforcing this type of clinical examination with the more structured and objective 'OSCE.'

Examiner variation is avoided in an OSCE by having clearly stated checklists as a guide to the examiner's evaluation.

Patient variation: Different candidates are usually examined on different patients. The co-operation that can be obtained from child patients can vary enormously even in the same age range. The

difficulty index of the different patients problems can also vary widely and is usually explained away 'as the luck of the draw'.

Further, the type of patients given for the examination will depend largely on availability on the day of the examination. Therefore it may not be possible to assess large areas of clinical knowledge and competency that are within the objectives of the examination.

In the traditional examination the variety of patients that a candidate is tested on may be limited although the entire examination may include an impressive array of clinical situations for the examiners only to benefit by!

Student variation: The differing language capabilities of candidates can sometimes affect the mark awarded at conventional clinical examinations, if examiners are not attentive to this aspect and fail to realise that the apparent confidence and speed with which a presentation is made may be influenced by the fluency/non fluency in English or any other medium the evaluation is made in.

Advantages of the Objective Structured Clinical Examination

The OSCE is a more objective examination since it bypasses many of the inconsistencies that were mentioned under the conduct of the conventional clinical examination. The competencies that are to be tested can be planned out and organised beforehand with a checklist to be adhered to. This will make the assessment of the candidates uniform, structured and hence more valid.

The consistency in the patients or material tested on, makes the examination results more reliable and valid, especially if it is of a competitive nature e.g. for ranking purposes.

A wide range of competencies can be assessed. History taking, ability to impart knowledge, communication skills etc. which are essential characteristics of a clinician can be assessed in a planned manner at an OSCE.

Similarly, the content of the examination covers a much greater area of the subject or curriculum being assessed since about 20 different stations are included. This also provides scope for the inclusion of questions on dermatology, ophthalmology, transfusion medicine etc which are otherwise usually

assessed only in the written components of the examination.

Assessment of procedural skills is almost negligible in the conventional examination. In an OSCE a wide sample of skills can be tested and scored objectively with a checklist, for awarding a mark.

The efficiency of an OSCE to test a large number of candidates at a specified time is also greater than the 'long' and 'short' cases, which takes many days or weeks to complete for a batch of say 190 students. The examiners time is used to maximum efficiency since he/she concentrates on a particular skill or other competency throughout the time he/she is examining. With advanced planning and provision of checklists, junior examiners can also be recruited.

Disadvantages of the Objective Structured Clinical Examination

An OSCE tests skills, attitudes and knowledge in separate compartments. Although clinical decision making can be incorporated in an OSCE, the ability to look at a patient as a whole is not assessed. In this respect the conventional clinical examination is superior. A series of stations on a given clinical situation flowing into different aspects of the patients problems may partially reduce this compartmentalisation but an integrated approach of decision making can not be adequately assessed with an OSCE.

The conduct of an OSCE can be much more exhausting for the examiners who have to repeatedly and continuously, throughout the examination, watch the candidates perform a skill or procedure. Similarly this may be even more demanding to the patient, real or simulated, who has to subject themselves to repeated examinations by an entire round of candidates. For this reason simulated patients are perhaps better than real patients.

Examiner effort is very much more in the days and weeks preceding the examination as well as on the day of the examination, due to the demands of preparing, displaying and manning the OSCE's. This extra work is not only for the coordinator of the examination but the entire panel of examiners who shares the workload.

Prior to the examination an OSCE involves more preparation and time, than the conventional 'long' and 'short' cases. The number of invigilators needed is also greater than at the conventional examination.

Organisation of an OSCE

Planning and preparation

Advance planning is essential. The combined effort of all appointed examiners is mandatory for the OSCE to be successful and the day of the examination to run smoothly. Planning should begin at least three to four weeks ahead, if not earlier. At the outset the examiners should meet and decide on the scope of the examination. The content of the OSCE should be determined ensuring that the entire range of competencies to be assessed are represented. For example history taking, observational skills, interpretation of laboratory reports, nutritional advice, attitude to patients etc. A marking scheme should also be determined. The content and allocation of marks should be outlined

An example is as follows: history taking stations 20%, physical examination stations 30%, laboratory investigation stations 15%, interpretation of charts 10%, communication skills 15%, nursing procedure stations 10%. This decision would obviously depend on the objectives of the examination as a whole. This should precede the specific details of each examination station being prepared.

Once this broad outline is worked out the stations should be distributed among the examiners or "OSCE station managers"; and a record kept of this distribution. It is very important that each station manager takes full responsibility for the stations he/she prepares. This includes providing the test material- patients, surgical instruments, pathological specimens, charts, reports etc. These should be, in adequate quantities as necessitated by the number of venues the OSCE is to run at. The questions to be asked should be clearly labelled and correctly numbered. Checklists of activities and the marking schemes should be prepared by the respective station managers.

The examiners needed at live stations should also be provided by the station managers.

The temptation to set multiple choice question type of stations is best resisted to prevent the OSCE becoming merely a MCQ examination performed in the standing position!

A coordinator is essential to maintain an overall plan of the stations. The layout plan should include location of rest stations since it is important that the rests are given in the identical stations if the OSCE is conducted in more than one venue. Briefing

examiners, time keepers, ward and other support staff is also an important function of the coordinator, who should also prepare an answer sheet in accordance with the format of answers expected. The examiner could enter the marks awarded at live stations in to the relevant cage in the answer sheet carried around by the candidate instead of maintaining additional mark sheets.

For the preparation of the skeleton answer sheet all examiners should hand in their fully prepared questions well in time to enable structuring and typing of the answer script.

If any examiner does not attend to the station/s allocated in its entirety, and on time, the coordinator will not be able to finalise arrangements; and the examination day is doomed for disaster.

Instructions to the candidates should also be prepared and the necessary clinical equipment that should be brought to the examination hall made known.

A final check of all logistical details should be made on the day before the examination. The staffing should include supervisors for the waiting-room since the candidate number accommodated at a single time equals the number of stations. Obviously no contact can be allowed between groups of candidates, who therefore need to be escorted from the waiting room to the examination hall.

The day of the examination

The examination coordinator and the support staff should arrive at the examination hall about one and a half to one hour before the start of the examination. The distance between stations, privacy to patients etc. need attention. Displaying the OSCE material and the questions should be carefully carried out according to the agreed numbering system. The examination can not begin until all invigilators and examiners arrive and are in place.

After the examination

Marking of the OSCE may be carried out immediately after the examination or at a later date. If marking is at a later date, care should be taken when dismantling the displayed material to ensure that the numbering and labelling of material is retained and noted.

The details of the results especially the candidates' deficiency areas should be brought to the notice of the candidates, the course organisers and trainers.

OSCE's once used can be included in an OSCE bank for reuse in the future.

Acknowledgements

I am grateful to Dr. R Ajanthan and numerous other lecturers and demonstrators of the Faculty of Medicine Colombo, who collaborated with me in running OSCE's for the Clinical Stream; which provided the experience on which this article is based.

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