

Preparing for the Objective Structured Clinical Examination (OSCE)

Guide for students and residents

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ABSTRACT

يعتبر الامتحان السريري ذو الأهداف المقتن من الطرق الحديثة والمعترف بها لتقييم الأداء السريري. وهناك قلة من المراجع الموجه للطلبة والأطباء المتدربين لمساعدتهم للتحضير لمثل هذه الامتحانات. ونقدم في هذه المراجعة ملخص عن طرق التحضير والسلوك والأداء خلال هذا الامتحان. يجب على الطلبة التحضير من خلال التدريبات المتكررة مع الانتباه أن مثل هذا الامتحان ينقسم بالعادة إلى محطات متعددة تتضمن التاريخ المرضي و الفحص السريري. يجب على الطالب الانتباه بدقة لجميع التعليمات والقواعد أثناء الامتحان. ومن المهم التفاعل الإيجابي مع المريض والتواصل الفعال معه ومع ذويه لاجتياز الامتحان بنجاح. وفي آخر الامتحان يجب تجنب التسرع أو سؤال الممتحن عن النتيجة. وفي النهاية نستنتج ان التحضير الجيد للامتحان سوف يساهم بفاعليه في احتماليات اجتيازه بنجاح.

The objective structured clinical examination (OSCE) has become an accepted method for evaluating clinical competence. Limited references are available for students and residents to help them prepare adequately for such examinations. In this review an outline on how to prepare, approach, and behave during the OSCE is presented. Students should prepare by repeated practice keeping in mind that the exam is usually divided into history and physical examination stations. Candidates should pay close attention to all given instructions and rules of the exam. During the encounter, proper interaction, and good communication with the patient and family are critical for a successful exam. At the end of the OSCE, candidates should avoid rushing the patient or asking for their mark. To conclude, careful preparation for the OSCE is needed to improve the likelihood of a successful outcome.

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The OSCE has become an accepted method for evaluating clinical competence.¹⁻⁴ During the OSCE, candidates rotate through a series of stations that assess a particular domain of clinical competence for brief intervals, usually not exceeding 10 minutes. All candidates are assessed with a standardized checklist, meet the same or an equivalent standardized patient, and are assessed by the same or an equivalent examiner. This makes the OSCE a much fairer method of assessing competence than the traditional random short or long case examinations. The OSCE also represents an accurate and direct means of assessing student's interaction with patients and their clinical skills. Post-graduate studies have documented that the OSCE clearly separates different classes of residents, unlike the American Boards' in-training examinations or resident performance ratings.⁵ Another study⁶ compared faculty expectations with residents' performances on the OSCE over a 3-year period and found evidence of content, construct, and concurrent validity, as well as a high degree of reliability for the OSCE. Therefore, it is clear that the OSCE is capable of assessing many fundamental clinical skills that had not been previously assessed in a rigorous way by other examination formats.^{7,8} The OSCE has been used recently to examine undergraduate medical students and residents in Saudi Arabia and other countries with evolving medical systems.⁹⁻¹⁵ Such practical oral examinations are generally considered a difficult part of medical school and board examinations.¹⁶ Limited references are available for medical students and residents to help them prepare adequately for such exams. A concise and simple outline for approaching the OSCE is lacking. The purpose of this review is to present an outline on how to prepare, approach, and behave during the OSCE. Many practical tips that can be utilized to improve the performance of candidates are highlighted. Specific challenges that relate to pediatric patients and their families are discussed. The review is based on the author's personal experience as well as the available medical education literature.

Initial preparation. Students should start preparing for the OSCE as soon as the clinical course or rotation has started. Candidates should enquire about the exact exam format, timing, and possible case scenarios. They should then practice repeatedly with fellow students, as such practice is the key to adequate performance and successful outcome. The performance of medical students and their time management will improve if such practice examination is observed by a trained physician who is then able to provide immediate feedback.¹⁷ This is particularly true for handling uncooperative and/or handicapped children.

It is important to note that the OSCE is usually divided into history and physical examination stations. In history stations, a clinical problem or case scenario is presented to the candidate who is then asked to take a focused history from a simulated parent or care giver. Examples of such scenarios include a patient with fever, failure to gain weight, recurrent chest infections, meningitis, and seizures. Physical examination stations use standardized patients to assess candidates' physical examination skills. Examples of standardized patients include normal newborns, heart murmur, spasticity, abnormal head size, and organomegaly.^{18,19} The examiner will have a checklist to assess whether candidates

perform the essential components of the history or physical examination. Students should prepare for these stations by studying several possible case scenarios and system examinations. It is useful to summarize in cards the key points for revision in a systematic and organized way. Illustrated examples are shown in Table 1. Such practice and rehearsals should be intensified a few weeks before the examination date. However, it is better to rest and relax a few days before the examination date to minimize associated pre-test anxiety.

Experienced mentors of medical students have collected a number of behavioral recommendations for students facing their examinations, especially those confronting their initial examination in medical school. Some of these will appear rather simplistic or perhaps even insulting, but they do represent true potential practices of students approaching examinations that have been recognized as potential drawbacks. For example, the night before the exam should be as quiet and relaxing as possible with the candidate going to bed early in order to wake up well rested. There has been a practice by some of taking anxiolytic agents or beta-blockers; these should not be taken prophylactically before the OSCE. The therapeutic effects and possible side effects of these drugs can be unexpected and may

Table 1 - Organized approach to the history and examination stations of the objective structured clinical examination (OSCE).

<p>HISTORY STATION</p> <p>(Take a focused history from the parent of an 8 year old child with recurrent seizures)</p> <p>Greet the patient and parent, introduce oneself, explain and ask permission for your task Onset, frequency, types, and time (upon awakening, during sleep) Pre-ictal (provoking factors such as fever, illness, ingestion, compliance, trauma) Ictus (aura, duration, focal features, motor signs, consciousness, cyanosis, urination) Postictal (unilateral headache, weakness, aphasia, visual field defects) Evolution (improving or getting worse) Past medical history (prenatal, natal, postnatal) History of febrile seizures, head trauma, meningitis, status epilepticus Hospital or intensive care admissions Developmental history (fine & gross motor, receptive & expressive language, social & adaptive skills) Drugs (past and present, doses, side effects, allergy) Family history (consanguinity, epilepsy) Social history (behavioral, educational, financial problems)</p>
<p>EXAMINATION STATION</p> <p>(Examine the motor system of the lower limbs of an 18 year old patient with weakness)</p> <p>Greet the patient and parent, introduce oneself, explain and ask permission for your task Vital signs Assess how well or sick is the patient Look for clues (cardiac monitor, oxygen mask, IV line, nasogastric tube, urinary catheter) Anthropometric measurements (plotted on percentile charts) General examination (head, skin, dysmorphic features) Always examine the back for spinal abnormalities Inspection (gait, muscle bulk, fasciculations, posture, abnormal movements) Palpation (muscle firmness, tenderness, tone, palpable nerves, power) Deep tendon reflexes (check sides for asymmetry) Superficial reflexes (planters), clonus</p>

result in confusion and clouding of the candidate's judgment. On the morning of the exam, the candidate should be well groomed, adhere to the accepted standard dress code, and females should avoid wearing excessive makeup or strong perfume. Arriving early at the examination venue is recommended, as it tends to minimize pre-test anxiety. Most students are anxious anyway during such oral examinations. This anxiety, particularly in males, is associated with a lower oral score.²⁰ Such preparatory tips will hopefully reduce such anxiety before the OSCE or minimize its impact.

Initial encounter. Candidates should pay close attention to all given instructions and rules of the OSCE. They are expected to rotate through several rooms or cubicles, which represent various OSCE stations. Time should be highly respected, and any delay will affect other candidates. As the student enters the room, he or she should greet the examiner and listen to his or her instructions carefully. There is usually an instruction card at the bedside of the patient, and the examiner refers to it to minimize communication with the candidate. Familiarity with the examiner does not influence how candidates are scored; quite to the contrary, the standardized nature of the OSCE results in purely objective scores.²¹ Therefore, there is absolutely no need for students to feel anxious or relieved if they meet an unfamiliar or a familiar examiner as scoring is standardized. I reiterate that candidates should carefully read the instruction card that describes the case scenario.

After going through the instructions, candidates should greet the patient, family, or the caregiver and then introduce themselves (name and position), explain what they will do, and finally ask for permission from them to do so. Candidates should avoid asking for assistance or guidance from the examiner. Examiners are requested not to interact, ask, or guide the candidates. Such enquiry may be misunderstood as a lack of understanding or knowledge of the problem, or that the candidate is in fact trying to cheat; such enquiries may have negative implications. If the instructions are not clear, the candidate may ask for clarification regarding the requested task or question. Sometimes, an anxious student may misunderstand the question or miss one of its components. In this case reading the instruction out loud or repeating them to the examiner may help in preventing such misinterpretation. Students are always encouraged to take a deep breath and think for few moments before tackling the problem or making an enquiry.

Effective communication. Proper interaction and good communication with the parent or caregiver are critical for a successful exam.²² Parental behavior has

often been cited as a crucial factor in children's ability to cope and cooperate.²³ As noted earlier, it is extremely important that the candidates behave in a friendly manner, smile, and maintain intermittent eye contact with the child to decrease her/his anxiety and improve the cooperation. One may bring along some tricks for difficult situations, such as an attractive toy or a treat. Maintenance of eye contact is also required for proper interaction with the caregiver. If eye contact is avoided, a wrong message may be conveyed, for example, that the candidate is feeling stressed or lacks respect of the parent. Joking during such examinations should be avoided because of possible misinterpretation by an anxious child or parent.²⁴ To summarize, the candidate should always reflect respect, be as compassionate as possible, and never rush or argue with them. Throughout the exam, the candidate should maintain an organized way of thinking and approach to the presented clinical problem. They should listen carefully to the patient's responses and adapt to positive findings on physical examination.

History stations. A clinical problem or a case scenario is presented to the candidate who is then asked to take a focused history from a simulated patient or caregiver. The candidate is expected to take a focused history and ask key questions to accurately evaluate the problem. However, a specific diagnosis is not usually requested during the examination. The examiner is listening always, and the candidate does not need to communicate with him/her. An organized approach to history taking is recommended.²⁵ The candidate will not have enough time to take a detailed full history. Therefore, only relevant systems should be tackled to avoid time wasting. Remember that the examiner has a checklist that contains the items that count. For example, vaccination history is not as important in a case of large head, but very important in a child with fever or rash. On the other hand, developmental history is important in any neurological case, but not as important in a child with abdominal pain.

History of the presenting illness needs to be as detailed as possible. In patients with seizures; for example, careful and detailed event description is needed as shown in Table 1.²⁶ Detailed relevant system review is required to identify important associated manifestations or complications of the given problem. For example, renal, liver, and nutrition histories are important in a child with generalized edema to identify the cause. In a child with recurrent chest infections, in addition to respiratory system, both gastrointestinal and cardiac systems should be reviewed in detail because they may be responsible for the respiratory symptoms.

The student may ask about prior investigations or treatments. However, he or she should not ask for the diagnosis. In fact, the parents are often instructed not to provide such information during the exam. Detailed history (prenatal, natal, and postnatal) is critical in certain problems, such as developmental delay or failure to thrive, to identify risk factors or possible etiology. In children with epilepsy, enquiring about a history of meningitis, encephalitis, head injury, and previous febrile seizures are mandatory (Table 1).

Certain components of the history are important in every case, such as drug, family, and social histories. Consanguinity and family history of a similar problem are commonly included on the checklist. Candidates frequently ignore the social history, which may identify factors that can lead to, complicate, or result from various disorders. For example, divorce, neglect, abuse, social and emotional deprivation can all affect normal development and behavior. The medical condition of many patients with chronic disorders, such as cystic fibrosis or cerebral palsy, can be significantly affected by socio-economic variables, parental care, and compliance. As well, such disorders by themselves would create an additional physical, emotional, and financial burden to these families.

Physical examination stations. These stations mostly use standardized patients to assess candidate's physical examination skills. On some occasions, standardized patients are trained to demonstrate certain findings on physical examination, such as weakness, or ataxia. A checklist is developed to assess whether candidates perform the essential components of the physical examination. Other examples of standardized patients include; normal newborns, heart murmur, or hepatosplenomegaly. Audiovisual or video stations demonstrating neurological findings, developmental assessments, or cardiovascular examinations might be used to assess candidate's observational skills in some OSCE formats.

Candidates should always start by careful inspection for any abnormal signs (Table 1). The start should always be generalized and then followed by concentration on the specific system.²⁷ Many systems can be examined well by inspection, observation, and assessing the patient's behavioral responses. The young child should be kept next to the parent during the examination, and approaching him or her directly at the beginning of the evaluation should be avoided.²⁸ To improve the child's cooperation, a small toy or a lollipop may be presented after getting the parent's permission. However, small objects should not be offered to children less than 5 years of age because of the risk of choking or aspiration.

Preparatory play with parental involvement at the beginning of the examination could improve their cooperation and ease the child's anxiety.²⁹ Again, the candidate must demonstrate a continual friendly manner throughout the examination, which encourages more satisfactory cooperation. They should state loudly what they are doing and communicate their findings to the examiner.

Organizing a complete examination and consistently eliciting the physical findings in a short time is challenging. Again, it is worth reiterating that this is best achieved by a focused examination, concentrating on the most relevant aspects (Table 1). Clues from the presented history should guide the focused examination. Never rush, push the patient, or hurry in such situations because this may result in family distress and reflect a lack of sensitivity. Always explain what you are doing to both the patient and the family as this can reduce their anxiety, improve their cooperation, and avoid misunderstanding that results in a poor professional image.³⁰ While students and less experienced physicians often spend a greater proportion of time in examining their patients; this is not practical in an OSCE station where time is limited. Physicians have been shown to generate the correct hypothesis early, usually within the first minutes of the clinical encounter.³¹ Therefore, the length of time spent with the patient is not as critical as effective communication.

Interacting with the difficult child. Difficult and poorly cooperative children remain the most challenging group to examine accurately, and completely.²⁸⁻³⁰ The candidate may easily become less confident and the physical signs more questionable if the child is uncooperative. Practice and experience are needed for accurately eliciting the physical signs in difficult children (Table 2). When faced with a poorly cooperative child, a patient, an empathetic physician, and supportive guiding parents are needed for a successful assessment.³² Negative behaviors are more often associated with children of younger age, those with learning or behavioral problems, and those with a history of hospitalization.³³ It appears that both the child's temperament and conditioning factors play important roles in the development of their fear of physicians.³⁴ The developmental stage is also important, as children between 2 and 5 years are more likely to be uncooperative, and therefore difficult to examine. Stranger's anxiety usually develops after 6 months of age and becomes stronger with advancing age. Therefore, the very young infant and older child are relatively easier to examine. The candidate should try not to show all the examination tools, which may be viewed as a threat

Table 2 - Practical tips for examining poorly cooperative children.²⁸

<p><i>Beginning of examination</i></p> <ol style="list-style-type: none"> 1) Keep the child next to the parent 2) Observe the child carefully 3) Smile, be friendly, and maintain eye contact 4) Avoid immediately touching the child 5) Present a toy or a lollipop
<p><i>During the examination</i></p> <ol style="list-style-type: none"> 1) Let the parents do the undressing 2) Try not to show all your examination tools 3) Start with the most relevant system 4) Demonstrate some testing on the parents 5) Leave threatening or painful tests to the end

by the scared child. Tools, such as the reflex hammer or stethoscope, can be presented to the child as an object of play, particularly if an attractive toy is attached to it to make it less threatening. The physician may also use the parents as an example to demonstrate that eliciting tendon reflexes or listening to the heart will not hurt. He/she should avoid undressing or removing the child's shoes, which can be quite annoying to young children. The parents can easily perform these tasks. Interacting and playing with the child as he or she is being examined improves their cooperation. Uncomfortable and threatening components of the examination, such as the gag reflex, fundal, or ear examination should be left to the end. For infants and toddlers, one of the most threatening parts of the examination is actually measuring the head circumference. Such measurement should therefore be performed at the very end.

An organized approach may not be possible in an uncooperative child. Performing a focused examination is better than a skipped incomplete examination in a poorly cooperative child. The candidate should know exactly what to look for at the beginning of the examination and should reflect confidence about what to expect to find. For example, one may start by auscultating the chest or heart before palpation in order to take advantage of the child being quiet. Many physical signs can also be identified by careful observation. For example, a child may not cooperate for a detailed cranial nerve examination; however, a squint, drooling, or facial asymmetry may be evident, particularly in a crying child. Inspection of the tongue and palatal movements is easily done in a screaming child. Combativeness may be a good sign of normal power, and escaping or climbing on the mother indicates coordination and motor abilities. Asking the parents to take the child for a walk for gait and power assessment is important. An attractive small toy can be used to assess hand coordination and identify cerebellar tremor.

End of the OSCE. At the end of the interview and examination, there should be no rushing or pushing of the patient. This will reflect negatively on them and on the examiner. Thank the patient and the examiner for the time and effort. Many students try to get an evaluation from the examiner, particularly if he or she is very friendly.³⁵ Never ask how well you did, or what is your mark as all examiners are instructed not to give any feedback. Further, this nearly always leaves a poor impression of the candidate by the examiner. It is interesting that students apparently tend to overestimate their performance in certain cases, such as abdominal examination, radiological, and arterial blood gas interpretation,³⁶ while; on the other hand, they tend to underestimate their performance in respiratory system examination, examination of the head, and in developmental, and nutritional assessments.³⁶ Therefore, no predictions about the exam results should be attempted because it is inaccurate. A bell will usually ring signaling the end of the allowable time, and the organizers may ask for the candidate to move on to the next station if it has not been done promptly. In some OSCE formats, a post-station inactive exam is requested. It involves written questions on the encountered case. For example, if the history station were on a child with generalized edema, the questions may include differential diagnosis, complications, or acute management. If the examination station were on a cardiac patient, EKG, or chest x-ray interpretation may be requested.

In conclusion, in this review an outline on how to prepare, approach, and behave during the OSCE is presented. Many practical tips that can be utilized to improve the performance of candidates have been addressed. All medical students and postgraduate residents should prepare well for the OSCE as it is now considered an accepted method for evaluating clinical competence. These exams are usually considered a difficult part of medical school and board examinations; however, it is important to note that studies have documented that most students and faculty have been very satisfied with the OSCE and felt that the material tested was relevant and appropriate. Therefore, clearly the OSCE is capable of assessing many fundamental clinical skills, and careful preparation will hopefully improve the likelihood of a successful outcome.

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