

Clinical Teaching and OSCE in Pediatrics

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Abstract - Emphasis is being given to early contact by medical students with patients, and curricula are being designed to address this trend. Although teaching of clinical skills mostly depends on the traditional “apprenticeship” model, there is insufficient supervision of students while they examine the patients. This leads to the lack of acquisition of good clinical skills and some patient-student frustrations during examination by inexperienced students. The problem is greater in pediatric departments. One way to overcome this is to observe the students while they take a history and do a physical examination and to give them feedback. On the other hand, objective structured clinical examinations (OSCEs) should be used more in pediatric examinations to make use of the steering effect such examinations have on student achievement. However, OSCEs should not be the only student assessment tool, but should be complemented by other examination methods.

Keywords: Objective structured clinical examination; pediatrics; clinical teaching; OSCE; assessment

More and more medical schools around the world are changing to problem-based or integrated curricula in which clinical and basic sciences are taught in an integrated way in the first years of medical school. In addition, many medical schools have adopted courses such as “introduction to clinical sciences,” “practice of medicine,” “doctor-patient” and “introduction to clinical medicine” that expose the medical students to patients and the community in the early years of their training. Students usually have their first experience with histories and doing physical examinations during this period. The bulk of clinical training is, however, still left to clinical clerkships, where clinical training and evaluation continue to rely mostly on traditional methods. There are problems in three areas of clinical teaching: (1) lack of observation and opportunity to give feedback to students when they make their first encounters with patients; (2) the site of clinical training; and (3) assessment. This article addresses these aspects of clinical training and evaluation in clinical clerkships, particularly in pediatrics.

Lack of Observation in Clinical Training

Clinical teaching has a long tradition in almost every country and every medical school, with an emphasis on “bedside teaching” as well as lectures. During a typical bedside teaching encounter the faculty

member asks the students about their findings and also comments about the patient. Sometimes one student is asked to perform a focused physical examination related to the patient’s condition. In the meantime a history is taken by the whole group to clarify the uncertainties. The rounds are primarily an opportunity for the faculty to ask questions of the students to see how they are progressing with regard to their *knowledge* in that particular subject, but not necessarily their clinical competencies.

There is nothing much wrong with this mode of teaching, which is a form of “apprenticeship training,” other than the students usually are not *observed* while taking a history and performing a complete physical exam. This means there is no opportunity for giving feedback to them. There is only time left for students to take a detailed history and do a physical exam and present it to the faculty. Another problem is that in medical schools with large number of students, the patients or the parents become bored with giving their histories many times every day to different groups of students and faculty. The situation is even worse in pediatric wards. Parents are often upset when the students examine their children in an inexperienced way. As faculty we anticipate this, knowing that students are present in wards to “learn and practice.”

In addition to the more classical physical examination skills, students should also practice procedures unique to pediatrics, such as fontanel examination, looking for craniotables, reflexes, meningeal irritation signs and measurement of head circumference and height in a newborn. These and similar procedures should be supervised by a senior staff member (resident, chief resident or faculty). This is not only for the sake of the patient but also for the students' proper training. We know that not all our students are able to take a reliable history or perform a competent physical exam. This issue has been addressed in a study conducted by Ahmed and Hughes.¹ They identified 42 core conditions and 20 core skills to be performed by students during their pediatric clerkship, and assessed students' clinical experience and end-of-attachment performances. Five of the clinical skills designated to be compulsory were performed by over 90% of students. However, 23 of the 42 core conditions had practice rates less than 85%, and 13 of the conditions had rates less than 70%. Some conditions had practice rates as low as 30-50%. Five percent of the students did not perform any newborn checks, while only 40% performed more than five checks.¹

A solution to these problems is to use standardized patients and models for some examination skills and for history taking. However in many countries this is not yet possible, the reason being the lack of standardized patient programs and the high cost of models. The only other alternative is to use real patients. Using checklists to teach students these skills and supervising them according to these checklists is also a possibility. Checklists can and should be used in this context to teach students clinical skills and to supervise them. Checklists have been developed for many skills including physical examination.

The feedback provided to the student would be an invaluable motivation for better performance. Lane and Gottlieb² proposed such a "structured clinical observations" scheme in pediatric clerkship. They provided short observation opportunities and feedback for the students during the 3^d year pediatric clerkship. The innovation was welcomed by the students and by the faculty as well. They concluded that this strategy is a feasible, inexpensive and qualitatively effective method of teaching clinical skills. This can be a good model for other medical schools in the teaching of clinical skills. Thus, observing students when practicing physical examination and giving them feedback is of utmost importance.

The Site of Clinical Training

The setting where the students practice clinical skills is another important issue. One of the most striking findings in the previously mentioned study by Ahmed and Hughes¹ addresses this issue. Students were exposed to more core conditions and performed more core skills at the hospitals with fewer students. The authors suggest that the best setting for the training of students can be a district hospital with a large workload of general patients, rather than tertiary care hospitals, where the students have the least exposure to neonates.¹ Similar views are expressed by Davies³, who also suggests that, in addition to University hospital and the community, teaching should also take place in district general hospitals in order for the students to do more "clerking." All three sites have distinct advantages for the students. The distribution of students to these sites and the time allocated for each site should be balanced to ensure that students are exposed to a good variety of core clinical conditions and practice core skills. Additionally, each type of site has its own unique patient population to which students should be exposed.

Assessment and Evaluation

The steering effect of examinations is well known. "Steering effect" means that students learn best those subjects on which they expect to be examined.⁴⁻⁷ This effect should be taken into account when designing a clinical clerkship.

It has been widely accepted that both assessment of student performance and clinical competence, along with the measurement of knowledge, should contribute to the students' overall evaluation. The traditional methods of examinations such as multiple choice questions, written essay and bedside oral exams do not adequately measure the clinical competency of examinees. In these methods the examinee is "presumed" to have performed the necessary history and physical examination and the examiner sees only the results of that history and physical examinations on paper. It is not uncommon that a student cannot perform a properly focused physical examination of the patient, even if he or she claims to have done a complete physical examination. For this reason it is necessary to directly measure competencies through performance examinations.

Since students are not examined systematically on core procedures in bedside oral or case presentation-type examinations, objective structured clinical examinations (OSCE) should be the standard for clinical skills assessment. The objective structured

clinical examination (OSCE), first introduced by Harden *et al*⁸, has been in use in many medical schools throughout the world.^{4-6,9-15} In addition to assessing the competency and performance of the examinee, the OSCE has many advantages over more traditional methods of evaluation such as the conventional bedside examination. As an evaluation tool it eliminates the luck of the draw, reduces variation in marking standards from examiner to examiner, and can accurately reflect the real-life tasks of the doctor.¹³

Apparently traditional written examinations test a different kind of knowledge from that acquired during clinical attachments. Clinical experience may be better judged by the clinical supervisor than by assessment of theoretical knowledge.¹ A good assessment of students should include both clinical skills and factual knowledge, therefore an OSCE should be complemented by other methods of evaluation.^{1,16}

The use of OSCEs in pediatrics is not as common as in adult medicine. This is mostly due to the difficulty in having standardized patients in the pediatric age group. Using real patients in some instances could be a solution, and has been utilized in least four studies.⁹⁻¹² In pediatric OSCEs or pediatric cases within OSCEs both children and parents have been used as standardized patients. In some OSCEs only parents are used for history taking stations.^{14,15}

In some OSCE examinations a few stations on pediatric cases have been introduced.¹⁷ The first OSCE solely devoted to pediatrics was reported from Great Britain in 1980.⁴ It was an 18-station OSCE with one station for history taking, three for physical examinations (general and focused), four for laboratory examinations (urine, x-ray and 2 slides), five for lab reports, one for problem solving and four for questions related to the tasks performed on various stations. This OSCE was performed in a pediatric ward and took 80 minutes to assess 20 students. In this report and two others from Great Britain real patients were used on the three physical examination stations.^{9,10}

Since then a few pediatric OSCEs designed for students or residents have been reported with 10 to 34 stations.^{5,13,18} In a study from Ontario, Canada, a 10-station OSCE was used to assess four domains of competence; clinical skills, problem-solving, knowledge and patient management.¹³ This OSCE was found to be an accurate measure of pediatric knowledge and patient management skills. Significant correlations were found between OSCE clinical skills,

problem-solving and knowledge, and the teachers' evaluation of performance on the in-patient wards.

In almost all of the OSCEs positive correlations have been observed between OSCE scores and other examination methods, such as in-training examinations and resident-performance-rating. Recently it has been reported that adding a separate written test to an OSCE increases the OSCE's reliability.¹⁸ Verma and Singh suggest that a comprehensive evaluation package containing both OSCE and clinical case presentation should be employed for clinical subjects like pediatrics. On the other hand they state that it is possible to design OSCE stations which will test not only psychomotor skills but other domains of learning as well.⁶ That has been shown to be possible by designing written stations for clinical reasoning or differential diagnosis.⁵

The more important point of introducing the OSCE as an assessment tool in pediatric clerkship is to make use of its "steering effect" on student learning. Thus, bearing in mind that they will be expected to perform well on an OSCE, the students will really have to learn the necessary skills.

Conclusion

The current clinical training of students has some problems, especially with regard to the teaching of clinical skills. Although a lot of time is devoted to the teaching of these skills, most students learn and practice by themselves.

1. A well-designed program to observe and give feedback to students for clinical skills is necessary.
2. Students should also have the opportunity to practice in a variety of clinical and community settings to learn as much as possible about the common disorders.
3. Another way to ensure that students acquire appropriate behavior and skills is using the steering effect of examinations. Thus, objective structured clinical examinations, which are used extensively in most U.S. and Canadian medical schools, should be one of our evaluation methods.

An OSCE is not intended to be the single method for clinical evaluation. More traditional methods such as written (essay-type or multiple choice questions) and oral exams should be used as complementary modes of assessment.

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