Paediatric clinical teaching: comparison of two medical schools

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Abstract
Clinical paediatric teaching in undergraduate medical education is important to impart essential skills in communicating, diagnosing and formulating management plans for common childhood illness of the country so as to reduce existing high mortality and morbidity rates. Private medical colleges are facing challenges in paediatric teaching because of the unavailability of paediatric patients with different clinical signs; both the inpatient and outpatient paediatric attendance at their teaching hospitals is very discouraging at present. At the same time, they are plagued with inadequate investigative facilities. We conducted a study to evaluate some of the clinical skills in the students during their final examination. The study showed marked differences among students in some of the essential neonatal skills and other common paediatric problems. Statistically significant differences were found in the majority OSCE stations. The mean wrong answers in one medical school were 42.2% (Std D. 30.1 %) and the other school was 24.9% (Std. D 18.3 %). In one medical school the mean of signs that were rightly performed for the essential neonatal examination were 1.4% (Std. Dev. 1.1 %) and in other schools it was 10.4% (Std. Dev 6.1%). This shows that it is necessary to standardize pediatric teaching in the country's medical schools.

Introduction

Medical teaching is incomparable with teaching in other faculties because it deals with human life. Medical (clinical) teaching is also different from other teaching because it directly involves the individual human being in eliciting his/her medical history, and in the various stages of investigation, treatment and follow up. It is guided by population, disease pattern, morbidity and mortality. Medical teaching is also significantly affected by the place of contact, entry prerequisite for students and their respective backgrounds, and availability of resources at the school or teaching hospital. The effects of communication technology (specially the internet), education and socioeconomic status of people, tradition and social beliefs are also equally important.

Communication
Education
Socioeconomic status
Tradition and
Beliefs
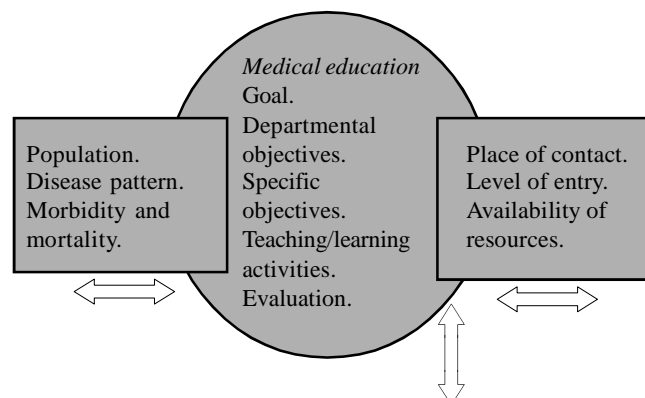
Fundamental reforms in undergraduate medical education have been advocated since the last 100 years. In 1899, Sir William Osler realized that the complexity of medicine have already progressed beyond the ability of the teachers to teach everything that students would need to know.[1] The history of medical teaching dates from Hippocrates as we see in the Hippocratic oath "to teach them this techne, should they desire to learn [it], without fee and written covenant, and to give a share both of rules and of lectures, and of all the rest of learning, to my sons and to the [sons] of him who has taught me and to the pupils who have both made a written contract and sworn by a medical convention but by no other".[2]

The quality of medical education is based on the pyramid whose base is the exposure with patients, the middle part is facilities and the topmost part is motivated, dedicated, and trained teachers. Therefore, medical schools strive to give students as much clinical exposure as possible at the undergraduate level. There is a growing concern among the medical educators of Nepal that some of the recently established private medical institutions do not have enough patient loads in their hospitals to impart the necessary clinical skills to their students. At present there are 11 medical schools in the country, which graduate more than 1000 students every

year. The overall quality of their education depends upon the knowledge imparted, skills acquired and attitude gained while studying at the respective medical schools. It is likely that there will be differences in their skills because of the different settings, clinical exposure and tools used for the evaluation of their clinical skills. It is for this reason that many countries in North America and Europe have standardized medical education through various examinations.

Methods

The tools to evaluate medical students serve a twofold purpose: they are expected to provide an accurate assessment of the clinical abilities of future physicians and to measure the successes and failures of curricular innovations in medical education. This study is the first of its kind in Nepal; it assesses the variability among students in some essential skills. Student samples from two medical schools were taken during the final examination of the undergraduate course in pediatrics. The instruments used for all the students were the same. There were 152 students in total - 106 in medical school A and 46 in medical school B. Both the medical schools have similar problem-oriented curricula. Two tests were applied: one was OSCE and the other was modified short case in neonatal examination. The OSCE was developed to assess students' clinical skills in a standardized clinical setting using multiple stations and standardized patients. This test was first recommended in 1975 to assess clinical competence and to overcome the biases of traditional evaluation methods.3 Students usually spend a predetermined amount of time in this test at each clinical station and obtain a focused history, provide differential diagnoses, and interpret test results. It is costly and time consuming as it requires individual patient stations and evaluators with checklists.

There were 25 spots stations which were as follows: 13 pictures, 5 x-rays, 5 biochemical reports, 1 heart sound, and 1 instrument. Two empty stations were kept extra. The time allotted for each station was two minutes. For the neonatal examination, a checklist was developed. Each student was given five minutes for the neonatal examination. The examiner compared the checklist supplied against the students' performance.

All the 152 students participated in the OSCE test and 40 students were randomly selected for the neonatal examination at each school. This random selection was done from the stratified group based on consecutive roll numbers.

Results:

The mean wrong answers in OSCE stations in one medical college were 42.2% with standard deviation of 30.1% and in other medical school was 24.9% with standard deviation of 18.3%. The status of difference is shown in Table I, which is significant.

Table 1: Difference of OSCE test

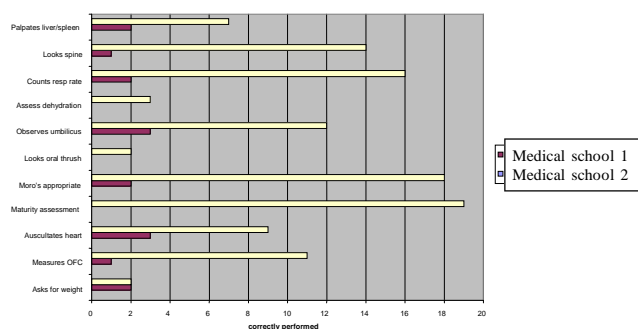| Mean Difference	Std Deviation of Difference	Std. Error Mean Difference	95% Confidence Interval of the Diff(lower)	95% Confidence Interval of the Diff(upper)	Sig. (2-tailed)
17.3	30.9	6.1	4.5	30.1	.01
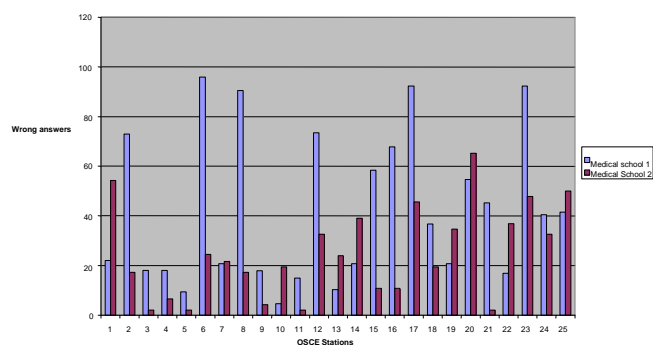
Fig 1. Comparison of wrong answers between two medical schools

The mean wrongly performed neonatal examination in one medical college was 1.4% with standard deviation of -4.1% and in other medical school was 10.4% with standard deviation of 6.1%. The status of difference is shown in table II which is significant.

Table II: Difference in Neonatal Examination

Mean Difference	Std Deviation of Difference	Std. Error Mean Difference	95% Confidence Interval of the Diff(lower)	95% Confidence Interval of the Diff (upper)	Sig. (2-tailed)
-9.0	6.2	2.0	-13.8	-4.1	.003

List of essential skills for neonatal examination

Takes consent	Auscultates heart
Asks for time of birth	Observes umbilicus
Asks for weight	Observes dehydration
Observes skin color, Icterus, cyanosis, pallor	Elicits Moro's reflex appropriately
Observes the posture	Observes physical maturity, breast nodule, genitalia, sole creases, square window, ear recoil
Observes scalp, anterior and posterior fontanels, cephalhematoma, caput	Looks for oral thrust
Measures OFC	Looks for congenital deformity, anus, spine, talipes, cleft palate etc

teaching. The evaluation of clinical competence is a major responsibility of medical educators, and forces within and outside organized medicine are in favour of methodical training programs to establish and enforce standards of clinical competence 4. In clinical medicine, the decision as to whether a student has become 'competent' or 'not yet competent' has traditionally been based on clinical logbooks. Once the student demonstrates competence, the logbook is signed off by his/ her supervisor. In postgraduate training, the skills and procedures expected at each level are clearly defined. It is vital to identify those skills in which all students/trainees should show a high degree of competence and others with which only a certain degree of familiarity might be expected. Clinical teachers need to decide how 'competence' will be defined and determined, whether a more black and white approach (competent vs. not yet competent) is taken or whether there will be expected degrees of competence.

In Nepal, it is high time now to evaluate the present status of medical colleges in terms of facilities and resources available there for imparting clinical skill to the students. The difference in skill levels of students found through this study clearly indicates that there exists a huge disparity. This could lead to high failure rates affecting students' moral.

Fig 2. Comparioson of Essential Skills in Neonatoal Examination

Discussion

A key element of clinical medical education for hundreds of years has been to learn directly from patients. However, it seems unethical to involve just a few patients when a medical school prepares 100 or more students for medical practice. In doing so, a single patient has to go through examinations performed by many unseasoned hands.

It is clear that clinical evaluation of students should be based on their performance skills. Skill-based assessments are designed to measure the knowledge, skills and judgment required for competency in a given field and situation. Traditional evaluation methods such as short-case and long-case methods are unstructured and do not involve checklists. Such methods cannot measure the same skill when it is to be evaluated in 100 or more students.

No single assessment method can successfully evaluate the clinical competence of students in pediatrics, and teachers need to be cognizant of the most appropriate applications and the advantages and disadvantages of the available evaluation tools. A combination of assessment tools needs to be conceived to evaluate and educate students in pediatric

References:
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