

Discussion and Debate

Role of clinical skills centers in maintaining and promoting clinical teaching

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Abstract

Up to near time, clinical teaching was wholly performed at bedside in which patients were used as teaching aids. The profound changes in medical education (staff's heavy administrative or research duties, and reduced funding for establishing university hospitals) and health care systems (reduced hospital stay and admission on the day of procedures due to rapid advance in technologies of diagnosis and treatment) had made this teaching method less effective, resulting in a profound decline in standards of acquisition of clinical skills among medical students. A new teaching tool, clinical skill centre, was suggested to solve the problem of inadequacies in bedside teaching. The clinical skills centre is a multidisciplinary educational facility that provides clinical skills training to all health care professionals.

The clinical skills centre provides students with the opportunity to initially practice clinical techniques on simulators, in a safe environment, without affecting the quality of patients' care in anyway. Nevertheless, it should be regarded as an extra tool for bedside teaching, and not to replace it.

Keywords: clinical skills, clinical teaching, skills centers.

Introduction

A skill is defined as the ability to perform a task through application of knowledge and experience⁽¹⁾. Clinical skills (skills necessary in dealing with patients) are usually divided into psychomotor (manual skills that require coordination between brain and body, hands in clinical settings, such as stitching a wound), cognitive (skills of thinking, such as decision-making as in making a diagnosis or deciding to do a surgical operation) and communication (transferring information and skills to the others, including taking a history, explaining a procedure, breaking bad news or encouraging life style changes)⁽¹⁾. Clinical skills range in simplicity and complexity from measuring height to open cardiac surgery.

Today's medical students and graduate doctors have significant deficits in their clinical skills⁽²⁻⁴⁾. The actual bedside teaching has declined from a percentage of 75 percent in 1960s to less than 20

percent today⁽⁵⁾. There are several reasons for this decline. Profound advances in imaging and laboratory medicine resulted into a shorter length of stay of hospital patients and then fewer 'cases' are available for students' training. The increased rate of patients' care at primary care units, private clinics and insurance institutes, where there are no students' teaching programs has also contributed to this. Due to the increasing clinical, administrative and research duties of senior doctors and teachers, the frequency of bedside round is decreasing, and the time spent at rounds has got much shorter than in the golden era of bedside teaching (up to early 1970s)⁽⁶⁾. The traditional teaching hospitals have become more specialized and less suitable for general medical education⁽⁷⁾. With the increasing awareness of their rights (consumerism), patients' consent to being part of medical education is no longer to be taken for granted, both in primary and secondary care⁽⁸⁾.

Based upon the above, the hospital-based teaching is no longer able to provide students with sufficient experience of the common health problems. Thus the traditional bedside teaching based on apprenticeship model of education, alone, can not be relied on to provide comprehensive training in clinical skills⁽⁹⁾. This situation had lead medical educators to think of alternative options to maintain betterment of clinical skills among medical students. Among these options was the introduction of clinical skill centers to promote (but not to replace) bedside teaching. A skill laboratory is defined as "a facility in which students and qualified staff learn clinical, communication, and information technology skills to a specified level of competence prior to or coordinated with direct patient contact"⁽¹⁰⁾. It is nevertheless an educational facility in which systematic skills trainings of many kinds take place, in a wide variety of formats and circumstances. It is suitable for all types of curricula (traditional, community-oriented, basic science-clinical integrated modules, etc), and for all aspects of health sciences (medicine, dentistry, nursing, paramedical schools, etc).

Historically, since the recommendation of the British General Medical Council (GMC) in its document *Tomorrow's Doctors* to introduce the teaching of clinical skills at an early stage of medical curricula, many schools, all over the world, have adopted this recommendation with positive outcomes⁽¹¹⁾. In USA many medical schools have developed a set of basic clinical skills that all students are required to master⁽¹²⁾. The experience of the medical school of Gazira University in teaching of clinical skills is one of the pioneering in the world and had preceded the GMC recommendation with many years⁽¹³⁾. Since its establishment in 1978, Gazira medical school has devoted part of students' training for teaching clinical skills. Initially, Gazira students have a

course of basic skills learning introduced in the second year so as to give a student an ample of time to practice these skills before graduation. It concentrates on practical procedures with a lesser concern on cognitive and communication skills⁽¹³⁾. The Ahfad University's medical school has a unique experience in teaching of clinical skills. Another regional experience in teaching clinical skills is that of the medical school of the United Arab Emirates, where a skills laboratory was set up in 1988 to train medical students in clinical skills before they use such skills on patients. The training starts in the first year of the 6-year undergraduate curriculum and continues until the end of the fourth year, after which students rotate through the clinical specialties⁽¹⁴⁾.

Advantages of training on clinical skills centers

The primary role of clinical skills training is that it offers an innovative learning method that efficiently fills the gap between theoretical knowledge and clinical practice. The importance of clinical skills is derived from the fact that they are the cornerstone of the daily work of all health professionals (junior or senior). An important feature of teaching in skills centre is that it is independent on availability of patients with a particular condition. It also allows periods of pause during demonstrations to emphasize important points and explain variations and possible complications. Opportunities of immediate feedback enhance further the effectiveness of skills teaching. The skills centre provides a protected learning environment with no concerns of distress that traditional clinical teaching (patient encounter) might cause to real patients^(15,16). In this environment, where mistakes are permissible, the students can feel at ease to learn at their own pace and with frequent rehearsal of particular skills (especially difficult, or painful, or embarrassing ones)⁽¹⁷⁾. Facilities of skills centers enable teachers to use teaching tools amenable to

structure and restructure to provide standardized and reproducible experiences ⁽¹⁶⁾. Thus, a wide coverage of programs suitable for both undergraduate and postgraduate levels, continuous medical education and continuous professional development are made possible. The drawbacks of apprenticeship methodology of skills acquisition (learning being left for chance and unobserved by teachers) can well be overcome by the structured and observed training in skills' centers. A skill centre is relevant and effective for multiprofessional/interprofessional learning as it enables students from different professional backgrounds to learn about one another in a context that is not profession specific ⁽¹⁶⁾. The original aim of early skills centers was to teach clinical and communication skills for junior students; however, by continuous development and expansion of their activities, such centers can be of value to qualified doctors and other health professionals. By use of computer we can create teaching machines (multimedia packages) that can manipulate information in different aspects of medicine.

Skills centers can help to ensure that all students have the necessary learning opportunities and appropriate assessment before approaching real patients. In some countries, such as Arabic Gulf and some schools in Sudan where male and female are taught in separate sessions use of manikins offers a suitable opportunity to teach physical examination and other clinical skills ⁽¹⁴⁾. In these countries some female students and even some strictly faithful male students may refrain from dealing with patients of the other sex.

Staff and educational resources for skills centers

A skills centre is no more than a space containing resources for teaching clinical skills (models, manikins, and diagnostic and therapeutic equipment in simulated clinical environments), in addition to spaces suitable for workshops, videotaping and

small groups learning. It can be something from a single large room with a single manikin (a model of human body), to purpose-built structure with vast assortment of equipment ⁽¹⁶⁾. Educational resources for skills centers include simulated patients, video tapes, manikins, and simulators, simple anatomical models (models of body parts), computer-assisted learning, interactive videos, dolls for resuscitation, pelvic models for speculum examination. Real or simulated patients are needed to demonstrate physical signs and genuine histories. Use of simulators, e.g. a plastic arm containing rubberized vein (for injection procedures) are widely used in clinical centers. Other examples of use of simulators include sets for examination of breast, lymph nodes, prostate, and different body systems, in particular 'Harvey' for cardiovascular system. 'Harvey' is an adult-sized mannequin that produces realistic simulations of normal and abnormal heart sounds. (but its use is limited by its inability to include changes in position of patients to assess radiation and change in murmurs) ⁽¹⁸⁾. Videotapes and CD ROM can be used to learn (and provide feedback) communication skills such as, dealing with aggressive patients, taking a sexual or alcohol history or delivering bad news. A bank of slides, laboratory reports, radiological images and ECGs, better accompanied with case short histories can be a good learning and self-assessment materials. The bank contents can be stored in computers for easy retrieval, better saving and frequent updating. Posters and notice boards can be used to display different useful materials for easy and quick revision. The Internet can have a significant contribution to learning of skills through displaying words, sounds and pictures (multimedia) with great flexibility, the Internet has superseded other means of communication by overcoming the barriers of distance, time and personal schedules.

Each skills centre needs a qualified staff for students' teaching, and administration of the centre. The teaching staff can be a mixture of full time tutors to ensure continuity of the teaching programs, and part time facilitators ⁽¹⁹⁾. It includes people with expertise in medicine, clinical skills, communication skills, information technology, nursing and midwifery ⁽¹⁹⁾. The duties of the administrative team (an administrator, a secretary and technicians) include scheduling, timetabling, examinations arrangement, maintenance of equipment and financial issues ⁽¹⁹⁾. A higher committee from concerned departments can be responsible for planning and evaluation of activities of skills centre.

Teaching and learning methods

Some curricular changes in medical schools, regionally and internationally, are expected to enhance teaching and learning of clinical skills. These changes include adoption of teaching approaches such as self-directed learning and problem-based learning, and introduction of structured clinical exposure, where the material for a particular topic is available at the time trainees are receiving theoretical instruction ⁽¹⁰⁾. Skills are usually taught in three steps, description, demonstration and practice. A skill is described in terms of its importance, indications of use and method and stages of its performance. Then the skill is demonstrated correctly, visibly and with explanation of each step and emphasizing the important points. The last step in teaching skills is to arrange practice sessions. This is the most important, as the aim of teaching clinical skills is to help students to be able to do the skills and not just know how to do them. But this step is the most difficult to arrange, and it is time-consuming ⁽¹⁾. One of the advantages of clinical centers is their design to facilitate better use of the modern educational strategies such as small group teaching

and self-directed learning. Some curricula divide clinical skills into three categories: skills that can be performed without supervision, those that can be performed with supervision and skills that needed only to be seen (then student can deal with any complications) ⁽²⁰⁾.

Time of inclusion of skill teaching in the curriculum is a matter of some debate. It is unwise to assume that students, by a way or another, can acquire the clinical skills without some formal practical teaching. Without structured training, final year students' experience of practical measures was low even for emergency procedures. A study among final year medical students indicated that although the majority knew the theory of emergency procedures, a much fewer could successfully performed them ⁽²¹⁾. This shows the importance of early introduction of practical teaching of skills in medical curricula. First-year medical students can learn a wide range of clinical skills. Integrated teaching of clinical skills improves satisfaction with undergraduate studies ⁽²²⁾. In one study, the majority of first year students agreed or strongly agreed that it was good to introduce clinical skills in the early years of the curriculum. They reflected that the skill learning course enhanced their learning interest and made them feel like doctors ⁽²³⁾. They also regarded early skill training as a good preparation for later 'clinical' and clerkship years, and as a way of lessening pressure in these years ⁽²³⁾. At the same time we must consider the view of junior students that their lack of a strong foundation of basic sciences might affect their understanding and perfecting of clinical skills ⁽¹⁹⁾.

Assessment of clinical skills

The best way to assess clinical skills is to observe and to judge the quality of their performance. In other words, the objective of the assessment is to find whether the student can perform, and not

whether he can describe clinical skills. Problems of skills' assessment include doubts of reliability of observations and organizational problems such as time available to perform skills. Reliability is one of the 'chronic' problems of evaluation in medical education in general. Use of checklists or rating scales might, somewhat, improve reliability. The objectively structured clinical examination (OSCE) is a popular method of evaluation used in assessment of skills⁽²⁰⁾. It consists of a circuit of stations of skills, assessed by an observer with an agreed marking schedule⁽²⁰⁾. The timing of assessment differs according to the type of school' curriculum. In schools adopting the integrated system, they assess the skills of each module with the final examination of that module (taking certain percentage from the total mark). In some schools with the traditional system (e.g. St Bartholomeo's College of Medicine), an OSCE is performed eight months after the initiation into the clinical medicine⁽²⁰⁾. Unless a student pass this examination, he/she is not allowed to enter the final MB examination⁽²⁰⁾.

Apart from summative evaluation, monitoring of students' progress can be done by logbooks or records of achievement to ensure the core skills learned and level of competence⁽²⁴⁾.

Problems in skill teaching and learning

Our medical schools, recently, suffer from the large numbers of students annually admitted. Then students are divided into large groups during demonstration sessions. Thus students simply can not see the demonstrations, and only a few of them have a chance to supervised practice of the skills (due to pressure of time). This can be solved, to some extent, by subdividing the group and then to repeat the session. It is better to provide a written description as well. The staff of skills centers should ensure availability of enough and good quality manuals that describe procedures.

Demonstration of skills is necessarily a teacher's skill, and then it needs practice and good preparation prior to sessions. Some teachers spend most of the time in describing skills leaving a little time for students; practice; thus a skills session becomes a lengthy lecture. Due to pressures of the academic daily activities there may be a delay between the demonstration and students' performance of the skill. Students may find difficulty in remembering what they should do! Even more, some schools devote no enough time in the curriculum for skills teaching. A common problem comes from old-fashioned teachers who were taught by apprenticeship, that they may view the modern teaching practices such as teaching in a skills centre as unnecessary or unproductive⁽²⁴⁾.

Conclusion

Clinical skills acquisition is a major focus of education for health professionals, extending from undergraduate to postgraduate and continuing professional education. The importance of clinical skills is derived from the fact that they are the cornerstone of the daily work of all health professionals (junior or senior). Decline in traditional bedside clinical teaching, and changes in patients' expectations (being intolerant to students or unwilling to be seen by inexperienced or unsupervised staff) have lead medical educators to introduce clinical skills centers as a method to provide comprehensive training in clinical skills. Clinical skills centers can significantly contribute to medical education by using alternative venues for training, avoiding jeopardizing patients' care in traditional clinical settings and by providing standardized and reproducible experiences. In the same time it is important to realize that the main objective of skills centers is to help in improving and maintaining clinical skills and not to totally replace bedside teaching. In fact, and despite changes in clinical settings, bedside teaching

remains essential for observation and demonstration of physical examination, medical interviewing and interpersonal skills. The original aim of skills centers is to learn clinical and communication skills for junior undergraduate students; but by continuous development and expansion of their activities, such centers can be of value to qualified doctors and other health professionals.

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