

# The development of a clinical skills centre

**ABSTRACT**—Guidelines produced by the General Medical Council of Great Britain have emphasised the importance of the development of the skills and attitudes appropriate for a junior doctor. Medical schools are in the process of reforming their curricula accordingly. The development of these skills is made increasingly difficult by changes such as short admissions to hospital, increased care in the community, and reduced resources. This article outlines the development of a clinical skills centre as a multidisciplinary unit to improve clinical skills teaching with the aid of up-to-date technology and educational practices. By sharing our experience we aim to provide a practical guide for the development of such units in other medical and nursing colleges.

The aim of a medical school is to produce a competent doctor, equipped with good clinical skills, good communication skills, the ability to solve problems, a widely based core knowledge and competence in practical procedures. It is becoming increasingly difficult to foster the development of these skills in conventional medical schools.

In the past, clinical teaching has largely been by apprenticeship [1], but changes in educational practice [2] and health care provision [3] have made this system less effective. The changes in medical education have been summarised in the General Medical Council's document, *Tomorrow's doctors* [4]; it proposes that medical school curricula should change. New curricula are now being developed to include integration both between subjects and between years of the course. Priority is given to the teaching and learning of clinical skills as it has become recognised that all student doctors need specific training in skills [5]. Teaching methods now place an increased emphasis on small group work and self-directed learning. These methods are easily explored in a clinical skills centre.

Medical students have traditionally been educated within the hospital environment. However, fewer in-patients and a shorter length of stay [3] have caused problems for the apprenticeship system. Some procedures for which patients used to be admitted to hospital are now performed as day cases. This makes it

less likely that medical students will come across routine operations and prevents them from seeing the patient's postoperative care. As the workload for all medical staff increases, consultants have less time to spend on teaching their medical students. Although the proposals in *Tomorrow's doctors* are in line with current educational philosophy, today's National Health Service makes it increasingly difficult to meet these challenges.

Nursing education has also changed: 1990 saw the introduction of Project 2000, a radical new approach to nurse education [6]. Nurses, too, are moving away from the apprenticeship model and spending more time in college based activities. The preregistration programme demands higher academic standards, with all nurses now gaining a Diploma in Nursing as well as their Registered Nurse qualification. Nursing is responding to the challenges of 'Care in the Community' by ensuring that registered nurses can work in a variety of community health care settings as well as in hospital. But because they spend less time in clinical practice, they have less time to hone their skills [7].

The Medical College at St Bartholomew's Hospital together with the St Bartholomew's and Princess Alexandra College of Nursing and Midwifery have combined forces to meet some of these challenges by developing a multidisciplinary clinical skills centre, an environment in which nursing and medical students may learn and practise the clinical and communication skills they need. This paper describes the development of such a centre at St Bartholomew's Hospital in London, inspired by the clinical skills laboratory at Maastricht in Holland.

## Management

The first step was the creation of a skills centre steering group. The deans of the College of Nursing and the College of Medicine were represented; educational input came from the academic department of medical education and the College of Nursing and Midwifery; computer expertise was provided by the department of medical informatics and there were representatives of the clinical, administrative and financial staff in medicine and in nursing.

The medical college appointed a practising clinician with a strong interest in teaching to the post of Senior Lecturer in Clinical Skills. The steering group appointed a Project Management Group comprising the professor of medical informatics, a Vice Principal of the College of Nursing and Midwifery, the senior lecturer in clinical skills, a nurse lecturer to develop clinical skills teaching, and the professor of medical art who has a long-term interest in the development of

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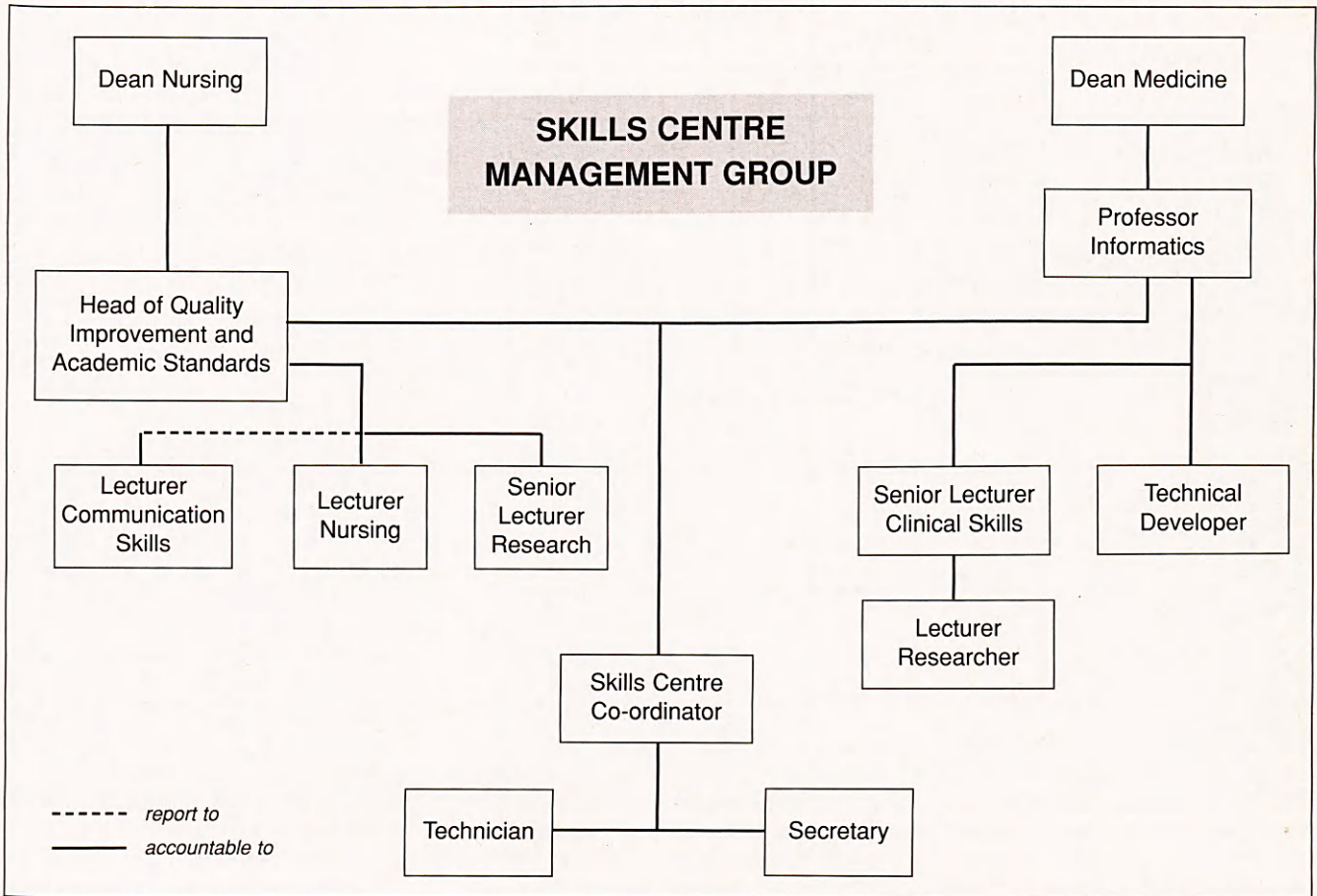


Fig 1. A schematic representation of the skills centre management structure

materials for self-directed learning. The management structure is shown in Fig 1. Task groups were created in: medical skills, nursing skills, informatics fundraising, self-directed learning, and buildings. Representatives from these groups met once a month.

### The medical and nursing skills task groups

Their aim was to investigate three key areas:

- Which skills should be taught to undergraduate medical and nursing students?
- Which teaching methods should be used?
- Which educational resources should be used in the clinical skills centre?

A composite list of all clinical and communication skills which are considered necessary in medical and nursing education, and the level of competence required for each skill, was compiled—the Clinical Skills Matrix [8]—a page of which is illustrated in Fig 2. Lists produced separately by the senior lecturer in clinical skills and the nurse lecturer were combined and then subdivided according to the body systems.

The skills within the body systems were then further divided as follows:

- Assessment and diagnostic skills
- Skills related to caring, comfort and safety of patients
- Therapeutic and technical skills.

A catalogue of 59 separate communication skills and 540 clinical skills was developed and the required level of attainment for each skill was indicated by the letters:

- A: for a skill which had to be performed competently without supervision;  
 B: for a skill which could be performed with supervision;  
 C: for a skill which needed only to be seen, in order that the student should be able to explain what the patient would experience.

This initial list was sent to the Heads of Department within the medical college and College of Nursing and Midwifery of St Bartholomew's for comment and changes as necessary.

CLINICAL SKILL	DOCTOR		NURSE				Comments
	Timing	Level	CFP	AB	CB	MHB	
Use of touch	Junior clinical	A	A	A	A	A	
1.4 STRUCTURED HISTORY TAKING							
Presenting symptoms	Junior clinical	A					
Past medical/surgical/psychiatric history	Junior clinical	A		A	A	A	
Family history	Junior clinical	A		A	A	A	
Social history	Junior clinical	A		A	A	A	

Fig 2. Representation from a page of the Clinical Skills Matrix

The communication skills section was developed during a brainstorming meeting involving the senior lecturer in clinical skills, the nurse lecturer in clinical skills, communication skills lecturers and the academic department of psychological medicine. During this process it became clear that communication with the patient was an essential part of every skill. It was particularly important during history taking but was inseparable from examining a patient or performing a practical procedure. This section was included at the front of the document to emphasise the importance of communication in every clinical activity.

**Teaching methods**

In accordance with contemporary teaching philosophy, students are taught in small groups and facilities are designed for self-directed learning. In the medical college we teach clinical skills using a method developed by the American College of Surgeons—the ATLS method [9]. A synopsis of this method is given in Table 1.

Although this method is rather laborious, it is a useful way of allowing students to demonstrate and practise both their knowledge of the procedure and the manual dexterity required.

In nursing, the approach is different. Clinical skills

are timetabled throughout the three-year programme with students in groups of 20–25. A teaching model has been developed for use in the skills centre [10].

**Educational resources**

A list of educational resources is shown in Table 2. An essential resource is the real patient. We have facilities to bring real patients from the wards to the skills centre to demonstrate physical signs and genuine histories. We also have ‘primed patients’—patients with some limited knowledge of their ailment who are happy to return frequently to be examined and to guide students in their history-taking and examination. These patients give limited feedback. We also use simulated or standardised patients [11], who are

**Table 1. The ATLS method of teaching a skill**

- Teacher orients the student to the task to be performed
- Teacher performs the skill without commentary
- Teacher ‘talks through the skill’ (performs it with commentary)
- Student talks teacher through the skill
- Student performs the skill, observed by the teacher

**Table 2. Educational resources for clinical skills teaching**

Real patients	Computer assisted learning
Primed patients	Interactive videos
Simulated patients	CD-Rom
Videos	Games
Video/playback	Books
Manikins and simulators	

actors or members of the local community who are healthy but have been trained to play the role of a patient.

The names, addresses, contact numbers and clinical synopsis of the illnesses suffered or the roles played are kept on databases in the clinical skills centre and can be accessed for examination and teaching purposes. The database for the simulated patients has been developed in conjunction with a network of London teaching hospitals using simulated patients. Members of the network have combined forces to train a group of simulated patients for teaching purposes: a list of available patients with their details is sent to the other London colleges involved.

The use of simulators in the development of practical procedures has been part of medical curricula in the United States for some time. Its development in this country has been led by an anatomical model-making company called Adam Rouilly who developed their first simulator in response to the army's request for manikins after the Falklands War. Although army paramedics were being taught the procedures necessary for intravenous cannulation they were unskilled because of lack of practice. The first simulator produced by Adam Rouilly was a plastic arm containing rubberised veins in the correct anatomical

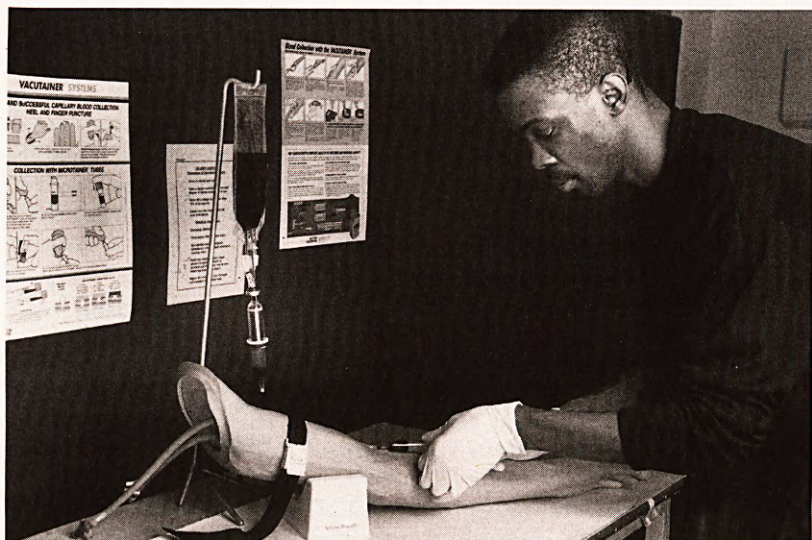
configuration (Fig 3). Lifelike simulators are now also available in the UK for procedures ranging from gynaecological examination to central venous cannulation. They are used for teaching and assessing a wide variety of examination techniques and practical procedures.

Videotapes of system examinations have been made by practising clinicians in the medical college. The tapes are based on the examination of a normal subject. It is impossible to develop a consensus on examination technique because each clinician's technique is individual. To emphasise this, each video begins with a statement that the opinions given are those of the person performing the examination and that students may see variations of this procedure.

St Bartholomew's has a large archive of video material which must be kept contemporary so that the students concentrate on the procedure being demonstrated rather than on the outmoded clothing style of the examiner! Reviewing videos from some time ago reveals significant changes in clinical practice, particularly in communication skills.

### Communication skills teaching

The Medical College of St Bartholomew's and the Royal London Hospitals have a new joint curriculum with an emphasis on communication skills. To facilitate this the clinical skills centre includes a suite of rooms specifically designed for communication skills teaching. It comprises two teaching rooms linked by a two-way mirror, and a small studio area with video relay to the teaching rooms. These rooms are used to teach small groups of students fundamental communication skills and more specific skills such as breaking bad news. The teaching of clinical and communication skills was linked to both the curriculum and the skills centre as it became clear that history-taking, examination of a patient and all



**Fig 3.** A student taking blood from a manikin

practical procedures involve communication. Some of the teaching methods used in the new curriculum for communication and clinical skills were the same—use of small groups of students and simulated patients. Thus a facility for communication skills teaching could also be used for clinical skills and vice versa.

### An information technology task group

This group explored the use of computer assisted learning in medical and nursing education and set up a programme within the hospital and colleges to impart information technology skills. A multi-disciplinary computer skills training room was furnished with nine workstations with facilities for videodisc playing, word processing and data processing; they are connected to the hospital information system.

### The building group

As space is at a premium, it was decided to build an extra floor on top of the education centre at the hospital to provide a new and exciting environment for medical and nursing students to practise their clinical skills.

The space of approximately 500 m<sup>2</sup> is divided into three rooms; a simulated ward area containing six King's Fund beds, equipped to look like a functioning hospital medical or surgical ward; a simulated community setting, and an area for paediatric nursing and

medicine (Fig 4). The beds are fully functional and can be used by real patients, simulated patients and manikins. Adjacent to this is the 'wet laboratory', largely used for practice on manikins. A multi-purpose workshop area combines the facilities of the first two rooms. All these rooms are equipped with scrub sinks. There are also two offices, a store room, a preparation room and washrooms and toilets for students, patients and simulated patients.

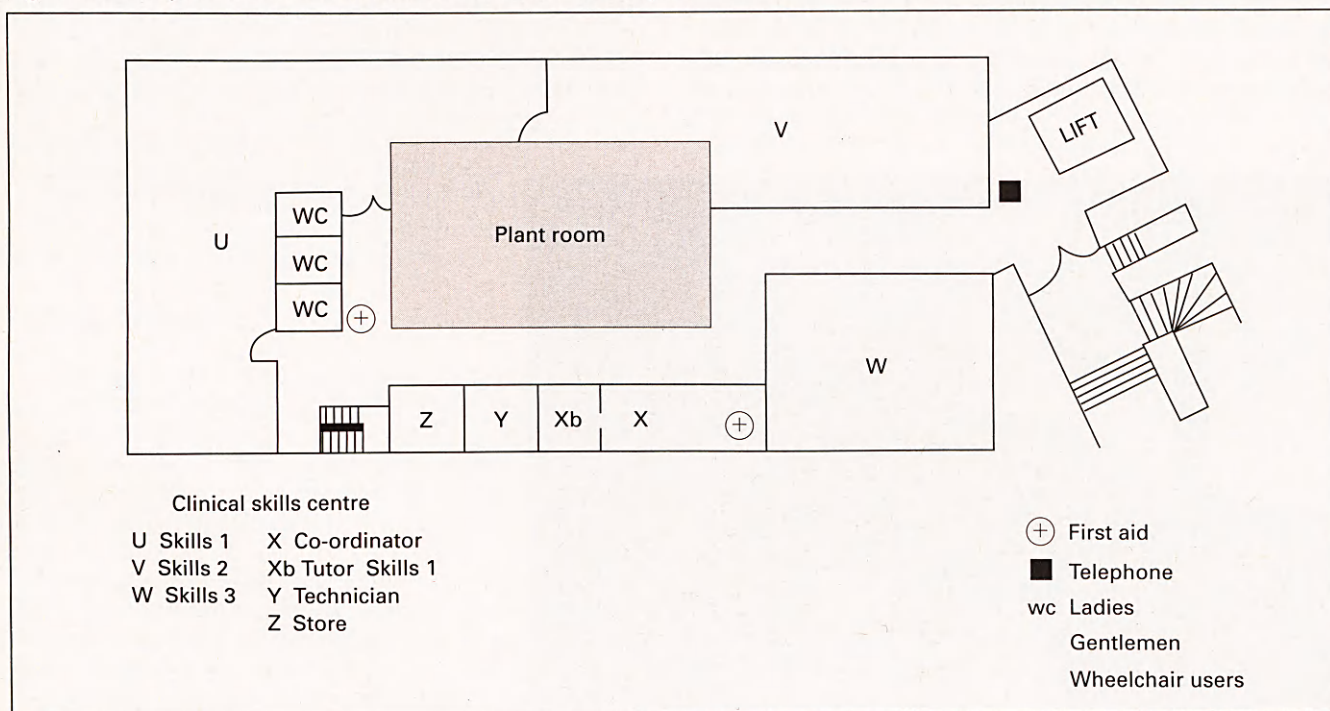
### The curriculum

It became clear that skills teaching needed to be integrated within the medical curriculum as it was in nursing. Medical students have an eight week clinical skills block during which they are taught a combination of clinical and communication skills. Within this block they have ward based teaching specifically relating to clinical skills and have four sessions in the clinical skills centre where they are introduced to selected skills and procedures (Table 3).

Teachers from medical firms are also invited to bring their students to the clinical skills centre and use its facilities.

Compulsory assessment follows completion of the clinical skills course and the first medical and surgical firms. During the senior firms the students are attached to several different hospitals in the South East but are again invited to come back to the skills centre for revision in small groups. Every final year student is expected to attend at least twice. Two

Fig 4. The floor plan of the skills centre at St Bartholomew's Hospital



**Table 3. Clinical skills centre introductory teaching**

Phlebotomy and IV drugs
History-taking with video feedback
Aseptic technique, hand washing, gowning and gloving
Lifting patients
Examination, use of stethoscope, blood pressure measurement
Urethral catheterisation and rectal examination
Suturing
Ophthalmoscopy and otoscopy

sessions are run each week. For the first time in 1995, we held workshops to prepare students for an objective structured clinical examination (OSCE) in finals.

### Assessment

We use an objective structured clinical examination (OSCE) [12,13]. This consists of a circuit of stations where a range of clinical skills is assessed by an observer using an agreed marking schedule. Students are expected to perform a task at each of 25 stations, eg taking a history or obtaining informed consent for an operation from a simulated patient, or performing practical skills on models or simulators. The junior OSCE is performed eight months after their initiation into clinical medicine. Students must pass this examination to be allowed to enter finals. It is also a teaching experience as the students are given group feedback on their performance. The content of the OSCE reflects the content of the clinical skills course.

### Finance

The capital cost of the skills centre development was £1.3 million, largely for the extension on top of the education centre. Approximately £200,000 was spent on equipment—a high figure because we had a purpose built centre. This cost could be reduced by converting a vacated ward where expensive facilities like a sluice, a bathroom and a bed lift are already in place. We had approximately £100,000 for running costs and £1.2 million to be spent on staffing over a five-year period.

### Core posts

To run the clinical skills centre we have the following academic and service posts, in which medical and nursing appointments are made at the same level to encourage collaboration between the disciplines:

*Senior lecturer in clinical skills.* Clinical responsibility was considered essential to facilitate links with clinical

teachers, so the post combines eight academic sessions to develop clinical skills teaching and evaluate the laboratory, with a consultant contract in the teaching hospital and a local district general hospital.

*Nursing senior lecturer (research).* Since the remit is to develop research into the teaching of clinical skills, a nursing qualification was not deemed essential and the appointee has a background in educational research.

*Clinical skills lecturer (medical).* This combined clinical and academic post has a large teaching and research component. It has proved difficult to fill because it is not seen as providing a career pathway in academic medicine. This conception should change as more departments of medical education are established.

*Clinical skills lecturer (nursing).* The lecturer leads the development of clinical skills teaching for nurses and conducts research. Experience of nursing and time spent as a nursing tutor were considered essential for this post.

*Skills centre coordinator.* The coordinator manages the centre, ensures the smooth running of teaching activities and the OSCE and raises income by organising conferences. A *technician* maintains the equipment such as individual aids, computers and manikins and produces in-house videos. A *secretary* has diverse duties throughout the skill centre.

### Evaluation

The difficulties encountered in the assessment of clinical competence are well documented [14,15]. Preliminary results from our assessment within the medical college (by OSCE) suggest that there has been a 14% [16] improvement in the performance of intravenous drug administration during the two years of specific skills centre teaching. In addition, a cross-sectional study of the suturing and phlebotomy stations in the junior OSCE suggested that students who had access to the clinical skills centre performed better than those with no access. Further research is required to demonstrate whether this improvement in performance on models may be extrapolated to the clinical setting.

### Discussion

This article has outlined the development of a clinical skills centre. We hope it will provide a practical guide to those wishing to develop such centres in other nursing and medical colleges. We believe that a skills centre is a useful addition to medical and nursing education. Evaluation studies are under way to test this hypothesis. We have presented some preliminary results from our OSCE assessments of the medical

students. Our skills centre was based on the Maastricht experience but the idea has been developed and extended to make it appropriate to a clinical base in a UK medical school. We consider it to be a valuable resource to implement the GMC's recommendations on undergraduate medical education. A skills centre reduces the difficulties encountered in several medical and nursing colleges in ensuring adequate exposure to clinical problems. This innovative centre has been built in a hospital with an uncertain future but the philosophy of the clinical skills centre, the expertise gained and the lessons learnt in its development are being harnessed in the development of a new centre in East London.

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