

Establishing Clinical Skills Center in a Developing Country-LMDC Experience

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Abstract

Clinical skills centers have become an integral part of the curricular requirements in most modern medical schools and postgraduate centers; worldwide. There has also been a growing interest in the development of clinical skills laboratories in the developing countries in the past decade. Lahore Medical and Dental College, Lahore, Pakistan took the initiative of developing a low cost clinical skills lab in July 2010. The development of skills lab required a multi-step approach. A six steps approach of Syme-Drant (2005) was modified and used to develop clinical skills lab teaching and learning protocols. The objective of this study is to describe the stages involved in the development of a low cost, clinical skills training center in a medical college in a developing country.

Key Words: Education, medical, undergraduate, clinical skills, teaching material

Introduction

Procedural competence requires a range of training initiatives, from bedside teaching to that of simulation in a skills-lab (Connick *et al.*, 2009). Clinical skills laboratories have become an integral part of the curricular requirements in most modern medical schools and postgraduate centers worldwide and developing countries are no exception (Stark & Fortune 2003). Lahore Medical and Dental College (LMDC), Lahore, Pakistan developed Clinical skills laboratory in 2010. The main purpose behind development was improvement in students' clinical skills as clinical teaching at LMDC was hospital-based, and on patient bed-side only.

Students' participation in clinical skills teaching was voluntary with limited ward teaching time. It is not possible for every student to practice clinical skills individually.

Keeping in view the evolutionary steps that were taken at LMDC, the objective of this article is to discuss the stages involved in the development of a low cost, clinical skills lab in a developing country. The aim is to describe a step wise approach which can be easily followed by other medical colleges, who have limited resources and wish to develop a similar laboratory in their institutes.

Development of a clinical skills laboratory requires work in three different areas. Selection of a designated area where clinical skills teaching activities could be organized, development of skills teaching curriculum and procurement/development of teaching material.

1. Space requirement and allocation.

A 2000 square feet area was identified and selected. It was equipped with furniture for small group teaching and with complete audio-visual (multi-media) system.

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2. Development of list of skills and formation of teaching plan (core-curriculum).

Voluntary participation in clinical skills teaching was requested and a clinical skill curriculum working group was formed. This group included members of the Department of

Medical Education, all Clinical Department Professors and their nominated teachers (who volunteered for skills teaching). A six steps approach was developed following the steps of principal curriculum development protocols (stages) of Syme-Drant (2005) cited by Hassan (2007) to develop clinical skills laboratory teaching protocols (Figure 1).

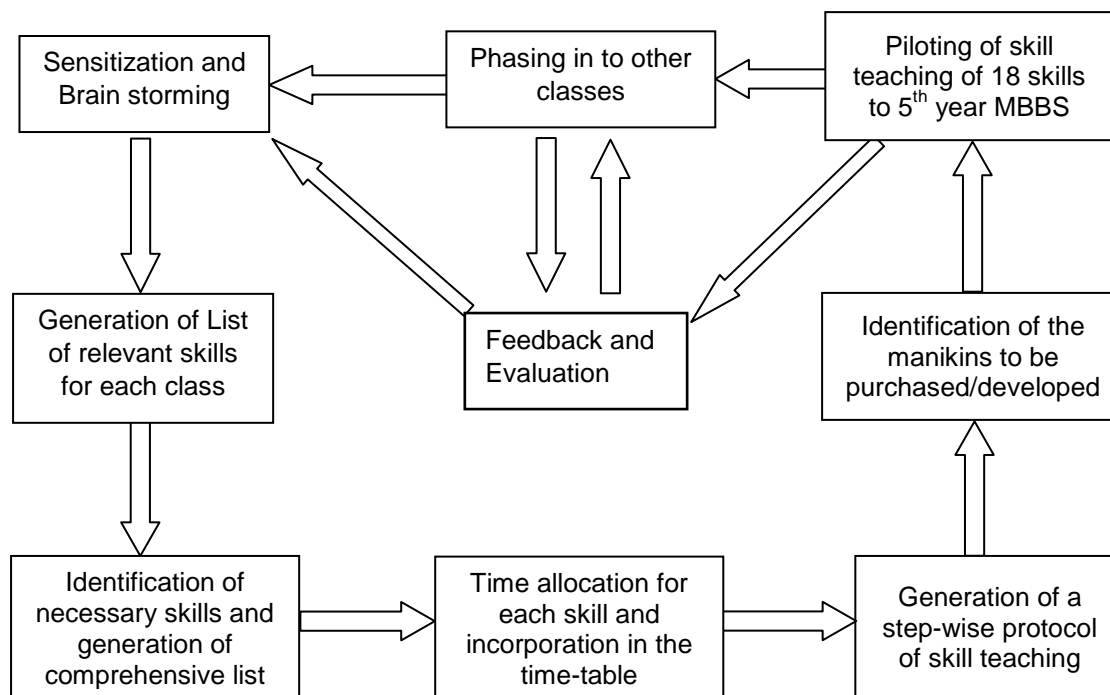


Figure 1: A modified version of steps of principal curriculum development protocols (stages) of Syme-Drant (2005) cited by Hassan (2007)

These steps were as follows:

Step-I: Faculty Sensitization and Brain Storming

All the basic sciences and clinical faculty professors and their nominated teachers were requested to update their respective teaching faculty about this new venture and to identify teachers who would like to volunteer and accept the challenge of teaching clinical skills to the undergraduate students. They were also asked to prepare a list of clinical skills which in their opinion, a fresh medical graduate should be knowing.

Step-II: Selection and generation of Skills list

The topic was open for debate till a consensus was reached in defining a list of clinical skills for each class i.e. from first year to final year MBBS. Table 1 shows the list of essential

skills as approved by the all the faculty members. A step-wise performance protocol was developed for each respective skill.

Steps-III: Curriculum Integration

Easier skills were kept in the initial (pre-clinical) years, while complex skills kept in the final clinical years. Integration of the skills with the taught curriculum was done wherever possible and clinical skills teaching were aligned with the students' clinical rotations timetable.

Step-IV: Making a Timetable, deciding the Teaching Methodology and monitoring of student attendance

It was decided that skills lab teaching time will be taken out from students' practical time for pre-clinical years and their ward time for clinical years. Adopting small group learning

strategy, skills teaching was planned once every week, for two hours for a group of 8-10 students.

Step-V: Piloting and Feedback

Piloting of clinical skills teaching was done on final year students. The perception of students and teaching faculty were then taken on a five point Likert scale (Ibnerasa, 2011). Teaching

programme was modified according to the feedback received by the students and the faculty.

Step-VI: Annual review

It was decided that after the completion of one year of skills teaching, the teaching curriculum will be analysed for its strengths and weaknesses.

Table 1: List of Essential Clinical Skills Taught in Five Years

FIRST YEAR SKILLS		18	Removal of foreign body by Hemlich's maneuver
1	Introduction to bandages and dressings	19	How to perform Phlebotomy & make a blood film.
2	How to measure different pulses	20	How to perform Fine Needle aspiration
3	How to take blood pressure	21	How to perform Lumber puncture
4	How to approach a patient for medical examination	22	How to take a High vaginal Swab
5	What are Aseptic techniques	23	How to insert an Intra-uterine contraceptive device
SECOND YEAR SKILLS		24	Plaster of Paris application on fracture
6	How to lift and transfer an injured patient	25	Closed fracture splint application
7	How to give an Intramuscular Injection	FINAL YEAR SKILLS	
8	How to check blood sugar from a glucometer	26	How to perform End tracheal intubation
THIRD YEAR SKILLS		27	How to perform Nasogastric intubation
9	How to take Blood sample for blood culture	28	Ventilator monitoring
10	How to take a Throat swab	29	How to perform Newborn resuscitation
11	How to apply Cardiac monitoring/leads	30	Steps of doing an Episiotomy
12	How to Nebulization a patient	31	How to perform Forceps delivery
13	Learning Hand washing/Scrubbing	32	Performing Normal and breech delivery
FOURTH YEAR SKILLS		33	ACLS
14	How to perform Breast examination	34	Primary trauma care
15	How to perform a Tru-cut biopsy	35	How to pass a Chest tube
16	Different Skin Incisions	36	How to perform Venous cut down
17	Performing BLS	37	Performing an Ostomy
		38	How to pass Foleys catheter

3. Procurement of manikins, models and simulators

Taking help from the different catalogues available in the market for clinical skills teaching material, low cost models were developed from locally available raw materials. These models were created with plastic, sponge and rubber (Figure 2).

Discussion

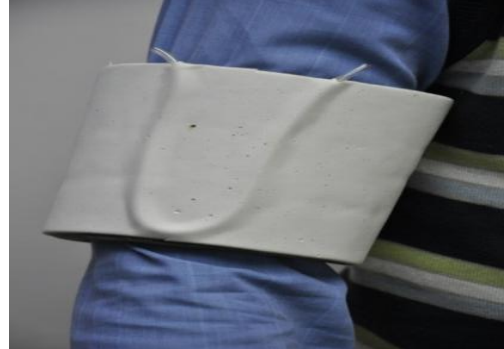
The structural and functional organization of a low cost, clinical skills laboratory at Lahore Medical and Dental College within a year, is a proof that clinical skills centers of reasonable standard can be developed and/or replicated

in a developing country such as Pakistan. The overall response of the students and teachers participating in the skills sessions was positive. The students expressed that clinical skills laboratory teaching will enhance their procedural confidence while dealing with actual patients in clinics. Setting up of a Clinical Skills Center requires some initial capital and manikin purchase costs followed by day to day expenditure and ongoing costs of personnel and equipment. The fear of financial burden can be a deterrent in establishing skills lab in developing countries. Such problems have been mentioned by another institute in Pakistan as constraining impediments (Khaja 2008).

a- Cannula Insertion



b- Phlebotomy practice band for arm



c- Episiotomy



d-Tracheostomy

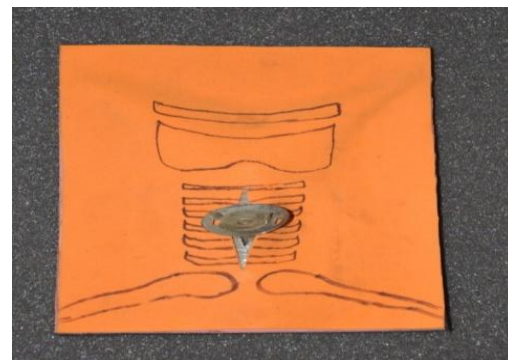


Figure 2: Different clinical skills teaching model

In LMDC, almost everything from the space to the furniture and most of the teaching material were generated from the institute. This was the main factor in controlling the amount of initial capital required to start a clinical skills center. Clinical skills lab faculty comprised of part-time clinical teachers from different specialties', who were motivated enough to volunteer for clinical skills teaching. This was another key factor in successful functioning of the center. Development of practice models from locally available material helped in cutting the running expense of teaching material. It was not only cost effective but also had the advantage of being used as disposable teaching material during sessions. It also helped in maintaining a ready supply of the teaching material for subsequent sessions. Clinical skills laboratory at LMDC is an example of a sustainable model as locally manufactured teaching material was developed in the institute.

Conclusion

Clinical skills labs offer the educational community a model of teaching, which appears to offer benefits and positive long-term impact on undergraduate medical students. However, a successful and sustainable skills training program require dedicated planning and a structured curriculum.

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