

## Source of learning basic clinical skills by medical interns Tehran University of Medical Sciences

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### ABSTRACT

**Background:** Effective clinical teaching is a major objective in general practitioner's education at medical schools.

**Purpose:** To identify the sources of clinical skills learning that medical student experience

**Methods:** In this cross sectional study, interns of Tehran medical university who spent at least 12 months of their internship answered a questionnaire on the sources of clinical skills training. Chi2 test was used to examine the association of source of learning and students' specification such as sex, score of pre-internship exam, and marital status.

**Results:** All 250 interns who were eligible participated. Over all 46.60% interns learned their clinical skills from residents or clinical teachers, 29.61% observed others performing the procedures, 16.25 learned the skills from hospital staff or nurses, 7.54% practiced their knowledge when confronted to an emergency situation

**Conclusion:** Our results warrant a more attentive approach to clinical skills (specially procedural skills) training

**Key words:** LEARNING RESOURCES,

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### Introduction

Effective clinical teaching is a major objective in general practitioner's education at medical schools(1). Obviously teaching and learning clinical skills is very different from teaching or learning subjects such as chemistry, anatomy or physiology.(2) The aim of clinical teaching is to reinforce material already learned rather than to introduce new material. However, it is important to make clear that teaching and learning clinical skills needs knowledge (3).

In some cases, the theoretical component is delivered separate from the clinical component. The major concern in teaching practical skills is what the clinical teacher does when students are in clinical setting. Typically a clinical teacher is responsible for a group of six or more students and care of his/her patients. On the other hand, in their function as clinical teacher they are expected to instruct and support the students; to facilitate their learning experience; and to evaluate their progress and provide feedback.

Since there are too many expectation from clinical teachers, most importantly quality clinical services, clinical teachers are left with a very

limited time to accomplish the task of clinical teaching. The lower priority given to clinical teaching in comparison to clinical and research services give rise to concerns about clinical and practical skills of medical students (4).

In a large University like Tehran university of Medical Sciences with 600 Interns, we are looking for some evidence of whether the clinical teachers who have different responsibilities can function as clinical teachers up to the expectations defined for clinical teachers, and whether the students learn the required basic skills by the end of their education.

We try to find out

- 1.What the sources for interns to learn clinical skills are
2. How they evaluate their clinical competence and their relevant knowledge
- 3.What factors affect their learning experience

### Materials & Methods

In this cross sectional study, interns of Tehran medical university who spent at least 12 months of their internship participated.

A questionnaire was used for data collection, which consists of three parts. Part one collected the

data related to background information. Part two assessed the level of clinical competence through Likert type rating scale. To choose the clinical skills entities we searched the relevant literature and draw a comprehensive list of skills entities. Then the list was given to a group of faculty members and medical education experts. The entities that win the vote of more than 80% of our expert group ( $80 \pm 2$ ) appear in the questionnaire. This leads to a 18-skill list of clinical competencies that should be mastered by interns at graduation (5) (table 1). The last part of questionnaire consists of questions about source of learning clinical skills, the choices for responses were: Learning from Clinical teacher or residents, observing others when they were in practice, learning from other staff, and using their knowledge when they were in emergency situation. The Chi2 test was used to examine association between the source of learning and sex, test score of pre-internship exam, marital status and knowledge related to the same clinical skill. Data were analyzed by SPSS soft ware.

## Results

**TABLE 1.** Source of learning clinical skills among interns

<i>Clinical skills</i>	<i>Source of Learning</i>							
	<b>Clinical teacher</b>		<b>Observation</b>		<b>Other staff</b>		<b>Confront the situation</b>	
	Af <sup>1</sup>	Rf <sup>2</sup>	Af	Rf	Af	Rf	Af	Rf
Venous access techniques	11	4.4	183	72.6	37	14.7	21	8.3
IV and IM injection techniques	12	4.8	148	58.7	36	14.3	56	22.2
Suturing technique	143	56.7	46	18.3	59	22.2	7	2.8
Nasal gastric tube insertion	84	33.3	67	26.6	81	32.1	20	7.9
Bladder catheterization	95	37.3	68	27	72	28.9	17	6.7
Drawing arterial blood samples technique	70	27.7	70	27.8	87	34.5	25	9.9
Dressings and bandaging wound management	52	27.8	98	38.9	47	18.7	55	21.8
Neonatal blood sample technique	69	20.6	100	39.7	48	19.3	35	13.9
Fixing simple fracture with plaster cast	180	27.4	37	14.7	31	12.3	4	1.6
Splinting a fracture	182	71.4	40	15.9	26	10.3	4	1.6
Foreign body removal (Ear and nose)	162	72.2	53	21	20	7.9	17	6.7
Vaginal delivery technique	230	64.3	123	5.2	8	3.2	1	0.4
Foreign body removal (eye)	118	91.3	70	27.8	54	21.4	10	4
Epistaxis control	155	46.8	42	16.7	44	17.5	71	4.4
Basic surgical skills as circumcision	100	39.7	73	29	49	19.4	30	11.9
Endotracheal intubations	205	81.3	32	12.7	11	4.4	4	1.6
Lumbar puncture technique	139	55.2	95	37.7	14	5.6	4	1.6
Cardiac pulmonary resuscitation	107	42.5	108	42.9	16	6.3	21	8.3

<sup>1</sup> - Absolute Frequency (AF)

<sup>2</sup> - Relative Frequency (RF)

All 250 interns who were eligible participated. Over all 46.60% interns learned their clinical skills from residents or clinical teachers, 29.61% observed others performing the procedures, 16.25 learned the skills from hospital staff or nurses, 7.54% practiced their knowledge when confronted to an emergency situation (Table 1). According to table 2 the major strengths were knowledge about vaginal delivery technique (82.2%), and CPR (79.4%), and the major weaknesses were found in taking blood from neonates (72.2%) and fixing simple fracture with plastic cast (64.3%). The result of self rating of 18 skills by interns showed that 42.66 of interns evaluate their competence more than average, 34.92% average, 11.27% weak and 11.16% claimed that they never had the chance to practice all 18 skills expected (table 2 and table 3).

## Discussion

Training tomorrow's doctors has long been a responsibility of medical teachers and physicians (6).

**TABLE 2.** self assessment of clinical competence and knowledge related to the skills

Clinical competence	Knowledge related to the skills		Clinical skills			
	Knowledge		Competence		Never practice	
	A*f	Rf**	Af	Rf	Af	Rf
Venous access techniques	103	40.6	64	25.4%	25	9.9%
IV and IM injection techniques	154	63.1	194	77%	1	0.4%
Suturing technique	186	73.8	159	63%	0	0
Nasal gastric tube insertion	139	55.2	198	78.6%	1	0.4%
Bladder catheterization	149	59.1	207	82.1%	0	0
Drawing arterial blood samples technique	164	65.1	164	65.1%	0	0
Dressings and bandaging wound management	113	44.8	190	75.4%	0	0
Neonatal blood sample technique	70	27.8	86	34.1%	14	5.6%
Fixing simple fracture with plaster cast	90	35.7	32	12.7%	54	21.4%
Splinting a fracture	93	36.9	71	28.2%	55	21.8%
Foreign body removal (Ear and nose)	115	45.6	68	27%	13	5.2%
Vaginal delivery technique	223	88.5	60	23.8%	5	2%
Foreign body removal (eye)	120	47.6	159	63.1%	8	3.2%
Epistaxis control	172	68.3	135	53.9%	21	8.3%
Basic surgical skills as circumcision	200	79.4	46	18.3	8	3.2%
Endotracheal intubations	156	61.9	61	24.2	54	21.4%
Lumbar puncture technique	94	37.3	22	8.7	119	47.2%
Cardiac pulmonary resuscitation	133	52.8	19	7.5	96	31.1%

\* Absolute Frequency (AF)

\*\* Relative Frequency (RF)

According to our finding 46.6% of medical interns learn their clinical skill by medical teachers and residents. All clinical teachers know teaching clinical skills requires vast knowledge of subjects, practical experiences and also application of appropriate methods for teaching (7).

We assume that our medical teachers fulfill these requirements, but whether residents are competent teachers for medical education is not clear.

If residents have responsibility as clinical teachers (as an important part of their medical education) it is wise to plan in advance in order to get benefit.

Of more concern is that 11.6% of interns claimed that they never had chance to learn basic skills during their education. It is interesting to know that 8.3% of interns had no practical experience when they confronted the emergency situation requiring a certain procedure. Two last findings need more serious attention and consideration in clinical teaching. At least practicing basic skills at skill lab during their clerkship courses should be added to their program.

To ensure that equal quality opportunities are provided for medical students to learn and master the core procedural skills, proper assessment of students on these skills and close supervision of the learning opportunities provided in different

settings is critical. Our results warrant a more attentive approach to clinical skills (specially procedural skills) training.

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