The impact of learning at UST Medical School skill laboratory on 3rd & 4th year medical students' competencies of clinical skills

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Abstract:

A Total of 155 consenting year 3 and 4 medical students. The participants completed questionnaire listing 30 clinical skills divided into five groups. Students were asked to assess their clinical skills on a 1-5 scale, and we compared the assessment scores with students self-assessment.

The current study was carried out only to investigate whether students mastered or performed skills during their training at skills laboratory or to study both the quality and quantity of skills performed during their training at skill laboratory(i.e amount of feed back students receive), (Other instruments must be used, such as check list). Intensive small group skills training programme offered in year 2-4 medical students at skills laboratories.

Results in this study showed that student's self- evaluation had highly significant correlation with those of their skills exams in medical skills laboratory with P value 0.0001. Mastered medical skills among these students had significantly high. Students had higher scores in some groups of skills, which can be explained by better organization of clinical skills teaching in these subjects, or by higher student interest in these skills. Also, there was no significant difference in mean between males and females in musculoskeletal skills, cardiovascular skills and hepatobilliary skills (p value >0.05), but in other subjects(mastering respiratory skills, mastering GIT skills) there is higher means in females than males and this difference is significant(p value <0.05). female students had higher scores in GIT, respiratory system and probably because they were more inclined to these specific skills.

Conclusion: Students self- assessed level clinical skills was correlate with thier assessment scores. And clinical skills training at skills laboratory has additional positive influence on students self-assessed level of clinical skills. Training in a skills laboratory appear to result in students performing more skills during clerkships.

Introduction

There is growing acceptance of the need to teach and assess medical skills in the medical schools. The aim of this study was to determine the level of mastering clinical skills among medical students of third and fourth year graduated in integrated curriculum in school of medicine at University of sciences and technology and compare with their scores in medical skills exam of different body systems using a chick list results for a formative assessment and basic clinical skills refer to those practical skills that are necessary with patients; they are ranging from history taking to examining different body systems and performing some procedures which should be mastered by any physician. The mission of Medical School, at UST University, is to graduate competent physicians who are able to offer primary health care in the Yemeni community. Since its establishment in 1995, the university has been putting heavy emphasis on the mastery of basic clinical skills which constitute an important component of clinical competence.

The curriculum of the school of Medicine, at UST is characterized by exposing the students, from the very early beginning of their attachment to the school, to patients gradually through the different educational years. This is done in a suitable environment which avoids the doctor/patient contact being used for initial practice. This suitable environment is the **clinical skills** laboratory. The training in the clinical skills laboratory is not meant to be a substitute of clinical training with real patients, but rather a preparatory step to it, so that the students become in a much better shape as they start their training with patients. The clinical skills laboratory was started its activities in 1995; it was the first skills lab which has been established in Yemen at that time. The main objective of skills laboratory is to provide standardized training and evaluation of basic clinical skills; using the same tools for all students. The students are not allowed to examine any patient except after successful performance of examinations on their peers and/or models.

Integration of the clinical training into the curriculum

Training in the clinical skills lab is integrated into the curriculum of Medicine School at UST of so as to serve the two main educational strategies of the College, which are the community-based education and the problem-based learning. The link of the clinical skills with either strategy varies according to the educational phase.

In phase I (pre-pathogenesis), the educational problems are organized into blocks which address sequential phases of human development from pre-natal life to senescence. In their community-based activities in the primary health care centers, students examine patients of the same phase of life as in the problems in their blocks. They have to perform certain clinical skills for each age group such as examination of visual acuity for school children, measuring pulse and blood pressure of the aged subjects, etc. In the skills laboratory, they are trained to perform these skills, using the standard checklists, before practicing on real patients.

In phase II (pathogenesis), the educational problems are grouped around diseases of the body systems and those problems form the core around which most other activities are organized. During this phase, medical problems are utilized to motivate the students to learn mainly basic medical sciences in addition to clinical sciences. At this level, students are not requested to make diagnosis or to discuss management plans; instead, they are supposed to be able to explain underlying basic mechanisms of the symptoms and signs of various diseases. Thus, the skills on which students are trained, in the skills lab, are intimately related to the problems they take in their small-group classes. For example, they are trained on the clinical examination of the heart during the block of cardiovascular problems.

Student assessment in the skills lab

Evaluation in the skills lab aims at testing:

-The clinical performance of the students in different skills.

-The background knowledge, of the students, in relation to different skills.

The evaluation is done periodically after each block. Each student receives feedback after every examination and he/she should prove mastery of all the skills, otherwise he/she would repeat the examination until reaching the mastery level (regarding performance). A final evaluation is done at the end of phase I & phase II.

After each examination, the supervisors of the lab grade the checklists according to specific predetermined weight for each item and provide the students with feedback.

The scoring of the theoretical background test is done by the subject area experts according to an approved key answer sheet.

The students who fail in one or more of the skills can attend the lab at any time outside the schedule to repeat training with the help of an instructor or some available audiovisual aids.

List of skills that are taught in UST / Medical school

Musculoskeletal system *Skills*

Skills **Clinical**
Examination of upper limb joints
Examination of lower limb joints
Examination of spine fractures (X-Ray)
Plaster of Paris (P.O.P)

Basic Skills Lab Curriculum

Block	**Clinical** Skills
Respiratory System	**History taking & Symptomatology**
	Inspection & Palpation of Chest
	Percussion & Auscultation of Chest
Cardiovascular System	**History taking & Symptomatology**
	Inspection & Palpation of Pericardium
	JVP Examination
	Auscultation of Heart Sounds
	Performing ECG
	CPR
Gastrointestinal System	**History taking & Symptomatology**
	Abdominal Inspection
	Abdominal Palpation
	Abdominal Percussion
	Abdominal Auscultation + DRE
Hepatobiliary System	**History taking & Symptomatology**
	General Patient's Examination in Hepatobiliary diseases
	Liver & Gall Bladder Examination " Palpation & Percussion"
Others skills	**urinary Catheterization**
	C.P.R & 1st aid
	Management of trauma, burns & other emergency conditions
	N.G. tube insertion
	wound suturing
	Injections (IM, SC, ID)
	Injections (IV, canola)
	Reading CT-scan & MRI

Literature Review:

Medical teaching has traditionally asked students to master large amounts of factual information. This didactic approach means there is little opportunity to contest the medical curriculum, only some of which is tested in high-stakes examinations. Conversely most clinical or surgical skills have been taught in an apprentice style with little or no formal assessment. Although both of these approaches have their place, there is clearly an alternative that combines the best elements of the two by fostering a critical approach to learning; such an approach is the preserve of both higher education and continuing professional development (17). Managing information at the point of care requires different skills than traditional evidence-based medicine (EBM) as taught in most medical schools (24). In traditional EBM, the learner develops a clinical question, performs a literature search, selects and appraises an appropriate research study, and draws conclusions. The EBM process usually occurs remotely from the patient encounter and requires time, the ability to understand the source literature, and critical appraisal skills. When today's medical students graduate, they will conduct patient encounters using multiple technology-enhanced decision support systems. Current medical student training in ambulatory settings may not prepare students for this type of practice. Students often learn from physicians who generate few (0.01 to 0.8) clinical questions per patient encounter and infrequently use information technology to answer clinical questions at the point of care (14,18,19,32) Clinicians have previously reported that answering clinical questions is too time consuming to be practical during clinical sessions(20,21) However, that situation is changing. Improved information management tools, including personal digital assistants (PDAs) and Internet capable wireless computers, now allow rapid access to Web-based clinical information in ambulatory settings (14). The necessity of learning skills through "integrated skills training" at an undergraduate level has been supported by several studies. University of Antwerp implemented undergraduate skills training curriculum in 1998, after it was demonstrated that Flemish students did not master their medical skills as well as Dutch students who received integrated skills training as apart of their undergraduate medical course(26).

Curriculum changes often lead medical schools to implement skills training at the undergraduate level. One reasons for this implementation was the fact that limited undergraduate skills training often resulted in junior doctors being required to perform skills during full-time internships for which they have been prepared (28, 36,38). This may results in junior doctors underperforming, which can be stressful for them and is potential risk for their patients. However, this underperformance is not always visible as basic medical skills are only part of the entire internship experience (6). Undergraduate skills training is not intended to replace clinical experience as the key mode of training, but as a preparation for learning of clinical skills in real practice (7). It is a medical educational reform which facilitates the learning of basic clinical skills in a setting other than clerkships and which is understandable in view of the changes healthcare delivery and changes in healthcare education (5). Self-evaluation of professional skills is recognized to be an essential requirement in undergraduate medical education, yet this aspect of learning is rarely taught in an explicit and systematic fashion (13). However, medical students must develop information management skills as a routine, integral part of the ambulatory patient encounter. Information management skills include: asking and refining clinical questions; accessing, retrieving, integrating and applying information into a clinical situation and managing the doctor/patient/technology interface ability to manage information in clinical settings. Few studies have investigated students' In a study by Bergus and colleagues, fourth year medical students evaluated a standardized patient (SP), then read an article about a diagnostic test relevant

to the patient's presentation. Most students appraised the article correctly, but few could apply the information to the individual patient(12,17). In contrast, Webershock and colleagues demonstrated that, following an EBM seminar, third-year students could both appraise an article and integrate that information into a paper case(41). Davidson and colleagues conducted a more complex skills assessment by having SPs ask a question of third year medical students. Students then formulated a clinical question, performed a Medline search, selected and appraised a journal article and transmitted results to the patient. Students did well in this applied EBM exercise, averaging 3.7–4.0 on a scale of 1 (poor) to 5 (superior) for each task as evaluated by faculty and librarians(16). In summary, after a non-clinical EBM course, graduating students demonstrated EBM knowledge but had difficulty applying EBM information in the clinical setting. However, third year students applied EBM skills adequately to a paper case and standardized patient encounter given structured directions and sufficient time(17).

Remman and colleagues in their study showed that not all required skills are practiced during clerkships, and this suggests that medical schools cannot rely on clerkship experiences alone to offer students adequate basic clinical skills training. The differences between faculties suggest that a problem-based learning environment, Skills laboratory training and assessment of clinical skills during preclinical years prepare students more effectively for performing skills, and that continuous evaluation of clerkship may enhance these effects(27).

How do medical students learn to evaluate themselves? Expectations for self –evaluation among physicians and the education merit of self- assessment make this a significant question. Despite the importance of self evaluation, only a few medical educators have formally introduced self-evaluation at under graduating level and have published analysis of their experiences with it. They directed students to explore their own attitudes, knowledges, and skills. These students said that self evaluation was valuable (2).

According to Antonelli "self-assessment of knowledge and accuracy of skill performance is essential to the practice of medicine and self-directed life-long learning". The emphasis on life-long learning is important. In medicine, as in many other professions, individuals are now responsible for determining their own continuing professional development (CPD) and successful CPD programme demands awareness of remediable weaknesses through continual self-appraisal(1).

Boud defines self-assessment as "the act of judging ourselves and making decisions about the next step"(8). An important principle is that assessment must be followed by action (i.e. assessment is not an end in itself). Equally important is Boud's assertion that assessment can be conducted only against benchmarks or criteria. Brown, Bull and Pendlebury make a further distinction between different forms of self-assessment(10). On the one hand the process may be linked to competency and formal appraisal, with relevance to public issues of accountability, surveillance and control. On the other hand, the emphasis may be on personal development through reflection. Brown and co-workers suggest that these different emphases produce tensions and confusion both in the published work and in practice. The competency approach is useful for demonstrating particular skills, whereas the developmental approach aids understanding and knowledge and encourages personal and professional growth. The ability to assess one's own work critically is often claimed as a goal of higher education even when self-assessment exercises are not part of the curriculum. Paradoxically, despite the attention given to assessment in higher education, many courses have been ‘designed in ways which inhibit assessment skills(11). Preliminary research does indicate

that self-assessment of clinical skills in medical schools improves the ability to self-assess(13). Brown and Knight (10) suggest that self-assessment 'fosters a different, more powerful view of the student than does traditional assessment'. This point to changes in educational roles and relationships that are only now being explored. Studies have shown that it is the weaker candidates who tend to overrate themselves, both generally and within medicine (1,9,17,25,30,37,40). Arnold and Woolliscroft both noted more conservative self-evaluations by the brighter medical students, and one interpretation is that high achievers hold themselves to more stringent standards and assess themselves against their own potential. Alternatively, lower performers might be less motivated because they already perceive themselves positively(2,40).

Accuracy in self-assessment of skills can be fostered by performance-based feedback(37)along with explicit criteria for students(25). One might expect that, as a person gains experience in self-assessment, the evaluations will become more accurate and involve a deeper form of learning(12,20,23,37). Arnold found that, over time, medical students' self-assessments diverged increasingly from their faculty's ratings, but this was because students became more self-critical as they progressed through the course(2). Much of this work, of course, presupposes that the teacher's mark provides a reliable standard for comparison, which may not be so (10). However, the undergraduate basic skills programmes should be designed to support the intended learning outcomes and be integrated within the overall curriculum, including within the assessment strategy (5,17,18).

Study objectives:

1. The study aims to investigate the level of mastery of clinical skills acquired by medical students in their basic study years at skills laboratory.
2. To compare competency of clinical skills between third and fourth year medical students

Study procedures:

The study adopted cross sectional design.

The medical students population at UST in the 3rd & 4th year are 225 (boys & girls) in 2008-2009. Random sample of (155) students were chosen for practical evaluation from the third and fourth year.

For the purpose of data gathering a questionnaire was designed. Further a

Checklist for evaluation purpose (scores) of skill exam for every system was developed.

We compared the assessments scores of exams (chick list results) with students' self assessment scores.

Opinion of some experts taken for the face validity of questionnaire. The questionnaire modified according their advice.

In analysis stage and to make comparison, only 5 out of the 9 subjects entered as the remaining 4 subject not yet studied by 3rd level. The remaining subjects contain 30 items filled out according 1 to 5 Likert scale and distributed as follow:

Reliability was measured by Cronbach's Alpha which was 0.939

The study included third and fourth year medical student graduating from the University of Science and Technology, in the academic year 2008-2009. The students, representing (**70**)(**45.2%)** (females)and (**85**) (**54.8** %) (Males) according sex , grade point average, clinical skills training.

183 questionnaires retuned back, 28 of which excluded from analysis due to clearly unformative or intentionally misleading answers, so the remaining was 155. The questionnaire listing (30) medical skills divided into (five group) according to the body system and in relation to clinical disciplines. These (30) skills that can be performed and mastered routinely during activities at skills laboratory in many disciplines. The questionnaire was administered to third and fourth medical students from faculty of medical sciences at UST/ Yemen which their college offers a problem-based curriculum and integrated systems. Students were asked to complete the questionnaire honestly because gathered data would be used in improving the quality of teaching clinical skills.

Students were asked to assess their mastering clinical skills on a (1-5) scale, 1= Don't master,2= Master in week proficiency, 3= Master in moderate proficiency, 4= Master in high proficiency, 5= Master in very high proficiency. Self evaluation were compared with their score from final skills exam according to chick list for every system to assess the minimum necessary level of clinical skills expected from graduating medical students, using the same (1-5) scale.

We compared the assessments scores of exams (chick list results) with students' self assessment scores.

Statistical analysis

Data was entered & analyzed using SPSS program version 13. The mean for each group of skills was calculated by summing up all grades in

the group and dividing it with number of skills in the group. In addition, to the standard method to determine means, SD,SEM, t-test is used to test the feasibility of the scale, to compare the means of total degree of self evaluation between third and fourth levels and between males and females, and also is used to compare the means of exam degrees between third and fourth levels and between males and females.

Results:

Table (1): Frequency of skill mastering:

skill		Don't master	Master in week proficiency	Master in moderate proficiency	Master in high proficiency	Master in very high proficiency	weighed mean	Overall mastering
mastering musculoskeletal system skills	Count	**7**	**17**	**111**	**13**	**7**	**2.9**	Master in moderate proficiency
	%	**4.5%**	**11.0%**	**71.6%**	**8.4%**	**4.5%**		
mastering respiratory system skills	Count	**1**	**10**	**53**	**60**	**31**	**3.6**	Master in high proficiency
	%	**.6%**	**6.5%**	**34.2%**	**38.7%**	**20.0%**		
mastering cardio vascular system skills	Count	**2**	**2**	**33**	**72**	**46**	**3.9**	Master in high proficiency
	%	**1.3%**	**1.3%**	**21.3%**	**46.5%**	**29.7%**		
mastering GIT skills	Count	**1**	**2**	**37**	**66**	**49**	**3.9**	Master in high proficiency
	%	**.6%**	**1.3%**	**23.9%**	**42.6%**	**31.6%**		
mastering Hepatobilliary system skills	Count	**1**	**15**	**35**	**53**	**51**	**3.8**	Master in high proficiency
	%	**.6%**	**9.7%**	**22.6%**	**34.2%**	**32.9%**		

Mastering of musculoskeletal system skills is weaker than other systems because the percent of students who master skills of musculoskeletal system in weak proficiency or do not master them at all is nearly 15%. This may be explained by the difficulty of that branch or due to it studied in the 2nd academic year when students acquisition of skills still lower than that of students in upper levels. More than half of students(59%) masters respiratory skills in high or very high proficiency. Nearly two thirds of students master the skills of cardiovascular, GIT and hepatobiliary systems in high or very high proficiency. This may be resulting from the fact that the students in late 3rd year become have more skills or may be these branches are more easy comparing to the musculoskeletal and respiratory systems.

Table (2) : Comparing the difference of skill mastering between levels:

skill	level 3			level 4			t	Df	P value	Mean Difference	95% Confidence Interval of the Difference	
	N	Mean	SD	N	Mean	SD					Lower	Upper
Mastering musculoskeletal system skills	**75**	**2.92**	**.93**	**80**	**2.92**	**.00**	**.011**	**153**	**.991**	**.001**	**-.20**	**.20**
Mastering respiratory system skills	**75**	**3.82**	**.70**	**80**	**3.42**	**.67**	**3.65**	**153**	**.000**	**.40**	**.18**	**.62**
Mastering cardio vascular system skills	**75**	**4.18**	**.65**	**80**	**3.70**	**.68**	**4.54**	**153**	**.000**	**.49**	**.27**	**.69**
Mastering GIT skills	**75**	**4.12**	**.75**	**80**	**3.76**	**.69**	**3.03**	**153**	**.003**	**.35**	**.12**	**.58**
Mastering hepatobilliary system skills	**75**	**4.23**	**.75**	**80**	**3.41**	**.81**	**6.54**	**153**	**.000**	**.83**	**.57**	**1.07**

There is no difference in means between level 3 and level 4 in musculoskeletal skills (p value >0.05), but in other subjects showing significant differences. The mean difference in mastering respiratory skills is higher in 3rd level. The same thing has to said in mastering of cardio vascular, GIT and hepatobilliary skills. These differences between 3rd and 4th levels may be referred to the improvement of the training or due to the more recall of skills between 3rd level students as they just finished study when they filled out the questionnaires, in contrast to 4th level students who studied these skills the year before and so this affects their recalling.

Table (3): Comparing the difference of skill mastering between males and females:

skill	males			Females			T	df	P value	Mean Difference	95% Confidence Interval of the Difference	
	N	Mean	SD	N	Mean	SD					Lower	Upper
Mastering musculoskeletal system skills	**85**	**2.92**	**.60**	**70**	**2.92**	**.71**	**-0.03**	**153**	**0.98**	**0.00**	**-0.21**	**0.20**
Mastering respiratory system skills	**85**	**3.51**	**.71**	**70**	**3.75**	**.70**	**-2.14**	**153**	**0.03**	**-0.24**	**-0.47**	**-0.02**
Mastering cardio vascular system skills	**85**	**3.88**	**.71**	**70**	**4.00**	**.71**	**-1.06**	**153**	**0.29**	**-0.12**	**-0.35**	**0.10**
Mastering GIT skills	**85**	**3.81**	**.70**	**70**	**4.08**	**.77**	**-2.28**	**153**	**0.02**	**-0.27**	**-0.50**	**-0.04**
Mastering Hepatobilliary system skills	**85**	**3.69**	**.85**	**70**	**3.95**	**.92**	**-1.84**	**153**	**0.07**	**-0.26**	**-0.54**	**0.02**

There is no significant difference in mean between males and females in musculoskeletal skills, cardiovascular skills and hepatobilliary skills (p value >0.05), but in other subjects (mastering respiratory skills, mastering GIT skills) there are higher means in females than males and these differences are significant(p value <0.05).

Table (4): comparing the exam scores between 3rd and 4th level sexes:

Factor		No.	Mean	P value	Mean Difference	SD	95% Confidence Interval of the Difference	
							Lower	Upper
level	**3rd level**	**75**	**87.15**	**.167**	**.772**	**3.861**	**-.325**	**1.869**
	4th level	**80**	**86.38**			**3.03**		
sex	**males**	**85**	**86.49**	**.316**	**-.563**	**3.12**	**-1.668**	**.542**
	females	**70**	**87.06**			**3.84**		

The exam score of 3rd level students is higher than that of 4th level. Also the exam score of females is more than that of males. But non of these differences is statistically significant (p value >0.05).

Table (5): distribution of sample according to exam rating :

Exam rating	No.	%
Good	**4**	**2.6%**
very good	**119**	**76.8%**
Excellent	**32**	**20.6%**

Total	**155**	**100.0%**

The distribution of samples according to exam rating were ranged between (2.6%) good, very good (76.8%) and (20.6%) excellent.

Table (6): Distribution of exam rating according to level and sex:

Factor	Exam rating		good	very good	excellent	Total
level	**3rd level**	No.	**3**	**51**	**21**	**75**
		%	**4%**	**68%**	**28%**	**100%**
	4th level	No.	**1**	**68**	**11**	**80**
		%	**1.3%**	**85%**	**13.8%**	**100%**
sex	**Males**	No.	**2**	**69**	**14**	**85**
		%	**2.4%**	**81.2%**	**16.5%**	**100%**
	Females	No.	**2**	**50**	**18**	**70**
		%	**2.9%**	**71.4%**	**25.7%**	**100%**

There is no significant difference in mean between males and females in musculoskeletal skills, cardiovascular skills and hepatobilliary skills (p value >0.05), but in other subjects(mastering respiratory skills, mastering GIT skills) there is higher means in females than males and this difference is significant(p value <0.05).

Table (7): Correlation between exam score and self evaluation degree:

	Measurement of correlation	Total degree of self evaluation
Exam degrees	**Pearson Correlation**	**.699**
	P value	**.000**
	N	**155**

There is a positive correlation between exam score and total degrees of self evaluation (Pearson correlation = 0.699) and this correlation is statistically significant (p value <0.001). Regression is computed. Relationship between the predictor (exam degrees) and dependent variable(total degree of self

evaluation) found to be linear. Adjusted R^2 = 0.485, Beta = 3.38, constant = -185.82

Discussion

Clinical skills and theoretical knowledge are two equally important parts of medical education. Lack of clinical skills is often a source of insecurity for physician and represents potential danger for the patient(3). Medical curricula are changing all over the world (39), and many new approaches are being tested (15,33).The necessity of learning skills through "integrated skills training" at graduate level has been supported by several studies (13)(26).

Because of its accessibility and low cost, a questionnaire is often used to assess clinical competence although the validity of self-assessed performance is found to be low or moderate(23)(34) (35).

Results in this study showed that student's self- evaluation had highly significant correlation with those of their skills exams in medical skills laboratory with P value 0.0001. Mastered medical skills among these students had significantly high. Students had higher scores in some groups of skills, which can be explained by better organization of clinical skills teaching in these subjects, or by higher student interest in these skills. Also, there was no significant difference in mean between males and females in musculoskeletal skills, cardiovascular skills and hepatobilliary skills (p value >0.05), but in other subjects(mastering respiratory skills, mastering GIT skills) there is higher means in females than males and this difference is significant(p value <0.05). female students had higher scores in GIT, respiratory system and probably because they were more inclined to these specific skills.

Our results was same as the results from Austeralia that students self evaluation showed significant correlation with those of their tutor(13) and differ from study in Croatia that the student self-assessd level of clinical skills that was lower than that expected by their teachers(23). It also differ from the studies from Great Britain, Denmark, Belgium, show that Low scores in all groups indicate that there is need for improvement (,3,4-31). We also compare mastering of clinical skills between third year and fourth year students and there was no significant difference between level 3 and level 4 in musculoskeletal skills(p value >0.05),

and their self evaluation were moderate low in muscluskeletal system and they need more training for improvement. Other subjects(mastering respiratory skills, mastering cardio vascular skills, mastering GIT skills, mastering hepatobilliary skills) there is higher means in level 3 than level 4, and this difference is significant(p value <0.05). Students may have had the induced better recall due to extensive basic clinical training and assessment throughout the integrated curriculum and students ability to achieve their medical skills should be assessed directly. In some medical schools, clinical skills laboratory and assessment introduced early in the medical curriculum and combined with longitudinal skills training has been stimulating for students to improve their skills (22,29) On the other hand, some countries, such as the US and Canada, introduced the Clinical Skills Assessment (CSA) as a part of National Licensing Examination to obtain a better insight in clinical skills teaching (39).Self – evaluation of professional skills is recognized to be an essential requirement in medical education. Faculty development should be supported and adequately resourced.

Conclusion:

Students self- evaluation of clinical skills was correlate their scores in medical skills exams and skills training is more effective as a method of learning basic clinical skills and students improved in their medical skills across the training in skills laboratory.

Skills laboratory appear to result in students performing more skills during basic years of their study and additional clinical skills training has a positive influence on students self- assessed level of clinical skills.

Further research is necessary to ascertain whether training in medical skills laboratory result in enduring outcomes in both improved medical skills training and a capacity to self-assess.

Tomorrow's physicians must learn to access, retrieve, interate and apply medical skills. Focusing on acquiring clinical skills during integrated curriculum in basic medical academic years will increase their medical skills.

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الجمهورية اليمنية
جامعة العلوم والتكنولوجيا

استمارة لتقييم مدى اكتساب طلاب المستوى الثالث و الرابع /طب بشري للمهارات السريرية

أولا: للأسئلة أدناه ، الرجاء وضع إشارة في المربع الذي يلاءم اختيارك

❖ من خلال التدريب الذي تلقيته في معمل المهارات الأساسية، اجب عن الأسئلة التالية:

-Regarding musculoskeletal system, do you find yourself mastering the skill of:

No.	Question	Master in very high proficiency	Master in high proficiency	Master in moderate proficiency	Master in week proficiency	Don't master
1.	Examination of upper limb joints					
2.	Examination of lower limb joints					
3.	Examination of spine					
4.	diagnosis of Fractures by (X-Ray)					
5.	perform a cast (Plaster of Paris (P.O.P))					

- Regarding respiratory system, do you find yourself mastering the skill of:

No.	Question	Master in very high proficiency	Master in high proficiency	Master in moderate proficiency	Master in week proficiency	Don't master
6.	History taking & Symptomatology					
7.	Inspection & Palpation of Chest					
8.	Percussion & Auscultation of Chest					

- Regarding cardio vascular system, do you find yourself mastering the skill of:

No.	Question	Master in very high proficiency	Master in high proficiency	Master in moderate proficiency	Master in week proficiency	Don't master
9.	History taking & Symptomatology					
10	Inspection & Palpation of Percordium					
11	JVP Examination					
12	Auscultation of Heart Sounds					
13	perform ECG					
14	perform CPR					

- Regarding GIT, do you find yourself mastering the skill of:

No.	Question	Master in very high proficiency	Master in high proficiency	Master in moderate proficiency	Master in week proficiency	Don't master
15	History taking & Symptomatology					
16	Abdominal Inspection					
17	Abdominal Palpation					
18	Abdominal Percussion					
19	Abdominal Auscultation + DRE					

- Regarding Hepato billiary system, do you find yourself mastering the skill of:

No.	Question	Master in very high proficiency	Master in high proficiency	Master in moderate proficiency	Master in week proficiency	Don't master
20	History taking & Symptomatology					
21	General Patient's Examination in Hepatobiliary diseases					
22	Liver & Gall Bladder Examination " Palpation & Percussion"					

- Regarding other skills, do you find yourself mastering the skill of:

No.	Question	Master in very high proficiency	Master in high proficiency	Master in moderate proficiency	Master in week proficiency	Don't master
23	urinary Catheterization					
24	C.P.R & 1st aid					
25	Management of trauma, burns &					

	other emergency conditions					
26	**N.G. tube insertion**					
27	**Wound suturing**					
28	**Injections (IM, SC, ID)**					
29	**Injections (IV, canuola)**					
30	**reading CT-scan & MRI**					