

An Audit of Technical Skills Training of Nigerian Medical Students: the Olabisi Onabanjo University College of Medicine (OOUUCOM) Experience

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ABSTRACT

Traditionally, a physician's competence in basic technical skills has been assumed by virtue of his or her having attended medical school. The purpose of this study was to survey the basic technical skills of our final year medical students as well as to determine to what extent these skills are being taught in formal instruction at the Olabisi Onabanjo University College of Medicine (OOUUCOM). This may provide a baseline for future assessment of any changes in the curriculum. A questionnaire was administered to all the 2006 final MBChB Medical students of OOUUCOM. The items on the questionnaire were designed explicitly to collect information on medical technical skills. The responses were analyzed using Statistical Package for Social Sciences (SPSS Inc. Chicago, IL) software version 10.0. A p -value < 0.05 was considered as statistically significant. The response rate was 85.6% (154 out of 180 students). 80(51.9%) of the respondents were males while 74 (48.1%) were females. The mean age was 26.78 ± 2.32 years; (male 27.38 ± 2.53 , female 26.11 ± 1.85). The mean year in the medical school was 6.86 ± 0.70 years. 75.3% of the respondents agreed that medical students should be proficient in routine technical procedures. Venepuncture (98.7%), intravenous cannular placement (80.6%), and foleys catheter placement (79.2%) were procedures that majority of the students had proficiency to perform. A significant proportion of these students were not proficient in performing some basic technical procedures such as lumbar puncture, suturing of laceration, incision and drainage, insertion of IUCD and thoracocentesis. There is a need to incorporate teaching of a course or workshop on technical procedures in the OOUUCOM curriculum.

Keywords: *Medical technical skills, curriculum, Nigeria.*

INTRODUCTION

Olabisi Onabanjo University College of Medicine (OOUUCOM) established in 1982, is famous as the oldest and the most distinguished state owned medical school in Nigeria. It was established to cater for the medical needs of the people of Ogun State of Nigeria in particular, and the country in general. One of the goals of the Institution is "to produce doctors who are capable and willing to provide healthcare in any part of the community, be it rural or urban, and in either a primary, secondary or tertiary healthcare facility". The traditional lecture oriented curriculum is currently been used.

However, recently innovative medical programs such as Problem-based Learning (PBL) have been introduced worldwide, and more and more medical schools have started to introduce these programs. The Department of Medicine of the Olabisi Onabanjo College of Medicine first introduced PBL in 2004, on a trial basis. We decided to apply the program first to the fourth year medical students. The reason for running the program in an extracurricular fashion is to find out whether the innovative program can fulfill the requisites of the current traditional curriculum.

Traditionally, a physician's competence in basic technical skills has been assumed by virtue of his or her having attended medical school. The Medical Schools Objectives Project (MSOP) report of the Association of American Medical Colleges (AAMC) published in 1998 [1], listed the minimum routine technical procedures a medical student in the United States is expected to be competent to perform before graduating. Such guideline is not available in most developing countries of the world.

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In OOUCOM, and indeed in Nigerian medical schools generally, there is no formal method for training students to perform clinical procedures, a deficiency that may be corrected by a change in the curriculum. The institution however requires that students keep a log of completed technical procedures.

The purpose of this study was to survey the basic technical skills of our final year medical students as well as to determine to what extent these skills are being taught in formal instruction at OOUCOM so as to provide a baseline for future assessment of the newly introduced PBL.

METHODS

A questionnaire was administered to all the 2006 final MBChB Medical students of OOUCOM. The items on the questionnaire were designed explicitly to collect information on medical technical skills. The first item measured the respondents' agreement with the statement, "Graduating medical students should have acquired proficiency to perform routine technical procedures" on a 4-point Likert-type scale (1 - strongly disagree; 4 - strongly agree). The second item, answered by Yes or No, asked if the institution required students to keep logs of completed procedures. The third item asked who, if applicable, taught a course, workshop, or lab of technical procedures (consultants, PhD lecturers, residents, student peers, or others). The fourth question was, "What percentage of medical students graduating from your institution are proficient to perform each of the following procedures?" The list of technical procedures is displayed in Appendix 1. All of the questions, except the second question about logs, had space for open-ended comments. The questionnaire required only about five minutes to answer.

The responses were analyzed using SP-SS software version 10.0. Statistical Package for Social Sciences (SPSS Inc, Chicago, IL). A p value < 0.05 was considered as statistically significant.

RESULTS

Responses were received from 154 (85.6%) of the 180 final year medical students who were about four weeks to their final year MBChB examinations. 80 (51.9%) of the respondents were males while 74 (48.1%) were females. The mean age was 26.78 ± 2.32 years; (male 27.38 ± 2.53 , female 26.11 ± 1.85). The mean year in medical school was 6.86 ± 0.70 years. Twenty six (16.9%) of the respondents have

had another academic degree (male 20.0%, female 13.5%). Thirty one (20.1%) of them intended to pursue a surgical specialty like surgery, obstetrics and gynecology etc compared with 36 (23.4%) who intended to specialize in non surgical field like pediatrics, internal medicine, psychiatry etc. There was no statistical difference between the two as far as gender is concerned. Eighty seven (56.5%) students were undecided concerning intended specialty.

Concerning the issue 'graduating medical students should have proficiency to perform routine technical procedures,' 116 (75.3%) of the respondents agreed with the statement. However, the females significantly agreed with the statement compared with the males ($p = 0.037$) as shown in table 2. Furthermore, compared with the males, the females significantly responded that they were expected to log the procedures they performed ($p = 0.009$). The consultants and the resident doctors were the major teachers of technical procedures as shown in table 2.

The technical procedures with the abilities of the students to perform them are listed in table 1. Table 2 shows the responses of the graduating medical students. Venepuncture (98.7%), intravenous cannular placement (80.6%), foleys catheter placement (79.2%) and cardiopulmonary resuscitation (71.4%) were procedures that majority of the students had proficiency to perform. The females were more proficient than the males to perform such procedures like suturing lacerations, nasogastric tube placement and cardiopulmonary resuscitation while the males were more able to do intubation of adults and children than the females.

DISCUSSION

While the "science of medicine" has made spectacular advancements in the western countries over the past half-century, the curriculum that should deal with educating medical trainees in developing countries is still considered inadequate. The question of students' competence in technical skills has increased significantly in the western countries, as the movement for accountability in physicians' performance gains momentum. Beginning in 2005, the United States National Board of Medical Examiners requires medical students to pass an examination of clinical performance before being licensed to practice medicine[2]. Therefore, finding out how medical schools are instructing and evaluating students in technical skills is important to all involved in medical education. No local data have been

Table 1: Lists the percentages of graduating students' proficiency in performing each of the technical procedures listed.

Procedures	Male = 80		Female = 74		Total = 154		<i>P - value</i>
	Freq	%	Freq	%	Freq	%	
Venipuncture	78	97.5	74	100	152	98.7	0.171
IV cannular placement	76	95.0	62	83.8	138	89.6	0.356
Arterial puncture	12	15.0	10	13.5	022	14.3	0.800
Thoracocentesis	08	10.0	06	08.1	014	09.1	0.814
Lumbar puncture	30	37.5	24	32.4	054	35.1	0.682
Placement of nasogastric tube	36	45.0	44	59.5	080	52.0	0.073
Placement of foleys catheter	62	77.5	60	81.1	122	79.2	0.584
Suturing laceration	28	35.0	38	51.4	066	42.9	0.040
Normal vaginal delivery	38	47.5	38	51.4	076	49.4	0.407
Cardiopulmonary resuscitation	52	65.0	58	78.4	110	71.4	0.066
Intubation of child	12	15.0	02	02.7	014	09.1	0.009
Intubation of adult	16	20.0	06	08.1	022	14.3	0.041
Intubation of neonate	04	05.0	04	05.4	008	05.2	0.878
Dilatation & curettage	08	10.0	00	00.0	008	05.2	0.019
Incision & drainage	32	40.0	34	45.9	066	42.9	0.456
Insertion of IUCD	14	17.5	18	24.3	032	20.8	0.257
Assisted in surgery	34	42.5	38	51.4	072	46.8	0.271

published in any Nigerian medical College of Medicine regarding the status of instruction and evaluation in basic technical skills till date. We undertook this study to determine to what extent basic technical skills are being taught in formal instruction in our institution and how student competence in these skills is being evaluated. Ours is the first of such studies in Nigeria

with a view to improving the overall quality of medical professionals.

The mean number of years the respondents spent in the medical school was unduly prolonged (6.86 ± 0.70 years vs the usual 6years) due to incessant industrial disputes involving different cadre of staff of the university and / or the teaching hospital.

Table 2: The responses of the graduating medical students

	Male = 80		Female = 74		Total = 154		P- value
Mean Age	27.38 ± 2.53years		26.11 ± 1.85years		26.78 ± 2.32years		0.001
Should acquire proficiency	54	67.5%	62	83.8%	116	75.3%	0.037
Student keep logs of procedures	64	80.0%	66	89.2%	130	84.4%	0.009
<i>Who teaches technical skills</i>							
A- Consultants	38	47.5%	28	37.8%	66	42.9%	
B- Residents	18	22.5%	20	27.0%	38	24.7%	
C- A & B	12	15.0%	14	18.9%	26	16.9%	
D- Others	00	00.0%	02	02.7%	02	01.3%	
E- B & D	08	10.0%	06	08.1%	14	09.1%	
<i>Intended specialty</i>							
Surgical	16	20.0%	15	20.3%	31	20.1%	0.747
Non surgical	20	25.0%	16	21.6%	36	23.4%	
Another academic degree	16	20.0%	10	13.5%	26	16.9%	0.283

The response rate of 85.6% can be said to be fairly representative of the study population. Most of the respondents (75.3%) agreed that medical students should be proficient in routine technical procedures. Most students considered themselves to be proficient in performing venipuncture, IV placement, Foley catheter placement, and cardiopulmonary resuscitation. Ironically, few students, however, were proficient in intubation, which is at variance with the claim of been proficient in cardiopulmonary resuscitation! Furthermore, a significant proportion of these students were not proficient in performing some basic technical procedures such as lumbar puncture, suturing of laceration, incision and drainage, insertion of IUCD and thoracocentesis. That gives cause for concern.

Although about 16.9% of the respondents had a first degree in another profession; this appears not to influence the degree of proficiency in technical

procedures. So also is the choice of area of specialization (surgical vs non-surgical).

Generally there is a need to inculcate teaching of a course, workshop, or laboratory on technical procedures in the OOUCOM curriculum. Commendable is the observation that OOUCOM require students to keep logs of completed procedures. This practice is currently being encouraged in all Nigerian medical schools since it ensures active participation of students.

There is a trend toward PBL in American medical education [2]. PBL is a form of education in which information is mastered in the same context in which it will be used. PBL is a student-driven process in which the student sets the pace and the role of the teacher becomes one of guide, facilitator, and resource. PBL creates a stimulating and supportive environment in which to teach and learn. Its educational efficacy has been well established [3].

PBL emphasizes meaning/understanding rather than routine learning and memorizing. [4-7]. A strong group of PBL supporters have long argued the advantages of a well-planned and implemented PBL curriculum over a lecture-based format, visualizing this model as a new paradigm in medical education (5,8-10). However, others have complained that there are disadvantages to PBL as well as not enough evidence of its value. The pros and cons of PBL continue to be debated in the literature. [5, 11, 12].

The belief in PBL as the best substitute for the traditional lecture oriented curriculum, the temptation to get on the bandwagon so as to not be perceived as behind the times, and a "pioneer" mentality may lead many schools in developing countries to attempt to create "pure" PBL curricula at their institutions. Although it certainly is tempting to incorporate educational innovations from the United States, Canada, and Europe in developing countries, the particular situation of each medical school and its home country must be taken into account when considering curricular changes. The present study is also an attempt at providing a baseline data upon which PBL in OOUCOM may be assessed.

In conclusion, OOUCOM medical students need to be taught how to perform routine technical procedures. There is a need to incorporate this into the College Curriculum. We hope this survey calls attention to this educational need and acts as a stimulus to improve this aspect of our medical education.

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