Comparison of Performance of Graduates in Traditional Curriculum and Graduates in an Organ System Integrated Curriculum from the Same Medical School on the Physician Licensure Examinations

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ABSTRACT

Objective. To compare the performance of graduates in a traditional curriculum and graduates in an organ system integrated curriculum from the same school on the national medical licensure examination.

Methods. The scores of graduates of the University of the Philippines Manila College of Medicine in 2008, taught in the traditional medical curriculum were compared with those of the scores of graduates in 2009, taught under the organ system integrated curriculum, on the Physicians Licensure Examination (PLE) conducted by the Professional Regulation Commission (PRC). Average scores, and scores per subject were compared using t-test.

Results. The graduates of the organ system integrated curriculum (2009) had higher average scores than the graduates of the traditional curriculum (2008). The former also had higher scores in Physiology, Legal Medicine, Pathology, Surgery, Obstetrics and Gynecology, and Pediatrics. The scores of the 2 groups were not significantly different in Biochemistry, Anatomy, Pharmacology and Medicine. The graduates of the traditional curriculum had higher scores in Microbiology and Preventive Medicine.

Conclusion. The graduates of the organ system integrated curriculum (2009) had better over all performance in the physician licensure examinations than the graduates of the traditional curriculum (2008).

Key Words: traditional curriculum, organ system integrated curriculum, physicians licensure examinations

Introduction

The Board of Medical Examiners was created in 1901 by virtue of Republic Act Number 310 which regulated the practice of medicine. Republic Act Number 2382 (as amended by R.A 5946 and R.A. 4224) , known as Medical Act of 1959, provides for and governs the examination for registration of physicians.[1] The Board of Medical Examiners, now called Board of Medicine is one of the regulatory boards of the Professional Regulation Commission (PRC).

The Professional Regulation Commission (PRC) began ranking the different medical schools in the Philippines based on the average passing rate of its graduates in the Physician Licensure Examinations (PLE) in 1997. The University of the Philippines Manila College of Medicine (UPCM) consistently ranked highest until 2010 when it was ranked second.

The UPCM implemented a curricular change in 2004, shifting from the traditional medical curriculum to the Organ System Integrated (OSI) curriculum.[2] In contrast to the traditional curriculum which is subject or discipline-based, the OSI curriculum focused on a meaningful theme in each learning unit or year level, and teaching strategies shifted from large group lecture intensive activities to small group problem-oriented discussions. As a consequence of this, faculty and other stakeholders were apprehensive that graduates under the new curriculum would not fare as well in the PLE. This study was undertaken to compare the performance of graduates of the traditional subject-based curriculum to that of the graduates of the OSI curriculum in the Physician Licensure Examinations.

Methods

Records of graduates of the UPCM in 2008 and 2009 were retrieved and data regarding the following entry characteristics were collected: Pre-medicine degree of lateral entrants, National Medical Admissions Test (NMAT) scores and their pre-Medicine general weighted average grade (GWAG). Data on the medical school general weighted average grade (MedGWAG), average and individual subject scores in the PLE were also retrieved for this study. Collected data was subjected to descriptive statistical tests. The various entry characteristics and MedGWAG and PLE scores were compared and analyzed using the two-sample t test.

Results

Table 1 shows that the entry characteristics of the graduates of the traditional curriculum, namely pre-

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medicine degrees of lateral entrants, NMAT scores and Pre-Medicine GWAG were comparable.

Table 1. Comparison of entry characteristics of the students in the traditional curriculum and organ system integrated curriculum.

	Traditional Curriculum (Class 2008)	Organ System Integrated Curriculum (Class 2009)
Number of students	158	152
Lateral entrants	121	113
Bachelor of Art graduates	2	8
Bachelor of Science graduates	119	105
Direct entrants	37	39
NMAT score (ave)	96	96
Pre-Medicine GWAG (ave)	1.77	1.74

Table 2 shows that the students in the OSI curriculum had a significantly higher MedGWAG than the traditional curriculum. The graduates of the OSI curriculum had statistically significantly higher PLE scores than those under the traditional curriculum (Table 3). Graduates under the OSI curriculum had significantly higher ratings in the following subject: Physiology, Legal Medicine, Pathology, Surgery, Obstetrics and Gynecology, and Pediatrics. On the other hand, the mean ratings of the graduates of the traditional curriculum were higher in Microbiology and Preventive Medicine. No significant difference was noted in the scores of the two groups for Biochemistry, Anatomy, Pharmacology and Medicine (Table 4).

Table 2. General Weighted Average Grade in Medical School (MedGWAG)

Group	N	Mean	Std error	SD	95 % Confidence interval	
Traditional	158	2.123	0.018	0.221	2.089	2.158
OSI	152	2.003	0.012	0.149	1.980	2.027
combined	310	2.065	.0113	0.198	2.042	2.087

P value <0.0001

Table 3. Average scores in the Physicians Licensure Examination (PLE)

Group	N	Mean score	Std error	SD	95 % Confidence interval	
Traditional	158	81.33	0.22	2.77	80.89	81.77
OSI	152	82.20	0.19	2.38	81.82	82.58
combined	310	81.76	0.15	2.62	81.46	82.05

Two- tailed p-value =0.0034

Discussion

The entry characteristics of students did not significantly differ despite the curricular changes. This is expected since the admissions criteria of the UPCM remained the same despite the change in the medical curriculum. The noted similarity in entry characteristics may imply that subsequent performance in the Physician Licensure Examination can be attributed largely to knowledge gained in medical school.

The significantly higher Med GWAG of graduates of the OSI curriculum can be attributed to the institution of new evaluation tools for the new learning activities that were employed for the said curriculum. In contrast to the traditional curriculum where a large portion of student grades was determined by performance in written examinations, in the OSI curriculum, a larger percentage of grades was based on students' performance in the small group discussions and preceptorships. It was observed that faculty members gave very high evaluation scores for the small group learning activities compared to scores attained by students in written examinations.

Graduates of the OSI curriculum were given two-part year end examinations for each academic year level: subject-based and integrative type of examinations. The subject-based portion was provided with the intent of preparing students for the Physician Licensure Examinations as they were similar in structure to the said examinations. This can probably account for the significantly better over-all performance of graduates of the OSI curriculum compared to graduates of the traditional curriculum. Based on these

Table 4. Comparison of the medical board examination scores per subject of graduates in the traditional and OSI curriculum

	Subject	Traditional				OSI				P value
		Mean	SD	Min	Max	Mean	SD	Min	Max	
SO1	BIOCHEMISTRY	81.85	4.48	56	93	82.26	3.13	74	89	0.3546
SO2	ANATOMY & HISTOLOGY	80.75	3.96	66	90	81.27	3.83	63	91	0.2446
SO3	MICROBIOLOGY	↑84.60	3.52	76	91	83.76	3.11	76	91	0.0272 [s]
SO4	PHYSIOLOGY	81.23	3.45	63	88	↑82.66	2.97	66	88	0.0001 [s]
SO5	LEGAL MEDICINE	84.89	2.88	77	91	↑85.76	3.72	72	94	0.0216 [s]
SO6	PATHOLOGY	81.76	3.84	61	92	↑83.57	3.41	72	91	<0.0001 [s]
SO7	PHARMACOLOGY & THERAPEUTICS	80.58	4.49	66	90	80.79	3.33	68	88	0.6357
SO8	SURGERY, OPHTH, ORL	73.24	5.42	57	87	↑75.21	5.59	50	85	0.0018 [s]
SO9	MEDICINE	83.49	2.86	76	89	83.32	2.81	76	90	0.5812
S10	OBSTETRICS-GYNECOLOGY	79.73	4.32	63	89	↑84.39	3.05	76	91	<0.0001 [s]
S11	PEDIATRICS & NUTRITION	78.77	4.18	58	86	↑81.49	2.99	74	90	<0.0001 [s]
S12	PREVENTIVE MEDICINE & PUBLIC HEALTH	↑85.03	2.93	76	93	81.91	2.49	76	88	<0.0001 [s]

[s] *Statistically significant*

comprehensive examinations, students also formulated their own perceptions as to which subjects had less credit load in the OSI curriculum.[3] Among these subjects were Physiology, Pathology, Biochemistry and Pharmacology. Perhaps, as a result of the perceived inadequacy of the OSI curriculum to address the above subjects, students spent more time studying them while preparing for the Physician's Licensure Examinations and subsequently led to better performance in these subjects in the actual examination. A limitation of this study however, is that no attempt was made to quantify the degree to which graduates prepared for each subject in the course of their preparation for the PLE.

Conclusion

Entry characteristics of students were noted to be comparable for both curricula. Hence, it can be inferred that only knowledge gained in medical school influenced subsequent performance of graduates in the Physician Licensure Examination. Analysis of performance of graduates of both curricula revealed that graduates of the OSI curriculum had higher average scores in the Physician Licensure Examinations compared to their counterparts in the traditional curriculum group. As the results showed that this difference was statistically significant, apprehensions of the faculty that graduates of the OSI curriculum would not fare as well as graduates of the traditional curriculum were shown to be unfounded. These results should however be taken with caution as comparisons made were limited to just two groups of graduates. Future studies utilizing data from more batches of graduates from both curricula may provide us with more definite results regarding this matter.

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