

## The 1993 comprehensive examination in medicine: scores of Multiple Choice Question tests.\*

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*This descriptive research aimed to study the 1993 comprehensive examination MCQ test in twelve subjects regarding highest score, lowest score, arithmetic mean, standard deviation and percentage of the three programs (Conventional, MESRAP, CTPB), each program and compared the mean scores among them. The answer sheets of 148 sixth year medical students were scanned by the optical reader. The data was calculated by the LOTUS123 program. The total score of this test was 298. The highest score was 227 (76.17%), and the lowest score was 141 (47.32%). The arithmetic mean was 190.62 (63.97%), and the standard deviation was 17.70 (5.94%). The arithmetic mean of the conventional, MESRAP, CTPB programs were 195.13, 184.76, 173.25, respectively. When compared the mean scores among the three programs, the mean score of the conventional program was higher than MESRAP and CTPB programs which significantly different at level 0.01 ( $p < .01$ ). On average all medical students could receive scores higher than 50% for eleven subjects which included Obstetrics and Gynecology, Surgery, Pediatrics, Medicine, Psychiatry, Preventive and Social Medicine, Oto-laryngology, Radiology, Forensic Medicine, Ophthalmology and Orthopedic Surgery and Rehabilitation Medicine. Only the Anesthesiology subject, the students received scores average 45.27%.*

**Key words:** MCQ, Comprehensive examination, Conventional, MESRAP, CTPB, Test, Score.

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บุญนาท ลายสนิทเสรีกุล, กิจประมุข ตันตยาภรณ์, จิรุตม์ ศรีรัตนบัลล์. คะแนนข้อสอบปรนัย วิชาเวชศาสตร์ทั่วไป ประจำปีการศึกษา 2536. จุฬาลงกรณ์เวชสาร 2537 พฤษภาคม;38(5): 279-291

การวิจัยเชิงพรรณานี้มีวัตถุประสงค์เพื่อศึกษาคะแนนข้อสอบปรนัย วิชาเวชศาสตร์ทั่วไป ปีการศึกษา 2536 ที่ประกอบด้วย 12 รายวิชาในรูปคะแนนสูงสุด คะแนนต่ำสุด มัชฌิมเลขคณิต ค่าเบี่ยงเบนมาตรฐาน และร้อยละ ของนิสิตแพทย์ทั้งสามหลักสูตรรวมกัน (โครงการปกติ, โครงการส่งเสริมการศึกษาแพทย์สำหรับชาวชนบท, โครงการผลิตแพทย์แนวใหม่) และในแต่ละหลักสูตร ตลอดจนเปรียบเทียบคะแนนสอบของทั้งสามหลักสูตร วัสดุที่ใช้ในการศึกษาเป็นกระดาษคำตอบคอมพิวเตอร์ของนิสิตแพทย์ ชั้นปีที่ 6 คณะแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ปีการศึกษา 2536 จำนวน 148 แผ่น นำมาตรวจด้วยเครื่องตรวจข้อสอบ และวิเคราะห์ข้อมูลด้วยโปรแกรมโลตัส 123 ตลอดจนทดสอบค่าสถิติด้วยโปรแกรม EPISTAT พบว่าจากคะแนนเต็ม 298 คะแนน คะแนนสูงสุดเท่ากับ 227 คะแนนหรือร้อยละ 76.17 คะแนนต่ำสุดเท่ากับ 141 คะแนนหรือร้อยละ 47.32 คะแนนเฉลี่ยเท่ากับ 190.62 คะแนนหรือร้อยละ 63.97 และค่าเบี่ยงเบนมาตรฐานเท่ากับ 17.70 หรือร้อยละ 5.94 สำหรับคะแนนเฉลี่ยของนิสิตแพทย์โครงการปกติ โครงการส่งเสริมการศึกษาแพทย์สำหรับชาวชนบท และโครงการผลิตแพทย์แนวใหม่เท่ากับ 195.13, 184.76 และ 173.25 คะแนนตามลำดับ เมื่อเปรียบเทียบคะแนนเฉลี่ยพบว่า นิสิตแพทย์โครงการปกติได้คะแนนเฉลี่ยสูงกว่าอีกสองโครงการ อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.01 โดยเฉลี่ยนิสิตแพทย์ทุกคนสามารถทำคะแนนได้มากกว่าร้อยละ 50 ใน 11 รายวิชาได้แก่วิชาสถิติศาสตร์-นรีเวชวิทยา ศัลยศาสตร์ กุมารเวชศาสตร์ อายุรศาสตร์ จิตเวชศาสตร์ เวชศาสตร์ป้องกันและสังคม โสตนาสิกการังษวิทยา รังสีวิทยา นิตเวชศาสตร์ จักษุวิทยา และวิชาออร์โทปิดิกส์และเวชศาสตร์ฟื้นฟู มีเพียง 1 รายวิชาคือวิชาวิสัญญีวิทยา ซึ่งนิสิตแพทย์ ทำคะแนนโดยเฉลี่ยได้เท่ากับร้อยละ 45.27.

Faculty of Medicine at Chulalongkorn University has started to use comprehensive examination in general medicine to test the sixth year medical students since 1975.<sup>(1)</sup> The students could receive bachelor degree if they had grade point average higher or equal 2.00 and passed the comprehensive examination.<sup>(2)</sup> Measuring instruments which were used in comprehensive examination were the 500 items of multiple choice questions (MCQ) in 1979<sup>(3)</sup> and the 298 items of MCQ with 45 stations of Objective Structured Clinical Examination (OSCE) in 1993. The contents of the test usually covered thirteen subjects<sup>(4)</sup>: Emergency Room and Out Patient Department, Surgery, Medicine, Obstetrics and Gynecology, Pediatrics, Preventive and Social Medicine, Orthopedics Surgery and Rehabilitation Medicine, Psychiatry, Radiology, Anesthesiology, Oto-laryngology, Ophthalmology, and Forensic Medicine. There were 298 items in twelve subjects in the 1993 MCQ test. The test comprised Obstetrics and Gynecology (46 items), Surgery (61 items), Pediatrics (53 items), Medicine (63 items), Psychiatry (8 items), Preventive and Social Medicine (24 items), Oto-laryngology (6 items), Radiology (8 items), Anesthesiology (11 items), Forensic Medicine (5 items), Ophthalmology (5 items), and Orthopedics Surgery and Rehabilitation Medicine (17 items). The sequence of items were mixed because sixth year medical students would be general practitioners (GP). Consequently, they should be able to solve mixed problems.

Scriven<sup>(5)</sup> noted that evaluation played many roles in education such as 1)to provide a basis for decision making and policy formation 2)to assess student achievement 3)to evaluate curricula 4)to accredit schools 5)to monitor expenditure of public funds and 6)to improve educational materials and programs. Educators had a professional responsibility to appraise the quality of their school programs, and they should constantly seeked ways of improving that quality.<sup>(6,7)</sup> In academic year 1993, there were 148 sixth year medical students from three programs [Conventional,

Medical Education for Students in Rural Area Project (MESRAP), Community-Targeted Problem-Based (CTPB)] who had taken the examination. The comprehensive examination committee used the standard criteria of comprehensive examination which adapted from the Medical Council's standard criteria in planning, organizing, assessing and reporting. They provided their judgements of successes and failures, strengths and weaknesses to the Faculty Committee for final judgement. The comprehensive examination was an essential process for keeping the standard of the curriculum for each program and could improve the quality of medical education. Since 1985 there is no paper reported on scores of MCQ test of comprehensive examination, Faculty of Medicine, Chulalongkorn University. The authors, therefore, would like to provide the information about the MCQ test. Educators who have concerns could review and compare results with those reported by similar entities or endeavors.

## Objectives

1. To study the 1993 comprehensive examination MCQ test in each subject regarding highest score, lowest score, arithmetic mean, standard deviation, and percentage for the :-
  - 1.1 whole three programs.
  - 1.2 conventional program.
  - 1.3 MESRAP program.
  - 1.4 CTPB program.
2. To compare the MCQ score among three programs.

## Definitions

1. **Standard criteria of comprehensive examination**<sup>(8)</sup> Faculty of Medicine at Chulalongkorn University set standard criteria for comprehensive examination based on the Medical Council's standard criteria. There are thirteen subjects which include Emergency Room and Out Patient Department, Sur-

gery, Medicine, Obstetrics and Gynecology, Pediatrics, Preventive and Social Medicine, Orthopedics Surgery and Rehabilitation Medicine, Psychiatry, Radiology, Anesthesiology, Oto-laryngology, Ophthalmology, and Forensic Medicine. In each subject, there are specific objectives and course outline. The Comprehensive Examination Committee might use these table of specification to construct the MCQ test.

**2. Medical Education for Students in Rural Area Project (MESRAP)<sup>(9)</sup>** This is the second medical curriculum of Faculty of Medicine, Chulalongkorn University which was established in 1976. The student would be selected from eight provinces in the eastern region of Thailand and four provinces in the southern part of the northeastern area.

**3. Community-Targeted Problem-Based Medical Education Program (CTPB)<sup>(10)</sup>** This is the third medical curriculum of Faculty of Medicine, Chulalongkorn University which was established in 1988. Candidates must be graduates of any curriculum except health sciences and have taken 26 credits of basic science. To be eligible, they also must pass a rigid screening conducted by the institution.

## Population, Materials and Method

**1. Population :** There were 148 sixth year medical students from three programs. The number of medical students of conventional, MESRAP and CTPB were 97, 39, and 12 students respectively.

### 2. Materials

2.1 One set of microcomputer Model 80386.

2.2 One set of printer 24 pins.

2.3 One set of optical reader machine OPSCAN Model 5.

2.4 TOOLS: Software for optical reader machine.

2.5 Word Processing Softwares (QEdit, WordPerfect).

2.6 Electronic Spreadsheet Software (LOTUS123).

2.7 Statistics Software (EPISTAT)

2.8 148 copies of the comprehensive examination MCQ test.

2.9 148 sheets of the computer answer sheet.

2.10 Diskettes

2.10.1 5 1/4 inches, Double Sides, High Density.

2.10.2 3 1/2 inches, Double Sides, High Density.

### 3. Methods

3.1 Collect students' answer sheets after examination.

3.2 Use optical reader machine scanned answer sheets for getting raw data. The machine will be given raw data as shown in Fig.1 and Fig.2.

Name	Type	Len	Start	End
NCS Header	Reserved	40	1	40
IDNO	Numeric	10	41	50
CODE	Numeric	3	51	53
SUB1	Numeric	5	54	58
SUB2	Numeric	5	59	63
SUB3	Numeric	5	64	68
SUB4	Numeric	5	69	73
SUB5	Numeric	5	74	78
SUB6	Numeric	5	79	83
SUB7	Numeric	5	84	88
SUB8	Numeric	5	89	93
SUB9	Numeric	5	94	98
SUB10	Numeric	5	99	103
TOTAL	Numeric	5	104	108
ANSWERS	1 digit item	150	109	258
CR/LF	Reserved	2	259	260

Figure 1. Data file structure which set up for OPSCAN.

		029										
			030									
				019								
					020							
						011						
							005					
								005				
									014			
										017		
3145016	600	015	016	016	014	005	004	004	009	010	0093	
3145031	600	021	023	018	013	005	005	003	010	011	0109	
3145049	600	018	016	017	014	005	004	004	007	007	0092	
3145056	600	013	020	017	016	004	005	004	009	006	0094	

Figure 2. A sample of raw data created by OPSCAN.

3. Use word processing software prepared raw data. The raw data was prepared to be data file for exporting to spreadsheet program.

4. Run program LOTUS123 and import the data file in it.

5. Sort worksheet based on CODE and IDNO. The code 600, 700 and 800 are conventional, MESRAP and CTPB programs, respectively.

6. Use LOTUS123 program calculated statistics indices such as percentage, maximum score, minimum score, arithmetic mean, and standard deviation.

7. Prepare worksheet to be 4 sub-worksheets such as 1) scores for total students 2) scores for conventional students 3) scores for MESRAP students and 4) scores for CTPB students.

8. Use EPISTAT program compared the mean of MCQ scores among three programs by the one-way ANOVA and compared between two programs by the independent sample t-test.

## Results

1. The total score of 12 subjects in the 1993 comprehensive examination MCQ test, was 298. The highest score was 227 or 76.17% and the lowest score was 141 or 47.32%. The arithmetic mean was 190.62 or 63.97% and the standard deviation was 17.70 or 5.94%. When classified by curriculum, in conventional program, the highest score was 227 or 76.17% and the lowest score was 157 or 52.68%. The arithmetic mean was 195.13 or 65.48% and the standard deviation was 15.35 or 5.15%. In MESRAP program the highest score was 218 or 73.15% and the lowest score was 141 or 47.32%. The arithmetic mean was 184.76 or 62.00% and the standard deviation was 18.34 or 6.16%. In CTPB program the highest score was 203 or 68.12% and the lowest score was 145 or 48.66%. The arithmetic mean was 173.25 or 58.14% and the standard deviation was 16.90 or 5.67%. [Table 1.] When compared among three program, the means of these samples were significantly different at

level 0.01 ( $p < 0.01$ ). The mean of MCQ score from conventional program was higher than the mean of MCQ scores from MESRAP and CTPB programs significantly at level 0.01 ( $p < 0.01$ ). When compared between MESRAP and CTPB, the means of these two

samples were not significantly different. [Table 2.] When ranked scores of 148 sixth year medical students, the top four were the conventional medical students. The MESRAP medical students with the highest score ranked number five and the CTPB medical student who had the highest score ranked number forty-one.

**Table 1.** Highest score, Lowest score, Mean and Standard deviation of the 1993 Comprehensive Examination MCQ Test.

Program	No. of Students	Highest score	Lowest score	Mean	S.D.
Conventional	97	227 (76.17%)	157 (52.68%)	195.13 (65.48%)	15.35 (5.15%)
MESRAP	39	218 (73.15%)	141 (47.32%)	184.76 (62.00%)	18.34 (6.16%)
CTPB	12	203 (68.12%)	145 (48.66%)	173.25 (58.14%)	16.90 (5.67%)
<b>Total</b>	<b>148</b>	<b>227</b> (76.17%)	<b>141</b> (47.32%)	<b>190.62</b> (76.17%)	<b>17.70</b> (5.94%)

**Table 2.** The comparison of means, the 1993 Comprehensive Examination MCQ Test.

PROGRAM		
Conventional vs MESRAP vs CTPB	F = 12.75197	$p < 0.01$
Conventional vs MESRAP	t = 3.33575	$p < 0.01$
Conventional vs CTPB	t = 4.56237	$p < 0.01$
MESRAP vs CTPB	t = 1.89853	NS

2. For the whole 148 sixth year medical students, some students could make full scores on four subjects such as Oto-laryngology, Radiology, Forensic Medicine and Ophthalmology. There was one student

receiving no score on Psychiatry subject. By average the students could receive scores higher than 50% for all twelve subjects except for the Anesthesiology subject in which they received 45.27% on average.

**Table 3.** Highest score, Lowest score, Mean and Standard deviation of twelve subjects for the whole 148 medical students.

Subject	Total score	Highest score	Lowest score	Mean	S.D.
OB-GYN	46	45 (97.83%)	28 (60.87%)	38.23 (83.11%)	2.95
Surgery	61	50 (81.97%)	24 (39.34%)	39.45 (64.68%)	4.80
Pediatrics	44	36 (81.82%)	19 (43.18%)	29.05 (66.03%)	3.37
Medicine	63	46 (73.02%)	21 (33.33%)	35.07 (55.66%)	4.86
Psychiatry	8	7 (87.50%)	0 (0%)	4.68 (58.53%)	1.29
Preventive Medicine	24	17 (70.83%)	5 (20.83%)	12.47 (51.97%)	2.62
Oto-laryngo- logy	6	6 (100%)	1 (16.67%)	3.47 (57.88%)	1.14
Radiology	8	8 (100%)	1 (12.50%)	4.96 (61.99%)	1.36
Anesthesio- logy	11	9 (81.82%)	1 (9.09%)	4.98 (45.27%)	1.78
Forensic Medicine	5	5 (100%)	1 (20%)	4.26 (85.27%)	0.87
Ophthalmology	5	5 (100%)	1 (20%)	4.10 (82.03%)	0.90
Orthopedic.	17	15 (88.24%)	6 (35.29%)	9.89 (58.19%)	2.09
<b>Total</b>	<b>298</b>				

3. For the 93 conventional medical students, some medical students could make full score on four subjects such as Oto-laryngology, Radiology, Forensic Medicine and Ophthalmology. There was one student receiving no score on Psychiatry subject. On average the students could receive scores higher than 50% for all twelve subjects except for the Anesthesiology subject. They received the average score of 45.83%. [Table 4.]

4. For the 39 MESRAP medical students, some medical students could make full score on three subjects such as Oto-laryngology, Forensic Medicine and Ophthalmology. On average the students could receive scores higher than 50% for all twelve subjects

except for the Preventive Medicine and the Anesthesiology subjects. They received the average score of 49.57% and 43.82%, respectively. [Table 5.]

5. For the 12 CTPB medical students, some medical students could make full score on two subjects such as Forensic Medicine and Ophthalmology. By average the students could receive scores higher than 50% for eight subjects such as Obstetrics and Gynecology, Surgery, Pediatrics, Psychiatry, Radiology, Forensic Medicine, Ophthalmology, and Orthopedic Surgery and Rehabilitation Medicine. There were four subjects including Medicine, Preventive Medicine, Oto-laryngology, and Anesthesiology which the students received scores lower than 50%. [Table 6.]



**Table 4.** Highest score, Lowest score, Mean and Standard deviation of twelve subjects for the 93 conventional medical students.

Subject	Total score	Highest score	Lowest score	Mean	S.D.
OB-GYN	46	45 (97.83%)	32 (69.57%)	38.56 (83.82%)	2.66
Surgery	61	50 (81.97%)	28 (45.90%)	40.73 (66.77%)	4.21
Pediatrics	44	36 (81.82%)	19 (43.18%)	29.58 (67.22%)	3.35
Medicine	63	46 (73.02%)	26 (41.27%)	36.45 (57.86%)	4.10
Psychiatry	8	7 (87.50%)	0 (0%)	4.69 (58.63%)	1.30
Preventive Medicine	24	17 (70.83%)	5 (20.83%)	12.97 (54.04%)	2.50
Oto-laryngo- logy	6	6 (100%)	1 (16.67%)	3.57 (59.45%)	1.12
Radiology	8	8 (100%)	2 (25%)	5.27 (65.85%)	1.27
Anesthesio- logy	11	9 (81.82%)	1 (9.09%)	5.04 (45.83%)	1.72
Forensic Medicine	5	5 (100%)	2 (20%)	4.30 (85.98%)	0.84
Ophthalmology	5	5 (100%)	2 (20%)	4.22 (84.33%)	0.84
Orthopedic.	17	14 (82.35%)	6 (35.29%)	9.76 (57.43%)	1.93
<b>Total</b>	<b>298</b>				

**Table 5.** Highest score, Lowest score, Mean and Standard deviation of twelve subjects for the 39 MESRAP medical students.

Subject	Total score	Highest score	Lowest score	Mean	S.D.
OB-GYN	46	43 (93.48%)	28 (60.87%)	38 (82.61%)	3.34
Surgery	61	46 (75.41%)	24 (39.34%)	37.31 (61.16%)	5.06
Pediatrics	44	34 (77.27%)	22 (50%)	28.49 (64.74%)	3.15
Medicine	63	44 (69.84%)	23 (36.51%)	33.28 (52.83%)	4.52
Psychiatry	8	7 (87.50%)	2 (25%)	4.56 (57.05%)	1.32
Preventive Medicine	24	16 (66.67%)	7 (29.17%)	11.90 (49.57%)	2.50
Oto-laryngo- logy	6	6 (100%)	1 (16.67%)	3.41 (56.84%)	1.17
Radiology	8	7 (87.50%)	1 (12.50%)	4.38 (54.81%)	1.43
Anesthesio- logy	11	8 (72.73%)	1 (9.09%)	4.82 (43.82%)	1.78
Forensic Medicine	5	5 (100%)	2 (40%)	4.33 (86.67%)	0.83
Ophthalmology	5	5 (100%)	1 (20%)	3.74 (74.87%)	0.95
Orthopedic.	17	15 (88.24%)	6 (35.29%)	10.54 (61.99%)	2.45
<b>Total</b>	<b>298</b>				

**Table 6.** Highest score, Lowest score, Mean and Standard deviation of twelve subjects for the 12 CTPB medical students.

Subject	Total score	Highest score	Lowest score	Mean	S.D.
OB-GYN	46	41 (89.13%)	29 (63.04%)	36.33 (78.99%)	2.95
Surgery	61	45 (73.77%)	29 (47.54%)	36.08 (59.15%)	4.29
Pediatrics	44	33 (75%)	23 (52.27%)	26.67 (60.61%)	2.75
Medicine	63	38 (60.32%)	21 (33.33%)	29.67 (47.09%)	5.76
Psychiatry	8	6 (75%)	2 (25%)	5.00 (62.50%)	1.08
Preventive Medicine	24	15 (62.50%)	6 (25%)	10.33 (43.06%)	2.53
Oto-laryngo- logy	6	4 (66.67%)	1 (16.67%)	2.92 (48.61%)	1.04
Radiology	8	7 (87.50%)	3 (37.50%)	4.33 (54.17%)	0.94
Anesthesio- logy	11	9 (81.82%)	1 (9.09%)	5.00 (45.45%)	2.16
Forensic Medicine	5	5 (100%)	1 (20%)	3.75 (75%)	1.09
Ophthalmology	5	5 (100%)	3 (60%)	4.33 (86.67%)	0.85
Orthopedic.	17	10 (58.82%)	6 (35.29%)	8.83 (51.96%)	1.21
<b>Total</b>	<b>298</b>				

## Discussion

The comprehensive examination MCQ test was constructed by the representative of the twelve clinical departments and the medical education unit. They used the standard criteria of comprehensive examination which adapted from the medical council's standard criteria in writing the items. After constructed the test, the committee appraised the test item by item and calculated the minimum passing level. By this way the comprehensive examination MCQ test could be a standard test for assessing the professional knowledge and could be control the standard of teaching in every curricular.

The 1993 comprehensive examination MCQ test had 298 questions. The reliability of this test was 0.85 and the standard error of measurement was 6.90. The difficulty index of the entire test was 0.63 by average.<sup>(11)</sup> It showed that this test was good and the level of difficulty was average. The sixth year medical students could receive scores higher than 50% for all twelve subjects except for the Anesthesiology subject. The Anesthesiology subject had eleven items. The range of difficulty index is 0.19-0.61 and the mean of difficulty index was 0.45.<sup>(11)</sup> These statistics indices showed that the Anesthesiology subject might be a little bit difficult for student.

Both MESRAP and CTPB programs emphasized community-oriented education. The teaching-learning methods put emphasis on student-centered and self-learning. The MESRAP medical students must work extra six weeks in community.<sup>(9)</sup> During the 2.5 years under the Medical Services, the Royal Thai Air Force, the CTPB medical students were rotated to experience all levels of health care -primary, secondary and tertiary -at Bhumibol Adulyadej Hospital, other state hospitals and health centres, learning how to perform under all circumstances and conditions, whether in large hospitals or small community health centres.<sup>(10)</sup> Then both programs medical students should have good knowledge on

community but their mean scores were lower than 50% on the Preventive and Social Medicine subject.

The construction of MCQ test was a hard work and took time. The comprehensive examination committee might check the quality of question such as validity, objectivity, comprehensiveness item by item. The faculty should have 1) the incentive system and accepts this work to be the instructor's work load. 2) the permanent officers who take full response for comprehensive examination. 3) the policy for analysing every MCQ test which has been used in the comprehensive examination and kept them in the item bank and 4) the term of comprehensive examination committee should be two year and the half of members should be change in every year.

## Summary

This descriptive research aimed to study the 1993 comprehensive examination MCQ test in twelve subjects regarding highest score, lowest score, arithmetic mean, standard deviation and percentage for the whole three programs (Conventional, MESRAP, CTPB), each program and compared the mean scores among them. The answer sheets of 148 sixth year medical students were scanned by the optical reader. The data was calculated by the LOTUS123 program. The total score of this test is 298. The highest score was 227 (76.17%) and the lowest score was 141 (47.32%). The arithmetic mean was 190.62 (63.97%) and the standard deviation was 17.70 (5.94%). The arithmetic mean of the conventional, MESRAP, CTPB programs were 195.13, 184.76, 173.25, respectively. When compared the mean scores among three programs, the mean score of conventional program was higher than MESRAP and CTPB programs which significantly different at level 0.01 ( $p < 0.01$ ). On average all medical students could receive scores higher than 50% for eleven subjects which included Obstetrics and Gynecology, Surgery, Pediatrics, Medicine, Psychiatry, Preventive and Social Medicine,

Oto-laryngology, Radiology, Forensic Medicine, Ophthalmology and Orthopedic Surgery and Rehabilitation Medicine. Only the Anesthesiology subject, the students received scores average 45.27%.

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