

An Empirical Study on the Phased Test of National Qualification Examination: Take Qiqihar Medical University as an Example

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Abstract. National medical licensing examination is an admission test of medical students to obtain doctor qualification in our country. By participating in the reform of phased examination, Qiqihar Medical University can not only promote clinical medical students to grasp theoretical knowledge and clinical skills, but also significantly improve the clinical teaching level of our university and standardize medical students' diagnostic and therapeutic behavior. Practice the three-oriented talent training mode of our university.

National Medical Licensing Examination

The National Medical Licensing Examination is to test whether the examinees have the necessary qualifications to engage in the medical industry and whether they have reached the most basic requirements for medical jobs. The National Medical Licensing Examination is also a common form of industry access to the world, and is also the core content of the Law for Licensing Medical Practitioner and the Physician management system. The United States Medical Licensing Examination is generally divided into three stages. The first stage mainly examines the ability to master basic subject knowledge. The second stage mainly investigates the clinical medical knowledge and the ability to communicate with patients and collect and organize information. The third stage mainly examines the ability to manage patients independently as a resident.

In 1998, China stipulated that the country should implement the National Medical Licensing Examination system, and the examination began to move towards the legal system. As a touchstone of clinical medicine teaching quality, the National Medical Licensing Examination of medical practitioners can not only examine the professional knowledge and clinical skills of clinical medical students, but also reflect the teaching quality of universities. So, Medical colleges and universities should improve the passing rate of National Medical Licensing Examination by reforming teaching methods and course evaluation methods.

During the period of medical students in university, there is no National Medical Licensing Examination of the relevant practice qualification examination, and the students don't have the practice license in the clinical practice, the clinical practice effect is poor. In order to improve the aim and purpose of clinical medical education, conform to the law of talent training, meet the needs of society, and cultivate applied talents, the National Medical Examination Center conducts theoretical research on the qualification examination. In 2015, the reform plan of physician qualification examination entered the stage of empirical research, and Qiqihar Medical University, as one of the second batch of pilot units, participated in the empirical research of phased examination.

Empirical Study of Clinical Physician Qualification Examination

The clinical practice qualification examination is conducted in two stages. The first phase occurs when medical students complete a clinical internship. The first stage mainly tests whether medical

students have the basic medical theories, basic knowledge and basic clinical skills necessary for practicing medicine. If medical students could understand and apply important medical knowledge to clinical practice under the guidance of superior physicians. The second phase were conducted one year after graduation, mainly to investigate the ability of residents to independently manage patients and solve practical clinical problems. Those who pass the examination in both stages will be qualified as clinical practitioners.

The first stage is divided into theory test and skill test. The theoretical examination is conducted in the form of computerized examination, divided into 2 units, 200 questions per unit, 1 point per question, 2.5 hours per unit, a total of 5 hours. See table 1 for details.

Table 1 Proportion of theoretical test

content	A1	A2	B1
Preclinical Medicine	45-50%	35-40%	15-20%
Medical Humanities	45-50%	35-40%	15-20%
Preventive Medicine	35-40%	55-60%	3-5%
Clinical Medicine	20-25%	70-75%	3-5%
Total	30-35%	50-55%	10-15%

The clinical basic skills examination mainly examines medical students' medical university collection, physical examination and basic operating skills, and evaluates their communication skills and humanistic care. There are 6 clinical skill tests, each of which lasted for 10 minutes and lasted for 1 hour. The accumulative score of 60 is qualified.

Table 2 Clinical skills assessment project

Test Station	Content	Mode	Time	Point
1	History-taking1	SP	10min	20
2	History-taking2	SP	10min	20
3	Physical Examination1	Manipulation	10min	15
4	Physical Examination2	Manipulation	10min	15
5	Basic Manipulation1	Manipulation	10min	15
6	Basic Manipulation2	Manipulation	10min	15
Total			60min	100

The Organization and Implementation of the Phased Examination in Qiqihar Medical University

Organization and System

In order to ensure complete the work, we have set up a leading group. The vice President in charge of teaching and the vice secretary of the party committee in charge of student affairs is the group leaders. The office is located in the office of academic affairs, and the members are composed of various functional departments, secondary colleges and affiliated hospitals.

In order to strengthen students' attention to the phased examination, we have formulated an implementation plan. The incentive policies on students are as follows: passing "the first unit" theory exam is equal to "major is integrated 1" course pass, "the 2nd unit" pass is equal to "major is integrated 2" course pass, those who fail all need to attend the make-up examination. The person that the result of skill exam passes can enter graduation practice phase, the person that failed needs to attend make-up exam. At the same time, the implementation plan of Qiqihar Medical University on improving the passing rate of national medical qualification examination for practicing physicians in clinical medicine was issued to improve the teaching quality and students' learning ability of Qiqihar Medical University from multiple ways. For example, standardize professional management mode, make scientific teaching plans,conducting simulation tests, developing systematic theory guidance,strengthening skills training and the construction of teaching material.

Improving Basic Conditions

In 2017, more than 1,100 people took the exam. In order to ensure the smooth progress of the examination, Qiqihar Medical University strictly in accordance with the national medical examination center "examination base site facilities requirements", increase the investment in teaching funds, improve the examination room and the construction of skills examination room, to meet the needs of our students in the phased examination. The four skill testing centers is located in the clinical skill experimental teaching center. Clinical skill experimental teaching centers have built standardized OSCE examination stations, and meet the requirements of the national medical examination center.

Strengthen the Examination Team Construction, Ensure to Complete the Examination

Due to the large number of students, the skills examination would take 2 days. Therefore, the selection of examiners of the skills test is particularly important. In order to complete this job well, Qiqihar Medical University employs more than one hundred clinical teachers with seniority as attending physician and experience in invigilator of practice physician skill examination in affiliated hospitals to form the skill examiner database. At the same time, the chief examiner, stationmaster, director of the examination center and director of the computer experimental teaching center are selected and sent to participate in the training class organized by the national medical examination center. In strict accordance with the national medical examination center examination organization implementation of the management requirements, the organization of the examination process, skills implementation requirements and scoring standards for training. Determine the division of labor of each examination link to the person, the responsibility for the person, sign the "confidentiality responsibility", strengthen the sense of confidentiality.

To strengthen the construction of standardized patients in our university, expand the standardized patient base. Through public recruitment, selective selection, special training and expert assessment, our university has selected nearly 100 social personnels of medical professional background to form the standardized patient database. To ensure the success of the skills test.

Division of Cooperation, Manoeuvre in Detail

The teaching vice President organized the relevant departments to hold a phased examination coordination meeting to clarify the responsibilities for each department, divide the work and ensure the smooth operation of the examination. A week before the exam, the office of academic affairs will organize relevant departments to practice the theoretical computer exam and skills exam for many times. The problems found in the practice would be solved quickly to ensure complete the exam. The experts on national medical examination center to come to the examination site, and supervise and appraise the examination preparation and construction.

Improve Student Achievement

The office of academic affairs improves students' grades in variety of ways. At the beginning of the semester, a WeChat group of students will be set up for the phased examination, and the real questions about the medical qualification examination over the years would be released to the WeChat group of students to practice by themselves, get familiar with the phased examination questions, and consolidate their psychological advantages. Using the 24-hour medical channel and the medical education question bank of the People's Medical Publishing House, the basic course and clinical course examination papers would be released to enable students to review step by step and in a planned way. At the same time, clinical department experts WeChat group was established in each affiliated hospital to help students solve their learning puzzles, consolidate knowledge points, and improve their exam scores.

In the Past Two Years, the Results of the First Stage of the Examination were Analyzed

Test Results of the First Stage

In 2017, 1,157 medical students of grade 2013 in Qiqihar Medical University participated in the empirical study of the first stage of the clinical physician qualification examination. 1,148 students participated in the theoretical examination, with an average score of 232.7 and a pass rate of 47.39%. 1,129 people took the skill test, with an average score of 80.20 and a passing rate of 97.87%.

In 2018, 902 medical students majoring in clinical medicine participated in the empirical study of the first stage of the clinical physician qualification examination. 894 students participated in the theoretical examination, with an average score of 257.3 and a theoretical pass rate of 70.70%. 896 people took part in the skill test, with an average score of 81.38 and a passing rate of 98.66%.

Analysis

The theory exam mainly examines students' mastery of basic knowledge, clinical knowledge, humanistic knowledge and preventive knowledge. The author makes a comparative analysis of the theoretical and technical achievements in the past two years. The results are as follows.

Table 3 Comparative analysis of two years' theoretical achievements

Years	Average	Standard Deviation	Median	Minimum	Maximum
2018	257.3	43.0	261	24	360
2017	232.7	46.6	236	73	337

Kolmogorov-Smirnov $Z=5.48$, $P<0.001$, the difference between the two years' theoretical achievements was statistically significant. The 2018 results were higher than in 2017.

Table 4 Comparative analysis of two years' technical performance

Years	Minimum	Maximum	Median	Average	Standard Deviation
2018	43.0	95.1	82.6	81.4	7.0
2017	42.5	95.6	81.7	80.2	7.5

Kolmogorov-Smirnov $Z=1.604$, $P=0.012$, There were statistically significant differences between the two years' skill scores, The 2018 results were higher than in 2017.

The Meaning and Thinking of Examination

According to 2 implementation plans of Qiqihar Medical University, the office of academic affairs has cooperated with all relevant units to implement relevant measures, and Qiqihar Medical University has made great progress in the phased examination results in 2018. The theoretical pass rate of the first stage examination of students in our university has increased by 23.1 percentage points in 2018 compared with that in 2017, and the skill examination has improved by 0.79 percentage points. The participation in the empirical study of the phased examination has significantly improved the teaching quality of our university.

At present, all the skill tests were conducted by examiners selected from the affiliated hospital of the university. The test lasts for about 2 days. The examination time was long, there were many examiners, the work intensity was big, the existence favor divides and so on. In order to ensure the fairness and justice of the examination, it was suggested to establishing the examiners' expert database organized by provincial education and health authorities. To promote the use of Nanjing medical university's 360 degree acquisition of examinee skills video. Examiner background scoring skills assessment, greatly reduce the examiner's work intensity, to maximize the realization of the test of fairness and justice.

The first phase of the national medical examination center has been carried out for 4 years, and the second phase of the first year have been carried out by some colleges and universities. New contradictions and risks arise in the process of examination operation. For example, in order to truly realize the integration with the current medical qualification examination, and gradually replace the current medical qualification examination, it is necessary to not only formulating and revise relevant laws and regulations, but also pay attention to the conflicts between graduate entrance examination, internship and phased examination. Risks of clinical practice and standardized training for resident physicians. The parallel with the two tracks brings new contradictions and risks. In addition, the corresponding make-up examination mechanism can be explored to provide necessary remedial measures for students that fail.

Conclusion

In order to avoid the embarrassing situation that there is no legal basis of students to participate in medical activities during the graduation practice and residency programed, it is an inevitable direction for the reform of the clinical practice qualification examination to issue the "internship certificate" to the graduate practice students through the phased examination of medical practitioners. The promotion and implementation of the practice doctor qualification examination in stages is a reform to meet the requirements of social development and the development of health undertakings, which is consistent with the new training objective of clinical medicine in China. The phased examination is not only conducive to solving the problem that medical students do not have the right to practice medicine at the internship stage, but also conducive to the comprehensive reform of medical education. It also makes the connection between medical education, clinical training and practice qualification examination more reasonable and smooth, and the medical talent training model will gradually develop and improve.

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