Study on the Phased Test of National Qualification Examination for Medical Practitioners: Practice and Reflection

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Abstract. Aiming at the improvement of it system, National Medical Examination Center has carried out the study on the phased test of National Qualification Examination for Medical Practitioners. Meanwhile, the first phase of the phased test of clinical practice physician qualification was implemented in 2015. Qiqihar Medical University is a provincial medical university. It started to participate in the research in 2016 and has been engaged in the research for three consecutive years. Under the guidance of "three-oriented" talent training mode, we have conducted a lot of research and exploration. With the strong support and cooperation of all departments as well as our own active research, the student’s theoretical test scores increased by 23.1% in 2018 compared with that in 2017.

Introduction

The research proves that the phased test can improve the teaching quality of education, and proposes the existing problems and solutions to clinical medicine education.

The ministry of education and other 6 departments promulgated the opinions on deepening the reform of clinical medical personnel training in coordination with medical education collaboration(teaching research [2014] No.2), and put forward the guiding ideology of deepening the reform of clinical medical personnel training: "Guided by Deng Xiaoping Theory, the Important Thought of Three Representatives” and the Scientific Outlook on Development, based on the basic national conditions, draw lessons from international experience, to follow the law of medical education, with "service demand, improve quality” as the main line, with post competency as the guide, medical education collaboration, deepening reform, strengthening standards, strengthening construction, comprehensively improve the quality of clinical medical personnel training, to provide a solid talent guarantee for the development of health and family planning and the improvement of people's health level.” [1]

Aiming at the improvement of it system, National Medical Examination Center has carried out the study on the phased test of National Qualification Examination for Medical Practitioners. Meanwhile, the first phase of the phased test of clinical practice physician qualification was implemented in 2015. Qiqihar Medical University is a provincial medical university. It started to participate in the research in 2016 and has been engaged in the research for three consecutive years. Under the guidance of "three-oriented" talent training mode, our has conducted a lot of research and exploration which are summarized as follows for the discussion of peers.
Introduction to the Phased Examination Design Scheme [2]

Examination Objectives
To evaluate whether the applicant has the necessary professional knowledge and skills.

Examination Standards and Syllabus
The basic requirements of clinical practitioners and the outline of clinical practitioners qualification examination.

Examination Mode
The two-stage examination mode is implemented, including the first stage examination for the qualification of clinical medical practitioners (hereinafter referred to as the first stage examination) and the second stage examination for the qualification of clinical medical practitioners (hereinafter referred to as the second stage examination). Medical students take the first stage examination after completing the clinical theory course. Those who pass the examination may take part in the second stage.

Examination Design
The first stage of the examination mainly tests whether students have mastered the basic medical theories and clinical skills according to the requirements of medical practitioners, and can understand important medical knowledge and apply it to clinical practice under the guidance of superior doctors. It is divided into theoretical examination and clinical basic skills examination.

Theory Test. The total of questions on the theory exam are 400. Among them, basic medicine accounted for 40-45%, medical humanities accounted for 5-10%, preventive medicine accounted for 5-10%, and clinical medicine accounted for 40-45%. Theory exam is divided into 2 units, each unit 200 question, 1 point per question. See table 1.

<table>
<thead>
<tr>
<th>Exam Content</th>
<th>A1</th>
<th>A2</th>
<th>B1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Medicine</td>
<td>45-50%</td>
<td>35-40%</td>
<td>15-20%</td>
</tr>
<tr>
<td>Medical Humanities</td>
<td>45-50%</td>
<td>35-40%</td>
<td>15-20%</td>
</tr>
<tr>
<td>Preventive Medicine</td>
<td>35-40%</td>
<td>55-60%</td>
<td>3-5%</td>
</tr>
<tr>
<td>Clinical Medicine</td>
<td>20-25%</td>
<td>70-75%</td>
<td>3-5%</td>
</tr>
<tr>
<td>Master Count</td>
<td>30-35%</td>
<td>50-55%</td>
<td>10-15%</td>
</tr>
</tbody>
</table>

Exam format: computerized exam.
Duration: 2.5 hours per unit.

Clinical Basic Skills Examination. Medical history collection, physical examination and basic operating skills were examined, and communication skills and humanistic care were evaluated. See table 2.

<table>
<thead>
<tr>
<th>Examination station</th>
<th>Examination content</th>
<th>Examination way</th>
<th>Examination time</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.1</td>
<td>history-taking</td>
<td>SP</td>
<td>10min</td>
<td>20points</td>
</tr>
<tr>
<td>No.2</td>
<td>history-taking</td>
<td>SP</td>
<td>10min</td>
<td>20points</td>
</tr>
<tr>
<td>No.3</td>
<td>Physical check</td>
<td>operational</td>
<td>10min</td>
<td>15points</td>
</tr>
<tr>
<td>No.4</td>
<td>physical check</td>
<td>operational</td>
<td>10min</td>
<td>15points</td>
</tr>
<tr>
<td>No.5</td>
<td>basic operation</td>
<td>operational</td>
<td>10min</td>
<td>15points</td>
</tr>
<tr>
<td>No.6</td>
<td>basic operation</td>
<td>operational</td>
<td>10min</td>
<td>15points</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>60min</td>
<td>100points</td>
</tr>
</tbody>
</table>
Note: Each section should assess students' communication skills and professional qualities of caring. The score accounting for 15%.

The Organization and Implementation of Examinations

Organizational Guarantee

In order to ensure the smooth implementation of the work, an investigation group is formed by the college office, student affairs department, youth league committee, publicity department, training center, modern education technology center, logistics management department, security department, various departments and affiliated hospitals and other departments participate under the lead of the teaching affairs office. The vice-dean in charge of teaching and the vice-secretary of the party committee in charge of student affairs is the group leaders.

Institutional Guarantee

Qiqihar Medical University has established the Qiqihar Medical University clinical practicing doctors' qualifications examination empirical research implementation plan by stages. In the document, the examination contents of basic medicine, medical humanities, preventive medicine and clinical medicine are basically consistent with the corresponding of our university. The requirements are as follows: (1) Unit 1 of the theory exam is equivalent to comprehensive major I, Unit 2 of the theory exam is equivalent to comprehensive major II, all failed subjects need to take a make-up exam. (2) Those who fail in the skills examination need to take a make-up examination, and they can enter the graduation practice stage only after passing the make-up examination. As the program has clear requirements for students, it can ensure that students take the exam seriously. At the same time, the implementation plan of Qiqihar Medical University on improving the passing rate of the national qualification examination for practicing physicians in clinical medicine was issued. The main contents of the plan include: gradually improving the quality of students and standardizing the professional management mode, strengthen the education and guidance of each link, analyze medical examination data and make scientific teaching plan, strengthen the construction of teaching resources and carry out simulation test, develop systematic theory guidance, build a high-quality practical teaching platform and strengthen skills training, strictly control the exit. In order to further to improve the teaching quality of our hospital, we should take the examination of medical practitioners as the guide, strengthen the construction of basic teaching documents and strengthen the construction of teaching style.

The Condition Guarantee of Examination Room

In strict accordance with the national medical examination center "examination base site facilities requirements", in line with the principle of standardization, scientific, standardized, based construction work. In order to ensure the smooth progress of the examination work, the budget was increased by more than 3 million yuan to build the theory and skills examination room. At present our machine to take an examination of the examination room reservation to 1200, the skills testing centres include the first, second and third affiliated hospitals and schools clinical skills experimental teaching centres, all standardized OSCE test stations have been built, and them has reached the national medical examination center's request, has completed two sessions of student's skill examination duty. During the examination, the experts from the national medical examination center came to the examination site to supervise and appraise the examination preparation and construction of our hospital.

Strengthen the Construction of Examination Staff to Ensure the Smooth Progress of the Examination

The Training of Examination Personnel, Information Technology Personnel and Skill Examiners. The examination staff is the director of the examination center and the information technology staff is the director of the computer experimental teaching center of the training center.
In the affiliated hospital, 120 experienced clinical teachers with high seniority and the title of attending physician were selected as the examiners of the skills test. Selection examination personnel, information technology personnel, chief examiner, each station master and each group of outstanding teachers to participate in the training class organized by the national medical examination center. After the training of each group, according to the management requirements of the examination organization and implementation of the national medical examination center, the examination organization and implementation of the process, skill implementation requirements and scoring standards, the examination personnel, information technology personnel, skill examiners, volunteers and other personnel are systematically trained, at the same time, relevant personnel signed the confidentiality responsibility letter to strengthen the sense of responsibility.

The Selection and Training of Standardized Patients. Through published a notice on the Internet, the social public recruitment, to train them professionally, our choose no medical professional background of the social personnel more than 60 people, as a standardized patient and cooperate with the physical examination, test according to the national medical examination center of the file requirements for personalized training, sign the confidentiality responsibility at the same time, strengthen the responsibility consciousness.

The Conduct thorough Rehearsals before the Exam. In order to ensure the smooth development of this work, the vice president of teaching shall organize the relevant departments to hold a coordination meeting before the examination to clarify the responsibilities and division of labor of each department and ensure the smooth operation of each work. At the same time, a week before the exam, all the relevant departments was organized to carry out a thorough exercise, including theory exam and skills exam. Through the exercise, we adjusted at any time and solved the problems found during the exercise, so as to ensure a smooth and foolproof exam.

Analysis of Examination Results

Theoretical Scores of Phased Tests. In 2017, 1,148 people took the exam, with the highest score of 337, the lowest score of 73, and the average score of 232.7,544 people passed the exam, with a passing rate of 47.39%.

In 2018, 894 people took the exam, with the highest score of 360, the lowest score of 24, and the average score of 257.3,632 people passed the exam, with a pass-rate of 70.7%.

The Skills Score of Phased Examination. In 2017, 1129 people took part in the examination, with a minimum score of 42.5 and a maximum score of 95.6, with an average score of 80.2 and 1105 passing, with a passing rate of 97.87%.

In 2018, 896 people participated in the examination, with a minimum score of 43, a maximum score of 95.05, an average score of 81.38, 884 people passed, and the passing rate was 98.66%.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of theoretical exam</th>
<th>Number of theoretical qualified</th>
<th>Theoretical pass rate</th>
<th>Number of skills tested</th>
<th>Pass number of skills</th>
<th>Skill pass rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>1148</td>
<td>544</td>
<td>47.39%</td>
<td>1129</td>
<td>1105</td>
<td>97.87%</td>
</tr>
<tr>
<td>2018</td>
<td>894</td>
<td>632</td>
<td>70.70%</td>
<td>896</td>
<td>884</td>
<td>98.66%</td>
</tr>
</tbody>
</table>

The Analysis of Test Results in stages in 2017 and 2018. Chi-Square $\chi^2=102.0012$, P<0.0001, It can be seen from the statistics that the passing rate of the exam in 2018 is significantly higher than that in 2017, which is of statistical significance.
Discussion on the First Stage of Clinical Stage Examination

The Promotion of College Education and Teaching

In the past, most medical universities focused on scientific research, mainly because the society paid more attention to scientific research results and less attention to teaching quality when ranking universities. The first stage of examination is at the end of the fourth year of study, and the passing rate reflects the teaching quality of the university. Therefore, that will focus on undergraduate teaching to ensure students get better scores of the first stage of examination, which can reflect the teaching strength of the university. By taking part in this examination, the national medical universities can show their training ability and effect, and promote the standardization and homogenization of medical talents training. At the same time can promote the students pay more attention to the theory of learning and skills training at ordinary times, if the first stage test after the formal implementation, not qualified students can't attend the graduation practice, means no qualifications to carry out the work of a doctor so that the implementation of the reform of the school students will be a revolutionary event, it will be a student active learning the strong driving force.

Effectively Solve the Difficulties of Students in the Standardized Training of Interns and Resident Physicians

As is known to all, the students that have practiced or participated in the standardized training of resident physicians immediately after graduation has not obtained the qualification certificate of practicing physicians. According to the interpretation of the law on medical practitioners, personnel of a medical practitioner qualification certificate is not allowed to carry out medical operations in clinical work, it limits the opportunities for students to learn. At the same time, medicine is a practical subject, if students do not have the opportunity to operate, their teaching quality will be affected. After implementation phase examination, students in the clinical phases of qualified examination in the first stage, "intern certificate" issued by state, before clinical phased examination in the second stage, the students have the right to the corresponding internship, effectively solves the difficulties in the process of learning, improve the quality of teaching, to promote the "5+3" training system and the effective link up of the phased examination.

The Problems to be Improved in the Current Plan

At present, according to the empirical research program, students can only take the exam once a year and the exam is very difficult, so the number of students who fail the exam is large, which will affect their inability to participate in the clinical practice in the fifth academic year, and affect their graduation, which is not conducive to the development of students. In terms of system design, consideration should be given to the mechanism of diversion and make-up examination to provide solutions for unqualified students [3]. At present, in the clinical skill operation examination, the examiners are the teachers of our school, so there will be unfair situations in the examination. So the proposal is organized jointly by provincial education department and health and family planning commission, establish expert database of skill assessment, and implement random allocation of examiners between schools. Realize the fairness and justice of the examination, which can reflect the real level of students between universities.

In the process of participating in the empirical research, our has formulated the implementation plan of the phased clinical practice qualification examination, the implementing scheme for improving the pass rate of national licensed physician qualification examination in clinical medicine about Qiqihar Medical University. In order to let students familiar with the national examination mode as soon as possible, consolidate the theoretical knowledge and strengthen the skill operation, it has carried out the following measures, including organizing students to participate in the national unified examination of clinical medicine specialty, released at the 24-hour medical channel network platform for students to counseling video simulation exercises,
skill training and theory, published in the student group of micro letter practitioners qualification exam questions and simulation test, according to exam outline standardization training of students. In the theory of the first stage examination, the passing rate of the theory in 2018 was 23.1% higher than that in 2017, indicating that participating in this study has a significant promoting effect on the teaching quality of our college.

**Conclusion**

In a word, the current situation of medical education in China have no legal basis of students' participation in medical activities through internship and standardized training as resident doctors. It is an inevitable direction for the reform of the clinical medical practitioner qualification examination to implement the phased examination of medical practitioners and award them the "internship certificate". It is hoped that through empirical study, the implementation plan will be improved and perfected continuously, and the existing relevant laws and regulations will be revised at the same time. The implementation of the phased examination of medical practitioners as soon as possible will certainly achieve the expected goals of promoting the reform of medical education in China, integrating with international medical education, and improving the quality of medical students' training, thus laying a solid foundation for the construction of a healthy China in the new era.

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**References**

