

Research and Practice of Medical Personnel Training of "Three Categorization"

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Keywords: Medical practitioner, Phased examination, Medical personnel training.

Abstract. Under the guidance of the "Three-Oriented" talent cultivation mode in our university, the "Three- Categorization" talent cultivation mode is constructively put forward in the clinical medicine specialty. That is, the general clinical talents' training based on the demand of medical practitioners, the specialized talents' training oriented by the actual needs of the healthcare industry and the specific major talents' training targeted at the top-notch personnel. Meanwhile, we have organized our students to participate in the empirical study of the phased examination of Medical Qualification Examination organized by the national medical examination center, and in the process, we have conducted a series of beneficial studies and explorations. As a result, the score of our students in the theoretical examination in 2018 was 23.1 percentage points higher than that in 2017. The research has been proved that the organic combination of the "Three-Categorization" talent cultivation and the phased examination has obvious promoting effect on improving the teaching quality of our university.

Introduction

With the deepening of the medical and health system reform in our country, the medical colleges have to solve these problems, including how to make higher medical colleges and universities personnel training mode to follow the law of development of medical education, medical education standard, accurately grasp the development of times and the post competency requirement for medical personnel training, training high-quality medical talents for the society. According to the national education policy, based on years of exploration and experience in running a university, use the advanced holistic approach to education for reference, our university determined the reform in education starting from the medical personnel training mode. So, in 2011, our university officially put forward and carry out the "Three-Oriented" training mode reform for the target for students' future development, namely the implementation of humanistic quality education oriented by "professionalism" in order to cultivate the doctors with noble humanistic feelings; the implementation of professional quality training oriented by "practicing ability" to train doctors with basic post competence; the implementation of physical and mental quality cultivation education oriented by "social adaptation" in order to train physically and mentally health doctors [1].

In order to meet the present actual demand for primary-level medical and health care talents in China and according to the social demand for different professional types talents, our university has implemented the "Three-Ways" talent development program in training clinical medical science students and constructively proposed the "Three-Categorization" personnel training mode. That is, the general clinical talents' training based on the demand of medical practitioners, the specialized talents' training oriented by the actual needs of the healthcare industry and the specific major talents' training targeted at the top-notch personnel. The aim of this program is to adapt to the growth characteristics of different types of talents, through classified implementation, we can improve the quality of medical personnel training, so that our graduates can possess the abilities of post competency, comprehensive quality, and be welcomed as applied talents by the employers after their graduation.

Cultivate the "Four-can" Medical Talents through the Implementation of the "Three Categorization" Talent Training Mode

The Implementation of General Clinical Talents' Training can Meet the Demand for Primary-level Medical and Health Care.

In order to meet the new situational demand for primary-level medical and health care talents and the requirements of medical reform in China, our university is determined to cultivate the clinical medicine science graduates with overall qualities guided by the "Three-Oriented" talent cultivation mode.

For the assurance of the clinical general section rotation of our students, in order to make students familiar with the basic medical and health conditions in their final clinical practice and to gain the ability of preliminary diagnosis and treatment of mental illness, our students' internship has been intensified for 2 weeks both in community and psychiatry department. Based on the demand for the primary-level medical and health care, our students need to be cultivated as "Four-Can" graduates with professional competence and comprehensive qualities, namely "they can go to the lower level of an organization, they can do the basic level work, they can be retained in the place for a long time and they can do a good job in their position".

The Implementation of the Specialized Talents' Training can Meet the Demand for Deficient Specialist Physician in Primary-level Medical and Health Care.

Guided by the needs of the medical industry, it implements the training mode of assimilation in the early stage and specialization in the later stage. According to their grades in the exam, these qualified students can be registered voluntarily in the specific "2.5+X" talent training program. As a result, the reform of talent training has been intensified. And the reform focuses on the cultivation of talents in the following four majors.

(1)Major in Clinical Obstetrics and Gynecology

Origin: In accordance with the population characteristics of our country, to meet the needs of maternal and child health care, our university opened the specialty of obstetrics and gynecology medical assistant in 1976. Then we begin to recruit the specialty of maternity and child hygiene in 1978, 5-year undergraduate in obstetrics and gynecology in 1986. So far we have already more than 40 years of history.

Training Objective: Based on clinical medical science, our application-oriented medical graduates need to master certain basic theories, knowledge and skills of obstetrics and gynecology. They can also engage in safe and effective medical practice under the guidance of superior doctors.

Training Mode: we adopt the unique four-stage training mode of "2.5+1.5+0.7+0.3 ". In the first stage, students learn public courses and basic medical knowledge in the basic medical school for two and a half years. In the second stage, students will study clinical disciplines and theories of obstetrics and gynecology in a general hospital for one and a half years and conduct clinical observation. In the third stage, the students had a clinical practice in a general hospital for 7 months. In the fourth stage, the students practice in the department of obstetrics and gynecology for 3 months.

The third affiliated hospital of our university undertakes the clinical teaching task of clinical obstetrics and gynecology major. The hospital has a strong team of experienced teachers majoring in obstetrics and gynecology, and has opened dozens of internship bases. During the graduation practice, through a series of standardized clinical practice ability assessment, the practice level of students majoring in obstetrics and gynecology is improved.

(2)Major in Clinical Otolaryngology

Origin: To meet the social actual needs of Otolaryngology doctors, our university has taken the specialized training in this major since 1999.

Training Objective: Based on clinical medical science, our application-oriented medical graduates need to master certain basic theories, knowledge and skills of Otolaryngology. They can also engage in safe and effective medical practice under the guidance of superior doctors.

Training Mode: Cooperated with Chaoju Eye Hospital Group, to train ophthalmic professionals, we adopt the unique four-stage training mode of "2.5+1.5+0.7+0.3 ". In the first stage, students learn public courses and basic medical knowledge in the basic medical school for two and a half years. In the second stage, students will study clinical disciplines and theories of Otolaryngology in a general hospital for one and a half years and conduct clinical observation. In the third stage, the students had a clinical practice in a general hospital for 7 months. In the fourth stage, the students practice in Otolaryngology department in Chaoju Eye Hospital Group for 3 months.

In 2011, our university formally signed the cooperation agreement of "Order-oriented Talents Cultivation" with Chaoju Eye Hospital Group. In 2012, Chaoju Eye Hospital Group invested 2 million yuan in our university to build an ophthalmic experimental teaching center, which provided excellent teaching conditions for ophthalmology practice of this major and other majors. This cooperation conforms to the current situation of the integration of industry and education in higher medical education, and is of certain significance to the cultivation of special application-oriented ophthalmological professionals, the strengthening of school-enterprise cooperation, and the expansion of the social service scope of our university.

(3)Major in Clinical Pathology

Origin: According to the "guidelines for construction and management of pathology department (trial)" issued by the ministry of health, the total shortage of pathologists in China is estimated to be around 100,000, based on the number of every one or two pathologists per 100 hospital beds. In view of the shortage of pathological talents in China and the particularity of the training of pathologists, our university took the lead in setting up the specialty of pathology in China in 2005.

Training Objective: Based on clinical medical science, our application-oriented medical graduates need to master certain basic theoretical knowledge and clinical diagnosis ability of pathology. They can also engage in safe and effective medical practice under the guidance of superior doctors.

Training Mode: relying on the college of pathology with the character of "integration of medical education and research", it adopts the unique four-stage training mode of "2.5+1.5+0.7+0.3". In the first stage, the students learn public courses and basic medical knowledge in the basic medical school for two and a half years. In the second stage, the students study clinical disciplines and theoretical knowledge of pathology in general hospital and pathology diagnosis center for one and a half years, and get early access to clinical pathological diagnosis knowledge during clinical observation. In the third stage, the students take the clinical practice in a general hospital for 7 months. In the fourth stage, the students need to practice pathology knowledge in clinical pathology diagnosis center and practice bases for 3 months.

In 2008, our university integrated the pathology departments of the first, the second and the third affiliated hospitals, and established the clinical pathology diagnosis center of Qiqihar medical university approved by the institutional establishment committee of Heilongjiang province. In 2014, it was upgraded to the college of pathology and established a teaching environment integrating "diagnosing, teaching and researching". Taking the advantage of the clinical teaching resources of our pathology college, strengthening the cultivation of practice and innovation ability, we implement the "Three-Early" educational mode of early contact with clinic, early contact with scientific research and early contact with society. Secondly, in the extracurricular activities, under the teachers' guidance, our students can strengthen their innovation consciousness and ability through taking part in the teachers' scientific research projects. Thirdly, under the guidance of the tutor, the students can take clinicopathological biopsy and postmortem examination. Contacting with the society in the early stage, students' sense of social service and team spirit can be cultivated.

(4)Major in Clinical General Practice

Origin: In 2010, according to relevant national policies and in line with the needs of national medical reform, our university began to recruit rural order-oriented free medical students.

Training Objectives: closely around the basic requirements of community and rural medical and health services and to persevere in the urban and rural grassroots orientation in education, our students need to be cultivated as "Four-Can" graduates with public service awareness, service

ability and health management ability, namely "they can go to the lower level of an organization, they can do the basic level work, they can be retained in the place for a long time and they can do a good job in their position".

Training Mode: it adopts the unique four-stage training mode of "2.5+1.0+1.0+0.5 ". In the first stage, students learn public courses and basic medical knowledge in the basic medical school for two and a half years. In the second stage, students study theoretical knowledge of clinical disciplines and conduct clinical observations in general hospitals. In the third stage, the students have a clinical practice in general hospitals. In the fourth stage, our students' internship in these hospitals will be added for half a year, including township hospitals, community health service centers, infectious disease hospitals, maternal and child health care hospitals and basic level general hospitals. The training of general clinical pathology talents attaches importance to the training concept of community service and the training mode of "early clinical, multiple clinical and repeated clinical". Our graduates will be cultivated as "six- in- one" general clinical pathology talents with the knowledge and ability in prevention, health care, diagnosis, treatment, rehabilitation and health management.

Cultivating Specialized Talents to Meet the Demand for Excellent Talents at the Grassroots Level.

Origin: with the aim of cultivating top-notch talents and following the laws of modern medical education, we set the goal to cultivate medical talents who can adapt to the requirements of new medical concepts and new medical models, with broad foundation, strong ability, high quality and great potential. In 2008, we began to recruit the "Experimental Classes" students in clinical medicine, for the purpose of exploring the students' personal potential, cultivating their industry-leading potential and innovative consciousness, so that they will be the comprehensive quality applied talents who can adapt to the new medical model after graduation.

Training Objectives: To train the students to be such applied graduates who can adapt to the medical progressive environment and have a solid foundation of theory, knowledge and skills in basic medicine science and clinical medicine, at the same time, they also have good professional quality, the abilities of life-long learning, social adaptation and preliminary clinical practice and innovation spirit. Under the guidance of mentors, they can engage in a safe and effective medical practice.

Training mode: Carry out the new educational and cultivate strategy of excellent medical talents through the implementation of six special tasks, that is "excellent students, excellent teachers, excellent environment, excellent courses, excellent practice and excellent management".

In order to promote the educational and teaching reform, the curriculum plan of experimental classes is formulated in a way of point-to-area. The curriculum system is reorganized with the main line of "Organ System", realizing the integration of basic medicine courses, clinical medicine courses and basic and clinical medicine courses.

Integrated Curriculum Based on Functional Modules: aiming at cultivating students with future post competence, this training program designs an integrated curriculum system based on the "System-functional Domain" module to further integrate the similar functional organ system into the internal environmental stability. According to the "Functional Modules" the curriculum of basic medicine, preventive medicine and other courses should be re-integrated into five system-functional curriculum modules, such as the macro and micro structure of human body, which can strengthen the integration of knowledge, reduce the division between disciplines, and establish the connection of core functions between systems.

Curriculum Integration Based on the Clinical Situation: Display the knowledge and scene of contact between the doctors and patients in sequence. In the process, we set up unique "Doctors and Patients" bridge course integrated by these subjects, including diagnostics, medical ethics, health law, the characteristic of doctor-patient communication and medical sociology courses. With the help of the bridge course, our students can understand clinical diagnosis, treatment process and the relationship between patients and doctors completely and clearly in early time. At the same time, it

can promote students to form communicative consciousness, legal consciousness and consciousness of responsibility through learning the theoretical knowledge communicative ability.

Student-centered Teaching Method Reform: teachers are encouraged to promote different kinds of teaching method, including PBL, TBL, CBL, sandwich teaching, micro-teaching, flipped classroom, experiential teaching, situational teaching and so on, so as to improve students' participation and effectiveness in learning and stimulate their enthusiasm for learning.

Through the integration of multiple disciplines, the integration of medical and humanistic disciplines and the application of student-centered teaching methods, students will develop strong innovation ability, independent learning ability, clinical thinking ability, social adaptability, teamwork spirit and sense of cooperation.

Research on the Phased Examination of Physician Qualification

In order to improve the national medical qualification examination system, the national medical examination center has carried out a study on the examination of doctor qualification in stages, and implemented a two-stage examination mode, including the first stage examination of clinical medical qualification and the second stage examination of clinical medical qualification. The first stage of examination is arranged when medical students complete clinical observation, and are qualified in scores can participate in the second stage of examination [2]. In 2015, the state began to implement the first stage of the phased test for clinical practitioner qualification, and our university began to participate in this study in 2016.

The main measures of our university: introduce relevant implementation plan to encourage students to actively participate in the examination; organize students to participate in the national unified examination of clinical medicine; release simulation exercises, clinical skills training video and theoretical guidance for medical qualification examination video on the 24-hour medical channel network platform. Set up student WeChat group to guide students; issue the real questions and mock papers of the qualification examination for medical practitioners in recent years; carry out standardized skills training in accordance with the skills of the examination outline and other measures, so that students can be familiar with the national medical examination mode as early as possible, urged to complete the learning tasks on time, receive the aid-answers and guidance from their teachers, and undergo the intensive training in theory and skills.

The "Three-Categorization" Talent Cultivation Mode Has Made Certain Achievements

Remarkable Achievements in Specialty Construction

The major of clinical medicine were awarded as the key specialty in Heilongjiang province during the periods of "Tenth Five-Year", "Eleventh Five-Year" and "Twelfth Five-Year". In 2013, our university passed the professional certification of clinical medicine issued by the ministry of education. In 2016, we also passed the Evaluation of Undergraduate Education conducted by the Ministry of Education successfully.

The Promotion of Students' Quality Year after Year

From 2011 to 2018, our students have successively participated in eight sessions of National Clinical Skills Competition for higher medical college students and their performance in the competitions has been improved year by year. Starting from the memorial award in the northeast competition area, our students has successively won the third prize, the second prize, the first prize and even the special prize, and participated in the national finals twice and won the third prize.

At present, there are more than 2,000 graduates majoring in obstetrics and gynecology, and the employment rate is over 92% in the past five years. Six groups of Ophthalmic directional students signed by "Order-oriented Talents Cultivation" for Chaoju Eye Hospital Group have already graduated and more than 30 students have been employed by Chaoju Eye Hospital Group. We have trained 456 excellent pathologists for the society, and the employment rate of our pathology graduates is 100%, among which 6 graduates are employed in Peking union medical college

hospital. At present, 4 years 263 in total graduates of general medicine majors have graduated successfully, and all of them have been employed in township medical and health institutions, which has effectively alleviated the shortage of health personnel at the grassroots level. At present, 350 graduates have graduated from the "Experimental Class" of specialized talents training, 98.7% of them have passed the examination of cet-4, 68.24% of cet-6, and 51.32% of postgraduate entrance examination.

Since 2016, our university has actively participated in the empirical research work of the phased examination of medical qualification conducted by the National Medical Examination Center. Compared with 2017, the passing rate of the phased examination of medical qualification of our students has increased 23.31%. The passing rate of the national medical qualification examination for medical practitioners has increased year by year, for instance, in 2017 it has increased 4.32% than that is in 2016.

Universal Recognition for Our Graduates

According to a poll conducted by MyCOS, the satisfaction index of our graduates in these aspects are more than 90%, including medical ethics, love for their own work, working attitude, theoretical level, professional proficiency, learning capacity, team spirit, adaptive capacity, communication ability, scientific research capacity and so on. Our graduates are generally accepted by the higher administrative departments, the peers from other universities and people from all walks of life.

Acknowledgement

This research was financially supported by Higher Education Reform Project of Heilongjiang Province in 2018. The project number is SJGY20180578.

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