

# Exploration of the Cultivation Mode of Applied, Composite, and Innovative Talents in General Medicine under the Background of New Medicine

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**Abstract:** The construction of new medicine is a strategic plan proposed by the Party and the state for the development of medical education in the new era, which brings new opportunities and challenges to the cultivation of general medical talents. Based on the connotation of the new medical construction, we will promote the construction of a comprehensive medical talent training system. By creating a characteristic general education curriculum system, building a high-level clinical practice teaching base, creating an innovation and entrepreneurship education platform for the First Affiliated Hospital of Xi'an Medical University, and reforming and improving the internal incentive mechanism for teachers, we aim to cultivate comprehensive medical talents who are “useful, competent, capable, and able to stay,” and contribute to the construction of a healthy China.

**Keywords:** New Medicine; General medical education; Talent cultivation

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## 1. Introduction

The report of the 19th National Congress of the Communist Party of China proposed two important strategies: building a strong education country and implementing a “Healthy China.” Medical education, as an important link between the two major strategies, shoulders the mission of “Healthy China” for national prosperity and strength, while also undertaking the task of building an educational powerhouse for the great rejuvenation of the Chinese nation<sup>[1]</sup>. Therefore, the cultivation of order-oriented general practitioner students with full life cycle health care capabilities, high job competence, and grassroots service awareness must be based on the standards of clinical medical education, closely focusing on the goal of “new medicine” construction, and actively exploring the reproductive model of general practice.

## 2. Deeply understanding the connotation of the “three new” aspects of new medicine and promoting the construction of a talent training system for general practice medicine

Medical education carries the mission of cultivating medical and health talents, and is closely related to the health of the whole nation. The purpose of medical education is to cultivate qualified medical talents, provide high-quality medical and health talent resources for society, and meet the health needs of the people <sup>[2]</sup>. In September 2020, the General Office of the State Council issued the “Guiding Opinions on Accelerating the Innovative Development of Medical Education” (Guobanfa [2020] No. 34), proposing to “place medical education in an important position related to the priority development of education and health care undertakings, based on the basic national conditions, guided by service needs, taking the construction of new medicine as the starting point, focusing on innovating institutional mechanisms, classifying and cultivating research-oriented, compound and application-oriented talents, comprehensively improving the quality of talent training, and providing strong talent guarantee for promoting the construction of a healthy China and safeguarding people’s health” <sup>[3]</sup>. This major deployment has sounded the horn for the construction of a new medical system in China in the new era.

The new era of medicine requires the development of “new medicine,” which refers to the organic integration of the most advanced knowledge and theories in the field of medicine and related disciplines, as well as the most effective practical experience in various clinical specialties, starting from the overall human body. It is also modified and adjusted according to environmental, social, psychological, engineering, and other aspects, making it a new medical system that is more in line with and suitable for human health and disease diagnosis and treatment <sup>[4]</sup>. The new medicine embodies three completely new aspects in medical education. One is the new educational philosophy, which extends medical education from a focus on treatment to prevention and health care, highlighting the concept of holistic health education throughout the entire life cycle and health process. The second is that the new medical field was born in a new era, which emphasizes technological innovation and industrial transformation. It is a development based on and driven by innovation, and the era of technological innovation has provided unprecedented opportunities and impetus for the transformation of the new medical field. Thirdly, the new professional settings will achieve the integration of medicine, engineering, science, and culture, and develop new medical specialties such as precision medicine, translational medicine, and intelligent medicine <sup>[5]</sup>.

The new medical philosophy emphasizes the cultivation of the entire life cycle and health process, which coincides with the goals and job competency system of cultivating grassroots general practitioners. Continuous care is one of the most significant core features that distinguishes general practice medicine from other specialized medicine. This continuous care is not only reflected in the diagnosis and treatment of diseases, but also extends to health services such as prevention, health care, health education, and behavioral intervention during the healthy period. Deeply understanding the connotation of the “three new” in new medicine, promoting medical education and teaching reform guided by the competence of grassroots general practitioners, highlighting the cultivation of full cycle health care ability, and deeply integrating information technology and curriculum construction are the key points to promote the cultivation of grassroots general practitioners in the new era <sup>[6]</sup>. The demand for the construction of new medicine is a new opportunity for the further development of general medical education. Developing general medical education, deepening the reform of rural order-oriented medical student education, and vigorously cultivating general medical talents with the ability to take care of life cycle health are the correct methods to solve the problem of improving life cycle health strategies in

the construction of new medicine.

### **3. Current situation and existing problems of general practice education**

#### **3.1. Unstable ideology of general practice-oriented medical students serving the grassroots**

Targeted medical students work, live, and serve at the grassroots level, and there are certain differences in their career development compared to students with the same educational background. This requires targeted medical students to possess noble medical ethics and dedication. Targeted medical students enjoy national exemptions from tuition fees, accommodation fees, subsidies for living expenses, and targeted employment policies. However, some targeted medical students are influenced by negative ideologies such as utilitarianism, materialism, and hedonism, which lead to their emphasis on practical utility over ideal beliefs, their emphasis on practical rewards over dedication responsibilities, and their unstable thinking and weak will to root themselves in the grassroots and serve the people <sup>[7]</sup>. Therefore, it is necessary to create a distinctive general education curriculum system, integrating medical ethics education and medical humanities education throughout the entire process of medical student training, and cultivating general medical students who can “go down and stay.”

#### **3.2. Further strengthening the cultivation of practical application ability**

The teaching system of applied undergraduate programs must highlight the cultivation of practical abilities, and the cultivation of applied and technical talents requires students to have solid professional skills and outstanding practical application abilities. The process of cultivation should be a gradual integration of theory and practice, and a process of mutual integration between theoretical teaching and practical teaching. Especially in the era of new medicine, modern medical talents not only need to perform medical-related treatment operations, but also need to practice and apply in related fields such as artificial intelligence, information technology, and big data fusion. They should strive for excellence in technology and pursue innovation in practice in order to better promote the development of modern medicine <sup>[8]</sup>. Therefore, relying on the existing clinical training and teaching center, we have further established a comprehensive, specialized, and integrated clinical practice teaching base that is in line with the future development of medical education, in order to cultivate more applied grassroots general medical talents who are “useful and capable” for Shaanxi.

#### **3.3. General medical students have weak innovation and entrepreneurship awareness**

Due to the long class hours and heavy academic tasks of medical students, their employment goals are mainly stable institutions such as hospitals and health institutions. Students generally believe that innovation and entrepreneurship are the behaviors of a few outstanding students who engage in scientific and technological innovation, participate in competitions and win awards, or engage in commercial activities <sup>[9]</sup>. Therefore, most students have weak innovation and entrepreneurship awareness, and lack interest and motivation in innovation and entrepreneurship. We have created a “Western Medicine Affiliated Hospital Innovation and Entrepreneurship Education Platform” to achieve a one-stop experience of “double innovation” resources. Combined with the infiltration of extracurricular activities, scientific research training, subject competitions, and campus cultural environment, we aim to cultivate students’ innovative spirit, entrepreneurial awareness, innovative and entrepreneurial abilities, and entrepreneurial practices. We focus on stimulating innovation and entrepreneurial inspiration and enthusiasm, and improving the implementation effect of innovation and entrepreneurship education.

### **3.4. Insufficient internal teaching motivation among clinical teachers**

Due to various factors such as the hospital's own management system, the actual situation of medical work, the teaching awareness of clinical teachers, and the relatively insufficient emphasis on teaching work, various contradictions between clinical practice and teaching continue to emerge, and there is a lack of internal motivation for teaching work among teaching staff<sup>[10]</sup>. Therefore, it is necessary to explore a systematic, comprehensive, and standardized teacher incentive mechanism to stimulate teachers' attention and enthusiasm for clinical teaching work, in order to solve the problem of insufficient "teaching motivation."

## **4. Implementation strategy for the training mode of applied, composite, and innovative talents in general practice medicine**

### **4.1. Creating a distinctive general education curriculum system**

It is necessary to create a distinctive general education curriculum system, highlighting the humanistic quality education of "loving the grassroots, rooting in the grassroots, and serving the grassroots," integrating medical ethics education and medical humanities education throughout the entire process of medical student training, and cultivating general medical students who can "go down and stay."

- (1) Introduce narrative medicine courses, infuse humanistic values into teaching practice, guide students to elevate their understanding of diseases to respect for life, and make them pay more attention to the quality of life in the modern "biological psychological social" medical model.
- (2) Effectively integrate the courses of general practice medicine with ideological and political education, deeply explore the ideological and political elements contained in the courses, strengthen students' in-depth understanding and recognition of relevant systems such as Healthy China, graded diagnosis and treatment, and family doctors, cultivate students' empathy, and promote students' understanding of the basic general practitioner profession.
- (3) Carry out rich and colorful humanistic quality practice activities to make up for the deficiencies of medical students in humanistic quality, make their knowledge structure more scientific and reasonable, and promote the coordinated development of ideological and moral quality, medical humanistic quality, and physical and mental health quality of targeted medical students.
- (4) Pay attention to strengthening the positive publicity of advanced models and deeds, invite outstanding models rooted in the grassroots to give advanced deeds reports to targeted medical students, guide targeted medical students to firmly uphold their ideals and beliefs, and establish the determination and confidence to root in the grassroots and serve the masses.

### **4.2. Building a high-level clinical practice teaching base, consolidating the professional and technical knowledge of senior students, and cultivating general medical talents who can be used and do well**

#### **4.2.1. Carrying out the "Six Ones" project**

Before the order-oriented medical students enter the internship, they should fully utilize the mentorship system to carry out the "Six Ones" project, that is, to follow the mentor for one outpatient visit, one consultation, one ward round, participate in one small lecture or medical record discussion, write a medical record, and enter the operating room. By learning from the mentor system, students can fully improve their doctor-patient communication skills, clinical knowledge level, and consultation abilities. By conducting teaching rounds on a certain case, students can master the diagnostic and treatment thinking of a symptom or similar case, cultivate



the interest of order-oriented medical students in clinical professional knowledge, enhance their clinical logical thinking ability, and improve their clinical professional skills.

#### **4.2.2. Building an open and shared modern clinical skills training platform**

The teaching system of applied undergraduate clinical training must highlight the cultivation of practical abilities. Our clinical training teaching center currently covers an area of over 3000 square meters and is equipped with training equipment worth more than 20 million yuan. It can carry out nearly 100 training projects and has a standardized OSCE examination station. On this basis, we will further construct a comprehensive, specialized, and integrated clinical practice teaching system that adapts to the future development of medical education. Taking our hospital's talent training goals as the benchmark and cultivating outstanding doctors as the goal, we will strengthen the comprehensive cultivation of students' professional quality, basic knowledge, practical ability, and job competence, and build a modern clinical skills training platform that is open and shared with "first-class equipment, first-class teachers, first-class management, and first-class level." Putting students at the center, further strengthening practical skills training, consolidating the professional skills of senior students, and cultivating "useful and well-performing" general medical talents.

#### **4.3. Building an "Innovation and Entrepreneurship Education Platform for the First Affiliated Hospital of Xi'an Medical University" to attract students to engage in exploratory learning and innovative practice, and cultivate innovative medical talents**

The hospital has developed the "The First Affiliated Hospital of Xi'an Medical University Teaching Development and Evaluation Service Platform" in the early stage, which includes two major sections: "Teacher Development" and "Teaching Evaluation." It has achieved information-based teaching evaluation and teacher management. At present, we have launched the "Innovation and Entrepreneurship Education" section on the Education Development and Evaluation Service Platform, which includes four major sections: the latest information, honor list, excellent cases, and college-level cultivation. This has effectively integrated and shared innovation and entrepreneurship resources, provided specialized training and guidance for students to carry out scientific research and technological development activities, and attracted students to engage in exploratory learning and innovative practice.

#### **4.4. Reforming and improving the endogenous incentive mechanism that meets the requirements of high-quality development, improving the incentive-oriented evaluation mechanism, and mobilizing the enthusiasm, initiative, and creativity of clinical teachers**

Reform and improve an endogenous incentive mechanism that meets the requirements of high-quality development, and tilt the performance reform of public hospitals towards teaching; Incorporate teachers' teaching workload, training outcomes, and teaching evaluation results into the professional title evaluation process; Establish a sound incentive-oriented evaluation mechanism, set up special reward funds for teaching and research, and reward departments and individuals who have outstanding performance in teaching work, using this as a lever to fully mobilize the enthusiasm, initiative, and creativity of clinical teachers.

### **5. Conclusion**

The cultivation of general practitioners in the context of new medicine is related to the reform of medical education and the development of the healthcare industry. At present, the promotion of new medicine and

the cultivation of general practitioners in China are still in the early stages of development, and it will take a long time to explore the improvement of the new medical system and the maturity of the general practitioner training model. Medical colleges should take the cultivation of general medical talents as the main line, plan the development pattern of medical education with new concepts, break down the barriers of interdisciplinary integration with new structures, innovate diverse collaborative talent training carriers with new models, enhance the core competitiveness of medical talents with new quality, lead the development of human civilization and medical education reform with new systems, continuously supply general medical talents that meet the requirements of the new era to local areas, and help build a healthy China.

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## Disclosure statement

The authors declare no conflict of interest.

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