

Research on the Cultivation Mode of Clinical Medical Students Oriented by Position Competency under the Background of Medical Education Collaboration

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Abstract: With the continuous development of medical technology and the increasing demand for health among people, the importance of cultivating clinical medical talents has become increasingly prominent. The traditional training model for clinical medical talents often suffers from issues such as the disconnection between theory and practice and unclear training objectives, making it difficult to meet the demand for high-quality medical talents in the modern healthcare system. Against the backdrop of medical education collaboration, this paper explores the construction and innovative practice of a competency-oriented training model for clinical medical students, aiming to provide a reference for improving the quality of clinical medical education in China.

Keywords: Collaboration Between Medical Education and Medical Service; Job Competency; Clinical Medical Students; Training Mode

1. The Importance and Background of Medical-Education Collaboration

1.1 The Importance of Medical Education Collaboration

The collaborative effort between medical education and healthcare, as a strategic initiative for the deep integration of the education system and the healthcare system, is not only a clarion call of the times in response to the wave of medical education reform, but also the inevitable path to promote the high-quality development of medical education. It profoundly embodies the advanced concept of combining theory with practice and seamlessly linking schools with hospitals, aiming to build a comprehensive medical education ecosystem that integrates basic theoretical learning, clinical skills practice,

and scientific research and innovation exploration. Under this model, educational resources and medical resources are optimized, and the path of medical education becomes clearer and more definitive, ensuring that the medical talents cultivated possess not only a solid foundation in medical theory but also excellent clinical practice abilities, thereby injecting continuous vitality and wisdom into the sustainable development of the healthcare industry.

1.2 The Background of the Collaboration between Medical Education and Medical Services

Since the groundbreaking implementation of segmented teaching of basic and clinical medicine by the Johns Hopkins University School of Medicine in the first half of the 20th century, this model has indeed laid a crucial foundation for the development of modern medical education, exerting an influence that transcends national borders and driving innovation in global medical education systems. Nevertheless, as time passes, the segmented teaching model has gradually revealed its limitations, particularly the widening gap between basic medical knowledge and clinical practice, which has become a pivotal factor hindering the improvement of medical education quality.

To address this challenge, educators worldwide have actively explored innovative pathways. These include integrating curriculums to break down traditional disciplinary barriers and foster a deeper integration of basic and clinical knowledge; introducing advanced teaching philosophies such as Problem-Based Learning (PBL) to stimulate students' active learning and cultivate their abilities to solve real-world clinical problems; and establishing medical academic centers to build interdisciplinary

exchange platforms, thereby accelerating the translation of scientific research achievements into clinical applications.

China's modern medical education framework, while drawing on international best practices, has also actively adapted to local realities, continuously optimizing and improving itself. By strengthening the synergy between medical education and healthcare, deepening cooperation between universities and enterprises, and promoting the integrated development of industry, academia, research, and application, China strives to construct a medical talent cultivation system that better meets the needs of the times, contributing to the prosperity and advancement of the medical and healthcare sector.

2. Analysis of Current Status and Deficiencies

2.1 Analysis of Current Status

At present, although the foundation of China's clinical medical talent training system has been laid, it still faces multiple challenges. The traditional education model places too much emphasis on theoretical indoctrination, neglecting the honing of students' practical operational skills and the shaping of professional qualities, resulting in a disconnect between theory and practice. Meanwhile, the training objectives are overly generalized and lack specificity, making it difficult to precisely align with the diversified and sophisticated job requirements of the medical industry. More crucially, the low integration of medical education and clinical practice hinders the seamless transition of students from campus to clinical settings, often leaving them feeling inadequate when first entering the workforce. These issues not only restrict the comprehensive growth of clinical medical talents but also impact the sustainable and healthy development of China's medical and health care sector. Therefore, deepening the collaboration between medical education and clinical practice, and strengthening the competency-oriented training model, have become key issues that urgently need to be addressed.

2.2 The Shortcomings of the Current Training Mode of Clinical Medical Talents

(1) Unreasonable curriculum system: In the traditional medical education system, the curriculum arrangement often appears

fragmented rather than coherent. There is a lack of effective connection between basic medical courses and clinical medical courses, making it difficult for students to integrate basic theoretical knowledge with clinical practice and form a systematic clinical thinking. Meanwhile, the gap between clinical courses and preventive medicine courses also hinders students' comprehensive understanding of medicine, making it difficult to cultivate composite medical talents who understand both treatment and prevention. This flaw in curriculum design seriously affects the integrity and systematicness of students' medical knowledge system.

(2) Deficiency in non-technical skills training: In the process of medical education, excessive focus is often placed on the training of technical skills, such as surgical techniques and diagnostic abilities, while the cultivation of non-technical skills like cooperation, leadership and management, situational awareness, and decision-making is neglected. These non-technical skills are equally crucial in medical practice, as they relate to effective collaboration within medical teams, rational allocation of medical resources, and rapid response in emergencies. Therefore, the lack of non-technical skills training represents a significant shortcoming in the medical education system.

(3) Insufficient practical teaching: Clinical practice teaching is an indispensable part of medical education, yet there are numerous shortcomings in the current teaching process. The construction of the connotation of practical teaching activities such as probation and internship needs to be strengthened, and students often struggle to gain sufficient practical opportunities and in-depth clinical experience. Additionally, the evaluation and quality monitoring mechanisms for practical teaching are inadequate, making it difficult to ensure that students acquire genuinely effective clinical experience and skill enhancement.

(4) Monolithic teaching mode: The traditional teaching mode is centered on "teaching," with teachers dominating the classroom and students passively receiving knowledge. This monolithic teaching mode lacks interactivity and innovation, making it challenging to stimulate students' learning interest and initiative. In today's rapidly developing era of informatization and digitization, medical education necessitates the introduction of more diversified teaching modes,

such as case-based teaching, simulation-based teaching, flipped classrooms, etc., to cater to the demands of the times and the characteristics of students.

3. Training Mode Guided By Post Competency

Job competency refers to an individual's ability to accomplish tasks and achieve performance in a specific job position. In the training of clinical medical talents, job competency serves as a crucial indicator for measuring the quality of training. The training model based on job competency boasts the following advantages:

(1) **Clear Objectives Oriented by job competency**, this training model focuses on equipping clinical medical students with the skills and knowledge necessary for medical positions, enabling them to rapidly adapt to the actual demands of medical work upon graduation. This approach not only emphasizes the imparting of theoretical knowledge but also places greater significance on the cultivation of practical operation abilities, ensuring that students possess the capability to solve real-world problems.

(2) **Enhanced Competitiveness** The training mechanism is grounded on medical market demands, closely linking the skills acquired by clinical medical students with market requirements, thereby enhancing their competitiveness in the job market. Through extensive practical training and clinical internships, students can seamlessly integrate into their work positions upon graduation, becoming practical medical talents.

(3) **Enhancing Practical Abilities** By establishing practical bases and strengthening school-enterprise cooperation, we can provide students with more practical opportunities and high-quality teaching resources. At the same time, emphasis is placed on cultivating students' clinical operation abilities and independent problem-solving skills, enabling them to grow rapidly in clinical practice.

(4) **Facilitating Individualized Development** This model encourages students to selectively deepen their learning and practice in specific areas such as emergency medicine, pediatrics, cardiology, etc., based on their personal interests and career planning. This approach fosters the cultivation of comprehensive yet specialized medical talents. Such individualized development paths help students find their niche in the future medical

field, maximizing their professional value.

4. Construction and Implementation of Training Mode

4.1 Optimize the Curriculum System

To establish a more systematic and comprehensive medical education curriculum system, we propose an integration plan centered on organ systems, coupled with relevant instructional modules. This plan aims to break down barriers between traditional disciplines and foster deep integration between basic medicine and clinical medicine, as well as between clinical medicine and preventive medicine. For instance, in the cardiovascular system module, it not only encompasses fundamental disciplines such as anatomy, physiology, and pathology but also integrates clinical and preventive knowledge from cardiology, cardiovascular surgery, epidemiology, and prevention strategies, forming an interdisciplinary and comprehensive learning unit.

Concurrently, we have organized a team of experts to compile national-level integrated textbooks focused on organ systems, ensuring their cutting-edge, scientific, and practical content. These textbooks will serve as vital resources in medical education, guiding students to comprehend various human body systems from multiple dimensions and fostering their ability to apply knowledge comprehensively.

Moreover, constructing a novel medical examination and evaluation system is also crucial. We adopt a combined approach of formative and summative assessments, utilizing diverse evaluation formats including case analysis, simulated diagnosis and treatment, and team collaboration to comprehensively assess students' mastery of medical knowledge, clinical thinking abilities, and non-technical skills, ensuring they genuinely meet the objectives of medical education.

4.2 Strengthen the Cultivation of Non-Technical Skills

In the core framework of medical education, we explicitly place the cultivation of non-technical skills on an equal footing with professional technical skills. This encompasses not only collaboration capabilities, leadership and management skills, situational awareness, and decision-making abilities but also deeply

intertwines with the nurturing of medical humanities. We have devised a series of innovative teaching strategies, such as leveraging classroom lectures to guide students in understanding the value of non-technical skills in medical practice, utilizing simulation teaching (e.g., simulated operating rooms, emergency scenarios) to hone students' abilities to navigate complex situations in near-real settings, and organizing group discussions to encourage proactive thinking and idea exchange, thereby fostering teamwork and enhancing leadership.

Furthermore, humanistic education, as the soul of medical education, is deeply integrated into the curriculum system. We prioritize cultivating students' empathy, respect for life, and moral judgment in the face of medical ethical dilemmas. By offering courses like medical ethics, medical history, and doctor-patient communication, as well as organizing medical volunteer services and social practices, students are profoundly immersed in understanding the social responsibilities and missions of the medical profession. This comprehensive approach fosters the growth of medical talents who possess not only superb medical skills but also noble medical ethics.

4.3 Improve the Quality of Practical Teaching

To comprehensively establish a clinically practical teaching system that deeply integrates foundational and clinical studies, theory and practice, as well as schools and hospitals, with competency cultivation as its core objective, we have taken a series of comprehensive measures. Firstly, we have strengthened the design and implementation of practical teaching links such as internships and clerkships, ensuring that students can personally experience medical procedures, master clinical skills, and cultivate their abilities to solve practical problems in authentic or highly simulated medical environments. Through carefully designed teaching cases, simulated diagnosis and treatment operations, and opportunities to interact with patients, students continuously trial and error, reflect, and grow in practice, thereby deepening their understanding and application of medical theoretical knowledge.

Furthermore, we emphasize the connotative construction of practical teaching activities, focusing not only on enhancing students' technical skills but also on cultivating their

non-technical abilities such as clinical thinking, team collaboration, communication skills, and professional ethics. By introducing modern teaching methodologies like problem-based learning, case analysis, and flipped classrooms, we aim to stimulate students' active learning interest and facilitate their all-round development.

Simultaneously, we have established a comprehensive evaluation and quality control mechanism, adopting diversified and process-oriented assessment methods to comprehensively evaluate students' performance in clinical practice. Through the establishment of a feedback mechanism, regular evaluations, and continuous improvement processes, we ensure the steady enhancement of teaching quality, thereby creating an efficient, safe, and productive clinical learning environment for students. Ultimately, these initiatives are geared towards fostering highly competent medical talents who can adeptly meet the demands of the future healthcare industry.

4.4 Innovative Teaching Mode

In the field of medical education, we actively advocate and implement the reform of teaching methods guided by student-centered autonomous learning, aiming to build a more open, flexible, and efficient learning environment. To this end, we innovatively introduce modern teaching methods such as TBL (Team-Based Learning), PBL (Problem-Based Learning), and CBL (Case-Based Learning). These models not only enrich teaching methods but also profoundly transform students' learning styles.

Specifically, TBL emphasizes teamwork and interaction, where students complete tasks through group cooperation, fostering knowledge sharing and problem-solving skills among them. PBL revolves around real or simulated clinical problems, guiding students to actively explore, analyze issues, and seek solutions, thereby cultivating their critical thinking and problem-solving abilities. CBL, on the other hand, utilizes typical case studies to help students integrate theoretical knowledge with clinical practice, enhancing their clinical decision-making capabilities.

Meanwhile, we have established a new "blended" teaching model that integrates online and offline, theory and practice, in-class and extracurricular, as well as virtual and reality. The online platform provides abundant teaching

resources, interactive tools, and personalized learning paths to support students' autonomous learning anytime, anywhere. The offline classroom, on the other hand, focuses on in-depth discussions, practical operations, and immediate feedback to ensure learning effectiveness. Furthermore, we encourage students to participate in extracurricular research, academic competitions, social services, and other activities to broaden their horizons and enhance their overall quality.

Through the approach of "interest, guidance, and interaction," we strive to create a positive learning atmosphere. Teachers, as facilitators, design engaging teaching content and activities to stimulate students' interest and curiosity. Simultaneously, students are encouraged to actively participate in discussions, ask questions, and reflect, fostering their habits of autonomous learning and critical thinking abilities. This teaching model not only enhances students' professional competence but also lays a solid foundation for their future careers.

4.5 Personalized Training

In clinical medical education, implementing individualized training programs tailored to different types of students is a crucial measure to enhance educational quality and students' professional competitiveness. For students with years of clinical experience, they often possess solid clinical skills and a certain level of diagnostic and treatment experience, but may lack profound scientific research thinking and methodological training. Consequently, for this group, a series of advanced research courses can be designed, such as clinical trial design, biostatistics, and scientific research paper writing, while encouraging their participation in research projects and fostering close collaboration with mentors to explore and innovate in cutting-edge medical fields. Cultivating their research capabilities not only aids in their growth into leading figures in the medical field but also fosters the deep integration of clinical and basic medicine, thereby advancing medical science.

Conversely, for students lacking clinical experience, the focus should be on clinical practice training. By establishing stable clinical teaching bases, increasing student exposure to patients, and conducting practical activities in various forms like simulated diagnosis and treatment, bedside teaching, and case

discussions, they can gain firsthand insights into the authentic medical work environment and master fundamental clinical skills and operational procedures. Additionally, introducing mentorship and small-class teaching models, where each student is assigned an experienced clinical instructor for one-on-one or group-based guidance, can promptly address issues encountered during practice, ensuring a comprehensive upgrade of their clinical competencies. The implementation of individualized training programs helps fully tap the potential of each student, meets their individualized development needs, and subsequently elevates the overall level of clinical medical education and students' professional competitiveness.

5. Conclusion

Under the background of the collaboration between medical education and healthcare, the clinical medical student training model oriented by job competency holds significant practical and theoretical value. By optimizing the curriculum system, strengthening the cultivation of non-technical skills, enhancing the quality of practical teaching, innovating teaching models, and providing personalized training, we can better cultivate clinical medical talents with high quality, advanced skills, and strong competencies, thereby injecting new vitality into the sustainable development of China's medical cause. In the future, we need to further delve into the implementation details of this model, improve relevant policies and systems, and elevate the overall level of clinical medical talent cultivation.

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