

Homogenization Construction of Three-Level Teaching Bases for General Practice Medicine Under the Internet+ Model

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Abstract: With the continuous expansion of medical student enrollment, the number of clinical teaching bases is gradually increasing. However, there are significant differences in clinical teaching management models and teaching levels among different bases. Most clinical teaching bases have incomplete teaching management systems, inadequate teaching management institutions, insufficient teaching personnel, and inadequate implementation of teaching rules and regulations. This article combines the construction practice of three-level clinical teaching base of the General Medicine College and the First Affiliated Hospital of Xi'an Medical University. We establish a standardized management system for the three-level clinical teaching base; implement a teaching supervision system and strengthen the monitoring of teaching quality; adopt multiple evaluations to test the effectiveness of clinical teaching implementation; explore the path of homogenization construction of teaching bases in terms of unified teacher training, promoting the development of teacher teaching abilities with equal quality and excellence, and providing a reference for improving the quality of medical talent training.

Keywords: Clinical teaching base; Homogenization construction; General practice medicine

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1. Research status and background analysis

1.1. Promoting the homogenization process of clinical teaching bases and ensuring the quality of medical talent cultivation

Medical education carries the mission of cultivating medical and health talents and is closely related to the health of the whole population. 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 ^[1]. Clinical teaching is an important component of medical education and a crucial link in determining the quality of medical teaching, directly affecting the quality of medical talent cultivation ^[2]. As the main battlefield of clinical teaching, the homogenization construction of clinical teaching bases is both a focus and a difficulty

in medical education. The homogenization of clinical teaching is achieved through measures such as teaching systems, teaching methods and means, teacher team construction, and teaching quality assurance system to ensure the homogenization of teaching standards, teaching processes, and teaching effects, thereby ensuring the homogenization of the quality of medical talent cultivation^[3].

In recent years, the country has attached great importance to the quality of clinical teaching and issued a series of documents to promote clinical teaching reform and strengthen the construction of clinical teaching quality. In 2014, the Ministry of Education, the National Health and Family Planning Commission, and six other departments issued “Opinions on Deepening the Reform of Clinical Medical Talent Training through Medical Education Collaboration” (Education Research [2014] No. 2), proposing to improve the standards for clinical medical talent training at all stages and clinical practice teaching and training base standards, and gradually standardize the work of clinical medical talent training^[4]. In 2017, the General Office of the State Council issued the “Opinions on Deepening the Collaboration between Medical Education and Further Promoting the Reform and Development of Medical Education” (State Council Document [2017] No. 63), which further proposed that the collaboration between medical education and medical education should always adhere to the strategic position of prioritizing the development of health and hygiene, accelerate the construction of a standardized medical talent training system, and comprehensively improve the quality of medical talent training^[5]. In 2020, the General Office of the State Council issued the “Guiding Opinions of the General Office of the State Council on Accelerating the Innovation and Development of Medical Education” (State Council Office [2020] No. 34), which once again emphasized that medical education is an important cornerstone of the development of the health industry. Education, health, and traditional Chinese medicine departments need to coordinate medical education, strengthen and standardize the management of affiliated hospitals of universities, and urgently formulate and improve the standards for clinical teaching bases such as affiliated hospitals of universities^[6].

With the continuous expansion of the enrollment scale of medical students, the number of clinical teaching bases is gradually increasing, but the clinical teaching management models of each base vary greatly, and the teaching level is uneven^[7]. Most clinical teaching bases have incomplete teaching management systems, inadequate teaching management institutions, insufficient teaching personnel, and inadequate implementation of teaching rules and regulations^[8]. How to implement the various medical education standards proposed by the Ministry of Education with high quality, that is, how to achieve homogeneous and superior development of clinical teaching quality, has become one of the major problems currently faced by higher medical institutions. Therefore, exploring the homogenization construction of clinical teaching bases is of great significance in improving the quality of clinical teaching.

1.2. Leading education modernization with educational informatization and promoting high-quality development of medical education

On July 23, 2021, the Ministry of Education issued a response to the “Suggestions on Building Science and Technology into the Core Engine of High-Quality Education Development”^[9], which pointed out that the Ministry of Education attaches great importance to and continues to promote the deep integration of information technology and education, implements the Education Informatization Teaching Application Community Project, promotes the deep application of new generation information technologies such as artificial intelligence in the teaching field, and conducts innovative research on education and teaching models and mechanisms based on new technologies. They also deepen the popularization of the “three classrooms” application, fully utilize modern information technology and network conditions, and promote the high-quality and balanced development of education; explore the reform of education evaluation supported by information technology,

establish student comprehensive quality records, and comprehensively carry out the application and service of education management data, providing important support for education management and scientific decision-making.

On March 14, 2021, the Fourth Session of the Thirteenth National People's Congress passed the "14th Five Year Plan for National Economic and Social Development of the People's Republic of China and the Long Range Objectives for 2035" ^[10], which pointed out: "It is necessary to deepen the reform of education evaluation in the new era, establish and improve the education evaluation system and mechanism, and develop quality education. At the same time, we need to leverage the advantages of online education, improve the lifelong learning system, build a learning-oriented society, and promote the open education resources of high-level universities."

Therefore, fully utilizing modern information technology and network conditions, establishing an education evaluation mechanism supported by information technology, while leveraging the advantages of online education and exploring new models of teacher training, is not only a hot topic in current academic research but also a focus of higher education and teaching practice.

In this context, our hospital has made continuous efforts to explore and practice the application of modern information technology in the quality control link of clinical practice teaching and clinical teacher training, established a set of three-level clinical teaching base teaching quality assurance system under the "Internet+" model, built a high-quality clinical teacher team, promoted the teaching level of the clinical base to develop with equal quality and excellence, and guaranteed the quality of medical talent training.

2. Current situation of construction and management of various clinical teaching bases

2.1. The level of teaching management varies among different bases

The enrollment scale of medical students is constantly expanding, and the number of clinical teaching bases is gradually increasing. However, there are significant differences in clinical teaching management models and teaching levels among different bases. Most clinical teaching bases have incomplete teaching management systems, inadequate teaching management institutions, insufficient teaching personnel, and inadequate implementation of teaching rules and regulations. As a result, the college has encountered many problems in coordinating, organizing, and managing its teaching work. The lack of coordination in clinical teaching plans, training programs, teaching reforms, and other aspects has affected the smooth progress of teaching work. Therefore, it is imperative to establish a standardized three-level clinical teaching base management system to ensure the homogenization of clinical teaching.

2.2. The teaching level of clinical teachers in various bases urgently needs to be improved

The quality of clinical practice teaching largely depends on the teaching level, professional knowledge level, and teaching awareness of clinical teachers ^[11]. However, clinical teaching bases generally face problems such as heavy workloads for doctors who undertake teaching tasks, weak teaching awareness, and a lack of systematic training in basic teaching skills. Therefore, we need to standardize the clinical teacher training system in each teaching base, strengthen the education and teaching level of clinical teachers, and achieve the development of the teaching abilities of teachers in each base with equal quality and excellence.

3. Measures taken for the construction of teaching homogenization

3.1. Establishing a standardized three-level clinical teaching base management system to achieve homogenization of teaching management

The First Clinical Medical College, General Medical College, and First Affiliated Hospital of Xi'an Medical University implement a "three-in-one" management model. The college is responsible for coordinating and managing the entire process of clinical teaching in four teaching hospitals and eight community teaching bases. We established a complete three-level clinical teaching base system consisting of the General Medical College (Level 3), four teaching hospitals (Level 2), and eight community health service centers (Level 1) on this basis. The General Medical College takes the lead, with linkage between the upper and lower levels of the tertiary base, clear functions, and each performing its own duties.

Our university has formulated a series of clinical teaching management rules and regulations around clinical practice teaching, including internship teaching standards, teaching rounds, medical record writing, collective lesson preparation, internship teaching management, teaching base construction, management of teaching instructors, and management of internship students. It has organized experts both inside and outside the school, as well as clinical experts from hospitals, to repeatedly revise these documents, making them guiding standard documents for clinical teaching, and ensuring that each clinical teaching base in the university has rules to follow. It is imperative to lead the construction and reform of professional courses, curriculum teaching, and teaching research in various teaching hospitals, and achieve homogeneous management in the formulation of teaching outlines, collective lesson preparation, curriculum exams, skill training, and other aspects. On this basis, we will unify the requirements for talent cultivation and achieve homogenization of clinical teaching content and teaching standards.

Each clinical teaching base strictly adheres to the quality standards of key teaching links during the teaching process, which is an important guarantee of teaching quality. The quality standards for teaching processes not only include teaching content standards based on the teaching syllabus, but also include the qualification requirements, principles, and procedures for teaching teachers in major teaching processes such as theoretical teaching, internships, teaching rounds, bedside teaching, and small lectures; the requirements for teachers to prepare lessons independently and collectively; adhering to the principle of homogeneity but not rigidity, using "Internet+" for collective lesson preparation, demonstration class observation, etc., and coordinating the implementation of clinical teaching details. After teaching the prescribed teaching outline, it is important to encourage the expansion of domestic and international progress, new technologies and methods, etc. in this major and specialty.

3.2. Building a three-level clinical teaching base teaching quality assurance system to achieve homogenization of teaching quality

Using the quality assurance and monitoring system of practice teaching links established at the hospital level in the early stage, a set of teaching quality assurance systems of a three-level clinical teaching base under the "Internet+" model is created, including a clinical teaching supervision system, multiple evaluation systems, and teacher training system (**Figure 1**).

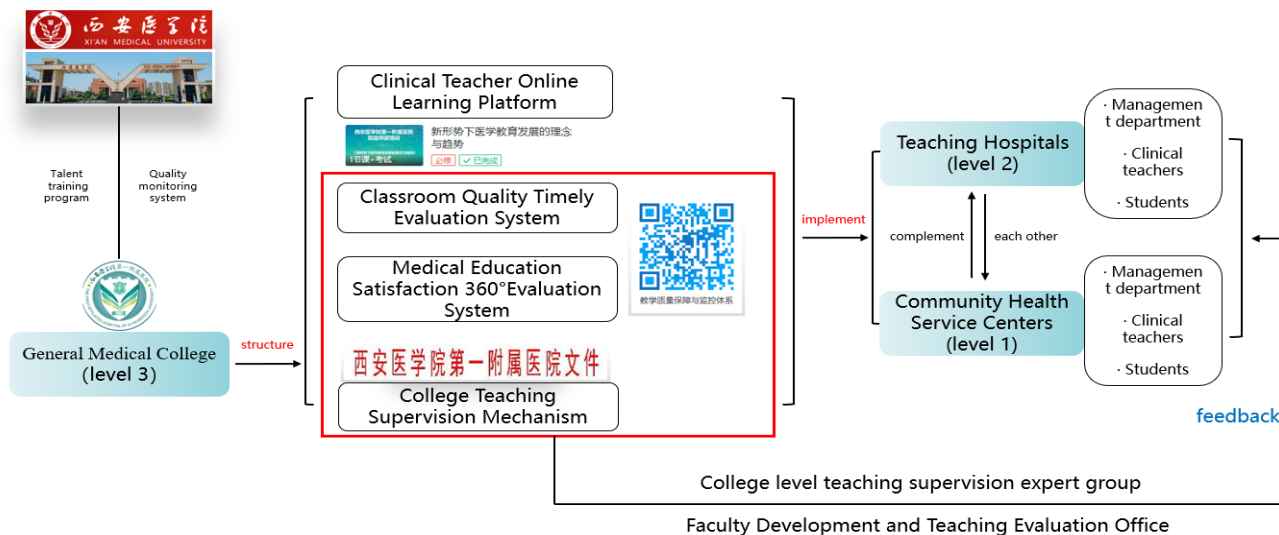


Figure 1. Quality assurance system for teaching in three-level clinical teaching bases

3.2.1. Implementing a teaching supervision system and strengthening the monitoring of teaching quality

A teaching supervision expert group at the college level is established, consisting of experts at the college level, responsible for reviewing the teaching plan, teaching outline, and curriculum system of the clinical teaching base; inspecting, supervising, and providing feedback on theoretical courses, internships, exams, and other teaching processes in various teaching bases. The clinical teaching tasks are uniformly assigned by the school's academic affairs office, and the college implements unified management of each clinical teaching base. The clinical teaching in each hospital is in accordance with the school's unified requirements, and the teaching management process and teaching progress are unified.

3.2.2. Adopting multiple evaluations to test the effectiveness of clinical teaching implementation

Our college has established a relatively complete teaching quality evaluation and monitoring system for clinical practice teaching and has created a teaching quality control model based on the "Internet+" platform by means of informatization, including timely evaluation of classroom quality and 360° evaluation of medical education satisfaction, realizing real-time evaluation, collection, analysis, and feedback of medical education teaching evaluation information. At present, this model has obtained two national-level software copyrights and one school-level teaching achievement award. We are synchronously implementing the "Classroom Quality Timely Evaluation System" and "Medical Education Satisfaction 360° Evaluation System" within the three-level clinical teaching base system, achieving comprehensive, multi-dimensional, and in-depth collection of teaching data in daily life, providing scientific evidence for teaching management personnel to obtain more efficient and reliable quality information, and dynamically and real-time evaluation and feedback for teachers and students, thereby achieving the optimization of teaching effectiveness.

3.2.3. Unifying teacher training to promote the development of teachers with homogeneous and superior teaching abilities

Our college has developed a "three-in-one" information-based teacher management system. By creating a "clinical teacher online learning platform" and conducting a series of "teacher teaching ability improvement training activities" online, we have created a new model of mixed online and offline training, breaking the

limitations of traditional offline teacher training. At present, this model has obtained two national-level software copyrights and one second prize for school-level teaching achievements. Our hospital has selected high-quality and applicable training resources through multiple channels in the early stage and established a teacher training resource library that meets the needs of clinical teacher education and teaching work.

During the implementation of this project, a series of teacher training will be conducted online through the “clinical teacher online learning platform” for various tertiary clinical teaching bases. By utilizing online training to complete the prescribed actions of teacher training, and utilizing offline training and assessment to enhance the connotation of teacher training, a standardized and diversified teacher training model can be achieved through a combination of online and offline training. Ultimately, the teaching abilities of teachers in various bases can be developed with equal quality and excellence.

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