

## Original Paper

# Training and Education System in Chinese Hospital Management: Current Status and Challenges

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### Abstract

*The training and education system in Chinese hospital management is a core component of improving the quality of medical services. Based on nationwide policy analysis, empirical research, and medical school curricula and hospital training case studies, this paper systematically examines the full-cycle training path for medical professionals in China, spanning pre-employment education to in-service training. Key stages include medical school education, standardized residency training, continuing medical education, and specialized in-depth development. Based on nationwide policy analysis, empirical research, and case studies from institutions like Shaanxi Provincial People's Hospital, such as regional resource disparities, work-study conflicts, and formalized evaluation mechanisms. Proposed solutions include optimizing training resource allocation, strengthening information technology, and improving incentive mechanisms as critical directions for future reform.*

### Keywords

*China, hospital management, Healthy China Initiative, medical education, in-service training, continuing medical education, medical human resources*

## 1. Introduction

China's healthcare system represents one of the most comprehensive and expansive medical service networks globally, featuring a distinctive three-tiered structure with public hospitals at its core, complemented by primary care facilities, secondary hospitals, and tertiary medical centers. Against the backdrop of escalating healthcare demands and rapid technological advancements, the professional development and continuing education of hospital management personnel have emerged as critical determinants in enhancing service quality, ensuring patient safety, and realizing the objectives of the *Healthy China Initiative*.

The nation has established a multi-layered training framework that spans from formal medical education to ongoing professional development programs. Nevertheless, this system continues to grapple with several structural deficiencies: pronounced regional disparities in resource distribution favoring eastern regions, with some western county hospitals reporting no access to provincial-level training for physicians in three consecutive years; acute work-study conflicts where clinicians

averaging 10.2 daily working hours achieve only 61 percent training attendance; and overly bureaucratic evaluation mechanisms that disproportionately emphasize procedural compliance (82 percent of metrics) while neglecting substantive clinical competency improvement (merely 17.4 percent).

More profound systemic challenges include evaluation criteria that prioritize form over function and inadequate digital infrastructure resulting in isolated data repositories. In response, this study proposes a tripartite optimization strategy: 1) implementation of a blended “cloud-based simulation + clinical rotation” training model; 2) development of blockchain-enabled credentialing systems; and 3) establishment of integrated training-career-compensation incentive structures. Empirical evidence from Shaanxi Provincial People’s Hospital demonstrates the efficacy of these measures, yielding a 35 percent increase in training participation and 28 percent improvement in clinical skills assessment performance.

This investigation provides both theoretical underpinnings and practical methodologies for enhancing China’s distinctive hospital training paradigm, offering significant reference value for advancing the quality development of healthcare human capital. The findings contribute to ongoing efforts to optimize medical education systems while addressing contemporary challenges in healthcare human resource management in this country.

## **2. Training and Education System in Chinese Hospital Management**

Training and education system in Chinese hospital management at both local, provincial, and national level institutions and hospitals involves different types of pre-service and post-service education and training. Those are discussed below in a nutshell.

### *2.1 Pre-service Academic Education*

China’s medical education system follows a structured pathway for different healthcare professionals. For physicians, the “5+3” model is implemented, consisting of 5 years of undergraduate clinical medicine education followed by 3 years of standardized residency training. Nursing education adopts a tiered approach with both bachelor’s and vocational programs, while allied health professionals typically receive specialized training at technical colleges or above. The curriculum integrates foundational medical theory with hands-on clinical practice through affiliated hospital rotations. In recent years, transitional training programs have been fully implemented, including standardized residency training lasting 3 years and specialized physician training programs to bridge the gap between education and practice.

### *2.2 On-the-job Training*

Upon employment, healthcare professionals undergo orientation programs covering hospital culture, medical information system operations, and emergency protocols. To facilitate smoother transition into clinical roles, most hospitals have adopted mentorship systems where senior physicians guide new recruits, combined with rotational programs across different departments to cultivate comprehensive clinical experience (typically lasting 1-3 years). For ongoing professional development, hospitals employ various approaches: case discussions and surgical observations for in-service training, and off-site programs like national Continuing Medical Education (CME) initiatives. Larger medical institutions have established clinical skills centers with simulation-based training and regularly conduct multidisciplinary team (MDT) case studies. Affiliated university hospitals exemplify the

“clinical-education-research” integration model, effectively combining theoretical knowledge with practical application.

### *2.3 Collaborative Training Programs*

China’s healthcare institutions have established comprehensive collaborative training mechanisms to enhance professional competencies. Most hospitals, particularly primary care facilities, implement domestic exchange programs with top-tier medical centers, while select institutions have developed international training collaborations with prestigious overseas hospitals. To keep pace with evolving healthcare policies, hospitals regularly engage third-party experts to conduct specialized training programs, including DRG payment system implementation, national health insurance policy interpretation, physician-patient communication strategies, and psychological counseling techniques. These external training initiatives effectively complement internal professional development systems.

### *2.4 Graduate Medical Education and Internationalization*

As the cornerstone for cultivating high-level medical professionals, China’s postgraduate medical education has achieved both quantitative expansion and qualitative improvement while significantly advancing international collaboration. The system offers two distinct pathways: research-oriented programs (PhD/MSc) focusing on basic medical sciences, public health, and pharmaceutical research, with graduation requirements including SCI publications (some institutions mandate impact factors  $\geq 3.0$ ); and clinical-oriented programs featuring a “quadruple certification” model integrating academic degrees, professional qualifications, medical licensure, and standardized training certification. These clinical programs require  $\geq 33$  months of rotations while maintaining 20-30 percent research components, culminating in OSCE clinical skills assessments and thesis defenses. Leading medical schools have established prestigious international partnerships, such as the Peking University-Johns Hopkins MPH dual-degree program and Fudan University-Harvard Medical School joint doctoral training. Annually, the China Scholarship Council supports over 1,000 doctoral candidates for 6-24-month research fellowships at Western institutions, substantially enhancing the global competitiveness of China’s medical talent pool.

### *2.5 Professional Development and Career Advancement*

The professional growth of healthcare practitioners in China is significantly reflected through the hierarchical promotion system. For physicians, this system comprises four distinct levels: Resident Physician (junior), Attending Physician (intermediate), Associate Chief Physician (sub-senior), and Chief Physician (senior). The evaluation framework adopts a comprehensive multidimensional approach, with clinical competency accounting for 40 percent of the assessment weight, academic and teaching performance 30 percent, professional ethics evaluation 20 percent, and primary care service experience 10 percent.

The clinical competency assessment incorporates quantitative metrics including outpatient volume, surgical case load, and management of complex medical cases. Academic evaluation in tertiary hospitals emphasizes research output, with institutions like Shaanxi Provincial People’s Hospital implementing a scoring system for publication quality. Teaching performance is assessed through instructional hours, curriculum content, and student examination pass rates. Continuing education requirements include mandatory annual credit accumulation and documented advanced training experience. The professional ethics component incorporates patient feedback mechanisms and analysis of complaint records to evaluate medical conduct.

## 2.6 Specialized Advanced Training Programs

China has developed a comprehensive system for cultivating highly skilled clinical specialists through rigorous training programs. The National Health Commission has officially accredited 136 specialty disciplines with 56 subspecialty divisions, including advanced fields such as interventional cardiology and neuro-oncology. To support this initiative, 189 national-level specialty training centers have been established across the country. The standardized training follows a “3+X” model, consisting of three years of core specialty training followed by additional subspecialty-focused development. The competency-based evaluation system emphasizes three key performance indicators: procedural volume requirements (e.g., a minimum of 200 interventional cases for cardiology trainees), participation in at least 50 complex case discussions annually, and completion of 40 hours of teaching activities each year. This structured approach ensures the development of well-rounded specialists who possess not only technical expertise but also clinical reasoning skills and teaching capabilities, ultimately enhancing the quality of specialized medical care nationwide. The program’s emphasis on both quantitative benchmarks and qualitative development reflects China’s commitment to producing world-class medical specialists.

## 2.7 Case Study Analysis

As a leading tertiary hospital in Northwest China, Shaanxi Provincial People’s Hospital has developed an integrated training system that combines rotation programs, mentorship models, and collaborations with external enterprises for research translation. This innovative approach offers valuable insights for addressing structural challenges in medical talent development. The hospital’s pioneering “progressive rotation system” represents a significant departure from conventional training models. It requires resident physicians to complete structured clinical practice across internal medicine, emergency care, and specialized departments, with objective structured clinical examination (OSCE) assessments at each stage. Since implementation, this system has markedly improved physicians’ comprehensive skill proficiency. In faculty development, the hospital introduced a groundbreaking “dual-mentorship program,” where senior physicians provide simultaneous clinical instruction and research guidance. Through twice-weekly bedside teaching and quarterly research projects, this approach not only enhances practical skills but also cultivates scientific thinking while fostering intergenerational knowledge exchange. The results have been remarkable: participating physicians achieved a 30 percent increase in SCI publications over three years, alongside a 10 percent reduction in surgical complication rates. The hospital’s collaboration with external enterprises has created a dynamic platform for research translation. Companies can identify and support projects aligned with their development needs, which has significantly boosted the hospital’s research commercialization rate while energizing staff engagement in learning and innovation. This successful case study demonstrates the applicability of experiential learning theory in China’s medical education context, establishing a virtuous cycle of “clinical practice → reflective guidance → research application.” The hospital’s experience provides an exemplary model for regional medical centers seeking to elevate training quality despite resource constraints, offering replicable strategies for talent cultivation excellence. Table 1 below summarizes the key stages and characteristics of training and education in China in a nutshell.

**Table 1. Key Stages and Characteristics of China's Hospital Management Training System**

Training Stage	Main Content	Duration	Core Goals
Pre-vocational education	Medical school education (undergraduate/graduate), standardized training of resident doctors (regular training)	5+3 years (Clinical Medicine)	Master basic theories and clinical skills
On-the-job training	Continuing medical education (CME), specialist physician training, management skills training (such as DRG/DIP)	1-3 years (in stages)	Improve professional skills and job adaptability
Collaborative training programs	Comprehensive collaborative training mechanisms and domestic exchange programs with top-tier medical centers	Different durations	Enhance professional competencies
Self-development	Professional title evaluation (clinical ability, scientific research and teaching, medical ethics and style), academic exchanges (at home and abroad)	Lasts a lifetime	Career advancement and academic influence enhancement
Graduate medical education and internationalization	Distinct research-oriented programs (PhD/MSc) focusing on basic medical sciences, public health, and pharmaceutical research, with graduation requirements	Different durations: clinical programs require $\geq 33$ months of rotations	Achieve both quantitative expansion and qualitative improvement with international collaboration
In-dept specialist and advanced training	National key specialty training (such as cardiac intervention and neuro-oncology)	3+X years (subspecialty)	Cultivate clinically applicable talents with high professional quality

### 3. Current Challenges and Key Issues

#### 3.1 Structural Imbalances in Resource Allocation

China's medical training system faces significant regional disparities in resource distribution. A pronounced east-west divide is evident, with eastern regions concentrating 63.2 percent of the nation's training facilities and 71.5 percent of high-quality instructors, while western areas suffer from severe resource shortages. This imbalance is quantifiably demonstrated by the substantial funding gap—tertiary hospitals in eastern China invest an average of 21.5 million yuan annually in training programs, nearly triple the 6.8 million yuan allocated by their western counterparts. The urban-rural divide presents another critical challenge, where physicians at county-level hospitals receive only 1.2 provincial-level training opportunities per year, markedly fewer than the 4.3 sessions available to their urban counterparts. Alarming, a provincial survey revealed that 42.7 percent of healthcare workers in township health centers had not participated in any systematic continuing education programs over a three-year period (National Health Commission Primary Health Department, 2022). These disparities create a self-perpetuating cycle where resource-poor regions struggle to develop and retain qualified medical professionals, ultimately exacerbating existing healthcare inequalities across the nation. The concentration of training resources in developed areas not only limits professional development opportunities for rural practitioners but also undermines efforts to achieve equitable healthcare service quality nationwide. Addressing these geographical and hierarchical imbalances remains a fundamental challenge for China's medical education reform agenda.

#### 3.2 Disparities in Discipline Development

The imbalance in medical discipline development manifests as both a gap between traditional and emerging fields, and unequal resource allocation across specialties. Notably, established specialties like cardiology and oncology dominate training resources, accounting for 58.3 percent of all training programs, while primary care-oriented disciplines such as general practice, pediatrics and psychiatry receive merely 12 percent of resources. This mismatch directly exacerbates workforce shortages in community healthcare institutions. In cutting-edge fields, training coverage for genomics and AI-assisted diagnostics remains below 15 percent, with curriculum updates lagging 2.3 years behind clinical advancements and inadequate for keeping pace with rapid technological evolution.

The disparity extends to subspecialty development: cardiovascular medicine has refined eight distinct subspecialties (e.g., interventional cardiology, electrophysiology), whereas geriatrics and rehabilitation medicine maintain rudimentary training structures. Compounding this imbalance, tertiary hospital accreditation standards prioritize high-tech applications (35 percents) over primary care technologies (8 percent), further skewing institutional priorities toward sophisticated specialties. Most concerning is the self-perpetuating resource allocation cycle: dominant specialties attract disproportionate investments, boasting 3.2 times more faculty and 4.5 times better equipment than underdeveloped disciplines. This "Matthew Effect" entrenches developmental gaps, undermining both systemic healthcare efficiency and the graded diagnosis/treatment system's implementation. The structural inequity ultimately creates parallel challenges—over-concentration in advanced specialties coexists with critical shortages in fundamental care capacities, demanding urgent rebalancing in China's medical education strategy.

### 3.3 Implementation Challenges

#### 3.3.1 Escalating Work-Training Conflict

The Chinese hospital training and education system faces a growing systemic challenge in balancing clinical duties with professional development opportunities. An increasingly acute work-study conflict has emerged as a critical bottleneck for medical professionals' career advancement. With tertiary hospital physicians working an average of 10.2 hours daily and outpatient doctors handling over 8,000 annual patient visits, training participation rates have plummeted to 61 percent for theoretical courses and merely 78.5 percent for practical skill sessions. This tension became particularly pronounced during the pandemic, when 72 percent of hospitals reported inability to arrange off-duty training due to frontline staffing shortages, resulting in a 42.3 percent reduction in residency clinical practice opportunities and an 18.7 percentage point decline in skill acquisition.

The fundamental mismatch between traditional training models and clinical realities exacerbates the problem—82 percent of continuing education programs still rely on fixed-schedule lectures that conflict directly with healthcare workers' shift patterns, while only 15 percent of institutions utilize intelligent scheduling systems to accommodate training needs. The burden falls disproportionately on junior staff, whose 39 percent training absence rate significantly exceeds the 17 percent rate among senior clinicians. Most concerning is the vicious cycle this creates and inadequate training limits clinical competency development, which in turn increases work inefficiencies and further reduces training availability. This self-perpetuating “low competency → poor efficiency → no training” loop not only stunts professional growth but also jeopardizes patient safety, with 31 percent of medical errors traceable to recent training deficiencies according to malpractice case analyses. The situation underscores an urgent need for training model innovation that reconciles healthcare service demands with essential professional development requirements.

#### 3.3.2 Disconnect between Training Content and Practical Needs

A fundamental mismatch between training curricula and actual clinical requirements has emerged as a systemic barrier to professional development and healthcare quality improvement. Analysis reveals that 32.7 percent of current training materials have remained unchanged for over five years, creating a significant 2.3-year gap behind cutting-edge clinical practices, particularly in rapidly evolving fields like targeted cancer therapies and minimally invasive surgical techniques. This disconnect is especially pronounced in primary care settings, where 68 percent of general practitioner training still focuses on specialist hospital diseases, while essential community health competencies like chronic disease management and integrated prevention-treatment approaches constitute only 12 percent of curricula. Consequently, post-training skill application rates fall below 45 percent for primary care needs.

The imbalance in training methodologies further compounds the problem. Theoretical lectures dominate at 72 percent of content delivery, while case-based practical training accounts for a mere 28 percent—substantially below the 40-50 percent benchmark recommended by international medical education standards. This overemphasis on theory leaves practitioners underprepared for complex clinical scenarios. More critically, 89 percent of institutions continue using top-down curriculum development approaches rather than needs-based analysis of actual clinical workflows, resulting in less than 20 percent coverage of emerging competencies like AI-assisted diagnosis and multidisciplinary team management.

The COVID-19 pandemic starkly exposed these deficiencies, with only 15 percent of healthcare facilities providing dedicated public health emergency response training. This systemic misalignment between training provisions and real-world requirements underscores the urgent need for curriculum reforms that prioritize frontline clinical needs, incorporate competency-based education models, and maintain dynamic responsiveness to evolving healthcare challenges. The current paradigm's failure to address these gaps not only wastes educational resources but also perpetuates skill shortages that compromise both healthcare quality and system resilience.

### *3.4 Quality Control Challenges*

#### *3.4.1 Formalization of Evaluation Mechanisms*

The prevalent formalization of assessment systems has significantly undermined the effectiveness of medical talent cultivation. Current training evaluations disproportionately emphasize procedural metrics, with percent of indicators tracking attendance and credit completion while only 17.7 percent measure substantive outcomes like clinical competency improvement or patient prognosis enhancement. This misplaced prioritization has reduced many training initiatives to mere procedural formalities. The problem is compounded by inadequate assessment tools - while 34.6 percent of institutions have adopted Objective Structured Clinical Examinations (OSCE) to evaluate practical skills, and most still rely on standardized theoretical tests, creating a 42-percentage-point gap between assessed and actual clinical performance.

More critically, 93.6 percent of evaluations terminate with immediate post-training assessments, with only a minimal number of institutions tracking knowledge application beyond three months. This "one-time determination" approach fails to capture the longitudinal impact of training interventions. The disconnect extends to evaluation utilization, as 86.4 percent of hospitals do not link assessment results to promotion criteria and 79.2 percent exclude them from performance metrics, progressively eroding staff engagement with training programs.

Technical fragmentation exacerbates these issues, with less than 30 percent integration between training management systems and core hospital IT infrastructure like EHR and HIS platforms. Audits at a provincial tertiary hospital revealed discrepancies in 15 percent of training records. This formalized evaluation paradigm has spawned a vicious cycle of "substandard training → superficial assessment → competency stagnation", wasting substantial resources while impeding professional development. Breaking this cycle requires establishing authentic clinical-scenario-based competency evaluations coupled with sustained outcome tracking - a transformation essential for aligning China's medical training system with international best practices and genuine quality improvement objectives. The current system's emphasis on bureaucratic compliance over substantive learning outcomes represents a fundamental barrier to developing the high-caliber healthcare workforce needed for China's evolving medical landscape.

#### *3.4.2 Lagging Digital Infrastructure Development*

The integration between current training management systems and core hospital operational platforms - including Hospital Information Systems (HIS) and Electronic Health Records (EHR) - remains critically inadequate, with interoperability rates below 30 percent. This fragmentation has created isolated data silos that completely disconnect training records from actual clinical practice data, rendering precise competency assessments based on real medical behaviors impossible. The technological gap is particularly pronounced in primary care institutions, where paper-based documentation and manual record-keeping persist as predominant practices.



Advanced educational technologies suffer from alarmingly low adoption rates across the system. AI-powered personalized learning platforms have only been implemented in 19 percent of medical institutions, while immersive training tools like virtual reality (VR) surgical simulators are utilized in less than 15 percent of clinical skills training programs - a stark contrast to the 60 percent adoption rate in developed countries. The absence of standardized data protocols exacerbates these challenges, with 53 incompatible training management systems operating nationwide that prevent data exchange and regional resource sharing. Consequently, high-quality training courses achieve merely 17.8 percent reuse efficiency.

This digital deficiency has spawned a vicious cycle: the lack of centralized electronic learning records forces healthcare professionals to redundantly retake identical courses for credit maintenance, resulting in 35 percent wastage of valuable training time. The outdated information infrastructure not only compromises training administration efficiency but more critically obstructs data-driven needs analysis and quality enhancement initiatives. Addressing this systemic bottleneck requires urgent establishment of a unified national cloud-based medical education platform coupled with comprehensive data standardization - essential steps for modernizing China's healthcare training ecosystem and aligning it with global digital education benchmarks. The current technological lag represents a fundamental barrier to achieving precision workforce development in an era increasingly defined by data-informed decision making and competency-based medical education.

### *3.5 Insufficient Institutional Support*

The sustainability of China's hospital training and education system is significantly constrained by systemic institutional deficiencies. Current training expenditures account for merely 1.2 percent-1.8 percent of total hospital budgets - substantially below the international benchmark of 3 percent-5 percent - with 82.6 percent of funding sourced from hospital self-financing and less than 17.4 percent from dedicated government allocations. This precarious financial model renders training programs vulnerable to budgetary constraints, often becoming the first casualty during fiscal austerity periods.

Fragmented policy frameworks exacerbate the challenge, as disjointed regulations across healthcare, education, and human resources sectors create implementation barriers. Only 29 percent of provinces have established direct linkages between standardized residency training certification and professional promotion, severely undermining motivation for continuous learning. The incentive structure remains fundamentally flawed, with 86.4 percent of institutions excluding training outcomes from core promotion criteria and 79.2 percent failing to connect training participation with performance evaluations, perpetuating a culture where training engagement yields minimal career advancement benefits.

Quality assurance mechanisms are equally underdeveloped, characterized by the absence of national training accreditation standards, 35 percent variability in assessment criteria across training bases, and third-party evaluation systems in just 12 percent of provinces. The weak legal foundation compounds these issues - continuing education provisions in the Physicians Law remain non-mandatory, enabling 23 percent of hospitals to arbitrarily cancel training programs during peak service periods. Most critically, the institutional framework has failed to evolve with healthcare reforms, leaving training systems misaligned with contemporary needs like DRG payment implementation and smart hospital development.

This comprehensive institutional inadequacy has fostered a counterproductive “utilization-over-development” culture that prioritizes immediate service delivery at the expense of long-term capability building. Systemic reform requires top-down institutional redesign and cross-departmental coordination to establish: (a) guaranteed funding mechanisms, (b) unified quality standards, (c) meaningful incentive structures, and (d) responsive policy updating processes - essential foundations for transitioning to a sustainable, high-performance medical training ecosystem. The current paradigm’s failure to provide these fundamental supports represents a critical barrier to achieving the talent development objectives of China’s healthcare modernization strategy.

Table 2 below summarizes some main problems faced by China’s hospital management and training system and countermeasures suggested and adopted so far.

**Table 2. Main Problems and Countermeasures in China’s Hospital Management Training System**

Question Type	Specific Performance	Optimization Suggestions
Regional resource imbalance	The eastern part of the country has 70 percent of the training resources, while the western part of the country lacks training opportunities for primary hospitals	Establish a three-level network of “national bases + regional centers + grassroots institutions” to promote the sinking of resources
Contradiction between engineering and learning	Doctors work an average of 10.2 hours a day, and their training attendance rate is only 61percent	Promote “online micro-course + scenario simulation” hybrid training and optimize the scheduling system
Formalizing the evaluation	82 percent of assessment indicators focus on attendance, while only 17.4 percent focus on clinical ability improvement	Introducing blockchain technology credit certification to link training results with job title promotion
Information technology lags behind	The interoperability rate between the training system and HIS is less than 30 percent, and grassroots organizations still rely on paper archives	Build a national medical education cloud platform and unify data standards

#### 4. Conclusions and Recommendations

China's hospital management training and education system has established a comprehensive career-cycle development framework through years of evolution, yet it continues to face profound systemic challenges. The most pressing issue remains the structural imbalance in resource allocation, where premium training resources are disproportionately concentrated in eastern regions and tertiary hospitals. This has resulted in medical staff in western and primary care institutions receiving only 46 percent of the annual training hours compared to their counterparts in developed areas, with critical disciplines like general practice and pediatrics suffering severe underinvestment. Compounding this problem is the intensifying work-study conflict that traps healthcare professionals in a vicious cycle: escalating clinical workloads have driven theoretical training attendance down to 61 percent, while inadequate training subsequently impairs work efficiency, creating a competency development bottleneck. Equally concerning is the significant disconnect between training content and actual needs, leading to substantial inefficiencies in training ROI. The system is further hampered by formalistic quality control approaches and lagging of digital infrastructure. At its core, these challenges stem from systemic institutional deficiencies: insufficient training funding (below international standards), fragmented interdepartmental policies (only 29 percent of provinces link training to career advancement), and weak regulatory enforcement (23 percent of institutions arbitrarily cancel training programs).

To address these challenges, we propose a comprehensive reform package with five key strategies as follows:

First, restructuring resource allocation through a three-tier "national-regional-primary" training network to achieve equitable resource distribution, targeting 30 percent primary care training investment by 2025. Second, innovating pedagogical approaches by developing dynamic curricula anchored in real clinical challenges, adopting blended "micro-lecture + simulation + mentorship" models that reduce theoretical instruction below 30 percent. Third, establishing competency-based evaluation frameworks focusing on tangible outcomes like clinical pathway compliance improvement and procedure complication reduction, with blockchain technology ensuring data integrity. Fourth, accelerating digital transformation via a national medical education cloud platform to achieve full integration with HIS and EHR systems by 2025. Most critically, strengthening institutional safeguards by amending the Physicians Law to mandate annual training requirements, implementing dedicated training budget audits (minimum 3 percent of hospital expenditure), and instituting strict "training quality veto power" in hospital accreditation.

This reform blueprint adopts a systems-thinking approach to resolve fundamental contradictions through institutional restructuring, mechanism innovation, and technological empowerment. Implementation milestones include completing training standard updates and establishing a national virtual simulation center within 2-3 years; developing a balanced training network with lifelong learning certification in the medium term; and ultimately building an intelligent training ecosystem that establishes a globally competitive, and distinctly Chinese medical education model. These measures will provide robust human capital support for the Healthy China initiative while addressing current system inefficiencies through targeted, evidence-based interventions. The proposed reforms recognize that sustainable improvement requires simultaneous advancement across all system components - no single measure can succeed in isolation within this complex ecosystem. By aligning resource allocation, pedagogical methods, evaluation criteria, digital infrastructure, and institutional frameworks, China can

develop a medical training system that balances equity with excellence, theoretical knowledge with practical skills, and standardization with innovation.

## 5. Limitations

While this study provides a systematic analysis of China's hospital management training and education system, the authors should acknowledge several limitations. First, the comprehensiveness of research data is constrained by inconsistent information infrastructure across medical institutions. Incomplete training records from some grassroots hospitals may lead to underestimation of actual regional disparities in the empirical analysis. Second, the predominantly cross-sectional nature of the data limits longitudinal tracking of training outcomes, making it difficult to accurately assess the sustained impact of different training models on healthcare professionals' career development. Third, while incorporating international experiences from some developed countries, the study lacks in-depth comparison with medical training systems in developing nations, potentially affecting the generalizability of recommendations. Finally, although the proposed reform measures are systematically designed, their implementation requires adaptation to local financial capacities and medical resource distributions. The feasibility of these recommendations needs further validation through pilot programs. These limitations simultaneously chart directions for future research, including establishing a unified national training database; conducting longitudinal prospective studies; and enhancing comparative analyses with training models in developing countries. The findings of this research should therefore be interpreted within these methodological constraints while recognizing their value in informing policy discussions and practical improvements in China's medical education landscape.

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