

# ***Research on the Quality of "Integration" Training of Master Degree in Clinical Medicine under the Background of Medical Education Integration***

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**Abstract:** In recent years, in order to improve China's medical talent training system and provide high-quality medical talents for the society, the reform of China's clinical medical degree education has been deepened. Under the "parallel-track model", the postgraduate training of master's degree in clinical medicine and the standardized training of resident physicians have been realized. The urgency of constructing and improving the quality assurance system under the "parallel track model" has become increasingly prominent. However, compared with developed countries, postgraduate professional degree education in China still faces many problems. In this study, we analyze the policies and implementation status of combining the "parallel" training mode of clinical medicine degree postgraduates and residency training in China through the interpretation of the current situation of clinical medicine postgraduates training at home and abroad. The study aims to improve the knowledge of the current situation of cultivation of clinical medicine degree postgraduates under the "dual-track" cultivation mode, provide reference for cultivation units to improve the cultivation mode and formulate relevant policies, and provide a basis for the future development trajectory and reform of clinical medicine degree postgraduate education.

## **1. Introduction**

Talent is an important support for the construction of a healthy China, and is the core element and key resource for the development of health in China. Medical and health care is related to the health and well-being of hundreds of millions of people and is a major livelihood issue [1]. The "Thirteenth Five-Year" National Health and Family Planning Talent Development Plan points out that: social aging, population policy adjustment and other related medical service demand further release, but some structural and institutional contradictions in the development of health and family planning talents are still prominent, and the talent team still has unbalanced structure, quality is not high. China's economic restructuring and industrial transformation and upgrading have created a

great demand for high-level talents, and the rapid development of social economy and the continuous improvement of people's material level have made the people's demand for health increasingly strong [2]. The training of high-level clinicians has a long way to go. As a provider of medical and health services, the process of training clinicians to become "qualified doctors" is particularly important. Medical education is a continuous and lifelong education process, with the characteristics of long training period and detailed phasing. As an important part of medical education, the postgraduate education of master's degree in clinical medicine is established to cultivate advanced applied medical talents with in-depth research in disease research, diagnosis and treatment, and high clinical treatment level [3]. The postgraduate education of clinical special master's degree is oriented to professional needs and focuses on clinical practice ability, aiming to cultivate students' clinical competence and professional adaptability in the real medical environment. Clinical competence is the core and key of clinical special master's graduate training and the main difference between it and academic degree graduate education [4].

## **2. Background of the Reform of "Parallel" Cultivation of Postgraduate Education of Master's Degree in Clinical Medicine and Standardized Training of Physicians**

Since 2009, when China vigorously developed postgraduate education of professional degrees, postgraduate education of clinical medicine has developed rapidly and continuously deepened its reform. 2013, the Ministry of Education, the National Development and Reform Commission and the Ministry of Finance jointly issued the

In May 2013, the Ministry of Education and the former National Health and Family Planning Commission jointly issued the "Notice on the Approval of the First Batch of Pilot Universities for the Reform of Postgraduate Training Model of Master's Degree in Clinical Medicine", approving 64 universities to carry out the reform of the training model of dual-track postgraduate education and standardized residency training. In 2014, six ministries and commissions, including the Ministry of Education and the National Health and Family Planning Commission, jointly issued the Opinions on Deepening the Reform of Clinical Medicine Personnel Training through Collaboration between Medical Education and Education, and promoted the implementation of the "dual-track" training model of clinical medicine master's degree postgraduate education and resident standardized training nationwide. From 2015 to the present, the comprehensive deepening period is a new stage of the internal development of China's medical postgraduate education. After a period of pilot reform, the Ministry of Education, the former Health and Welfare Commission and other six departments jointly issued the Opinions on Deepening the Reform of Clinical Medical Talent Cultivation through Medical Education Synergy, which pointed out that the "dual-track" cultivation model has been formally implemented nationwide since 2015, and since then, China has clearly defined the "5+3" as a standardized, standardized, standardized and standardized training model. Since then, China has clarified the standardized and standardized talent training system with "5+3" as the main body, and realized the organic connection between master's degree in clinical medicine and training. In July 2017, the General Office of the State Council issued the Opinions on Deepening the Synergy of Medical Education and Further Promoting the Reform and Development of Medical Education, aiming at the basic establishment of the "5+3" (5+3) training system by 2020. "(5+3) (5 years of clinical medicine undergraduate education + 3 years of standardized residency training or 3 years of postgraduate education of clinical medicine master's degree) as the main body, "3+2" (3 years of clinical medicine specialist education and 2 years of assistant general practitioner training) as a supplement In 2018, the Ministry of Education, the National Health Commission and the State Administration of Traditional Chinese Medicine jointly issued the Opinions on Strengthening Medical Education Synergy and Implementing the Excellence in Physician Education

and Training Program 2.0 (Education High [2018] No. 4), which states that the effective articulation of professional degree postgraduate education and residency standardized training should be promoted in depth to accelerate the Cultivate high-quality clinical physicians, improve the comprehensive clinical ability of master's degree postgraduates, and promote the collaborative education of medicine and education in all aspects In this process, the training units of master's degree postgraduates in clinical medicine have formed a training model and quality assurance system with the characteristics of the training units in continuous exploration, mainly including the setting of management institutions, theoretical course setting and assessment, clinical skills training and assessment, scientific research ability training It mainly includes the setting of management institution, theoretical curriculum and assessment, clinical skills training and assessment, scientific research ability training and assessment, clinical training base and supervisory team construction, etc.

### **3. Problems in the Training Mode of "Convergence" between Master's degree in Clinical Medicine and Standardized Training of Physicians**

Improving the quality of concurrent postgraduate training is a common concern of the state and medical schools at present, and it is also a major issue in the collaborative development of medical education at this stage. The research on quality management of postgraduate training in China started relatively late, but it has grown and developed to a certain extent both in terms of the team of researchers and research fields. The theme of research is mainly focused on medical postgraduate education, cultivation mode and cultivation quality, and the research content is relatively scattered. In the face of many problems in the process of cultivation, we need to clarify our thinking, clarify our responsibilities, coordinate the relationship, solve the contradictions, strengthen the refinement and depth of the model, and provide favorable conditions for the cultivation of high-quality applied talents. Therefore, to make a scientific, objective and specific evaluation of the quality of the "parallel" training model, and to discover the actual problems affecting the quality of postgraduate training, and to find reasonable methods and countermeasures to solve the problems, is a profound contribution to promoting the ongoing medical reform in China and realizing the strategic goal of "Healthy China It is of far-reaching significance to promote China's ongoing medical reform and achieve the strategic goal of "Healthy China".

The traditional training model in China has emphasized theoretical learning for many years, but neglected the training and cultivation of clinical ability, resulting in the lack of clinical experience and innovation ability of postgraduates, and the clinical ability is not satisfactory [5]. The implementation of the "dual-track" clinical master's degree education model is a major reform of China's medical degree postgraduate training, which focuses on the ability to engage in practical work in clinical medicine, with the fundamental goal of cultivating high-level clinical application-oriented talents. Strengthening the cultivation of clinical competence of clinical master's degree students is conducive to solving the problem that the originally cultivated clinical master's degree students "emphasize scientific research but neglect clinical work" and are not strong in clinical work in the workplace [6]. The cultivation of clinical ability is the core and soul of clinical master's degree training, and it is also the key to the quality of cultivation. Regarding the cultivation of clinical master's degree students, the state has issued a series of documents on "medical-education collaboration" to emphasize the importance of "clinical competence cultivation" of clinical master's degree students, among which the most guiding one is the "Guiding Cultivation Program for Postgraduates with Master's Degree in Clinical Medicine" (Degree [2015] 9). The most significant guiding documents are the Guiding Training Program for Postgraduates with Master's Degree in Clinical Medicine (Degree [2015] No. 9) and the Content and Standards of Standardized Training

for Residents (Trial Implementation) (National Health Office Science and Education Development [2014] No. 48). At present, the main problems faced by the cultivation of clinical competence of postgraduate clinical specialties in China, according to Hu Weili et al. are: the lack of understanding of the clinical medical degree, the curriculum does not reflect the training objectives of clinical specialties, the traditional tutor system is difficult to adapt to the training mode of multi-department rotation, the construction of clinical practice bases cannot keep up with the development speed of clinical specialties education, and the lack of medical ethics and medical style education [7]. Liu Wenhui et al. argued that there is a problem of insufficient unified understanding of the importance and specificity of clinical special master's education, the contradiction between the requirements of the Practitioner Law and the cultivation of clinical competence of clinical special master's students, and the need to establish a system suitable for the clinical assessment of professional degree students [8]. With regard to the assessment of clinical competence of postgraduate clinical masters, some scholars found that there is a problem of "disconnection between training and assessment, no unified standard and objective quantifiable index for assessment, not sufficiently focused and not strong operability". It is suggested to establish a systematic assessment index system and adopt quantitative assessment [9]; meanwhile, by constructing a clinical competence training and assessment platform, establishing a clinical competence assessment expert group, and implementing clinical teaching quality monitoring, we can provide a reliable guarantee for clinical competence assessment of clinical master's students [10]. On the issue of improving the quality of clinical competence training for clinical special master's degree students, Bingchen Ge et al. argued that a high-quality professional master's supervisor team should be established first, and the supervisor's exemplary demonstration role in clinical diagnosis and treatment, academic research, human behavior, and medical humanities should be well played, and a strict supervisor assessment and elimination system should be established [11]; Jun Gu concluded in his master's thesis through a study that for In his master's thesis, Gu Jun concluded that the intensive training of "clinical skills training center" could improve the clinical ability of "dual-track" clinical master's students [12].

The quality assurance system of clinical medicine master's degree postgraduate training under the "parallel" training mode has been fully established through the practical exploration of education departments and training units at all levels. However, compared with developed countries, China's professional degree postgraduate education still faces many problems, especially the professional degree postgraduate education of doctor of clinical medicine, which is not up to the expectations of the society due to its own special characteristics. According to the cultivation requirements and objectives, the main problems are summarized as follows: 1) the cultivation objectives are not accurately grasped and the cultivation requirements of professional degree are not deeply understood; 2) the clinical skills training and assessment mechanism are not sound; 3) the construction of cultivation base and supervisor team needs to be strengthened; 4) the investment in postgraduate training is insufficient and the incentive mechanism is not sound; 5) the clinical rotation program and clinical skills cultivation need to be strengthened; 6) the cultivation (6) differences exist and homogeneous management needs to be strengthened; (7) the awareness and ability of independent learning of postgraduates needs to be improved. All these problems directly or indirectly affect the further improvement of the quality of medical postgraduate training in China.

#### **4. Countermeasures and Suggestions for Strengthening the Training of Postgraduates with Master's Degree in Clinical Medicine and Physicians' Standardized Training**

##### **4.1. Deepen the Collaboration of Medical Education, Optimize the Clinical Rotation Program and Deepen the Cultivation Demand of Professional Degree**

Improving the quality of postgraduate training of clinical specialties requires further adjustment

and improvement of rotation programs. The Health Care Commission should take the lead in coordinating with the education department and organize experts from relevant universities and training bases to revise the rotation program with the characteristics of each specialty. At the same time, attention should also be paid to the development of programs according to local conditions and the flexibility of rotation programs. In this regard, we propose the following suggestions for the optimization of the clinical rotation program: 1) it is suggested that the rotation program should give priority to students to rotate in the departments corresponding to their specialties, and appropriately extend the length of rotation in the departments of their specialties, so that students can learn their professional knowledge in a more in-depth and systematic way; 2) try to arrange rotation in departments with strong relevance to the training specialties, and formulate a scientific and reasonable 33-month clinical rotation program for clinical master students, which reflects certain (2) To formulate a scientific and reasonable 33-month clinical rotation program for clinical master students, reflecting certain professional advantages and employment competitiveness. (3) To address the problem of insufficient number of cases, the Health Care Commission can require Each training base to make up for it by establishing a case bank and a standardized patient (SP) bank.

#### **4.2 Strengthen Clinical Practice Training and Enrich the Form of Clinical Practice**

The training of postgraduates should really achieve "highlighting clinical, strengthening practice and emphasizing frontier". To address the problem of insufficient clinical training opportunities, firstly, the management should be standardized, and the teaching work of teachers should be strictly managed and supervised from the department level to ensure that the teaching teachers give sufficient clinical practice opportunities to clinical postgraduates, and increase bed management and skill operation training. Secondly, the school should calculate the maximum carrying capacity of students in each base according to the actual situation of each training base, and control the number of students in the enrollment. In addition the hospital can seek cooperation with other hospitals to make a reasonable diversion of students and avoid the problem that the effect of their clinical competence training is affected by the saturation of students. At the same time, most postgraduates approve of bed management, skill operation training, teaching visits, etc., and the department and teaching faculty can choose more of the above methods for training. In addition, carry out as rich clinical training activities as possible to stimulate students' interest in learning. For example, clinical teaching methods such as PBL (problem-oriented learning method) and case teaching method, combined with various teaching methods such as case discussions, book reports and teaching visits, are used to cultivate the clinical competence of clinical special master's students [13]. The SPOC learning mode has been adopted in the clinical master's degree course at Chongqing Medical University, and the feedback effect is good. The future clinical training can also make full use of the "Internet + health care" to integrate relevant medical education resources and develop in the direction of deep integration of information technology and medicine (such as cloud teaching, MOOC, flipped classroom, etc.) and the combination of online and offline training [14]. Simulation exercises can exercise medical students to complete clinical tasks such as history taking and physical examination independently and avoid medical disputes [15], so they can also make effective use of clinical skills training centers to improve their clinical competence through simulation exercises.

#### **4.3. Coordinate the Relationship between Clinical and Research Work, and Integrate Clinical Research**

Clinical ability and clinical research ability are complementary organisms, and they promote each other. The level of the dissertation of the graduate students should show that they have the

ability to analyze and solve practical problems by applying the theories and methods of clinical medicine, and the clinical research ability of the graduate students should be assessed in the form of the dissertation defense. In the process of cultivation, the relationship between clinical ability and scientific research ability should be clarified, and the concept of "a clinical diagnosis and treatment is a research" should be established to eliminate the deviation of either one of them and seek common development. The research topic is selected from the clinic, and the research result is applied to guide the clinic, so that the postgraduate students can become comprehensive talents with high clinical practice ability and good research ability by focusing on comprehensive training and coordinated development. The supervisor is the first responsible person for the cultivation of postgraduates, and is fully responsible for their ideology and morality, clinical ability and scientific research ability cultivation, and guides the postgraduates to complete the clinical research ability training and dissertation under the premise of ensuring their completion of the regulation training. Conduct overall command and coordinate monitoring. In the cultivation of postgraduates, the supervisor should clarify his or her responsibility of moral cultivation and give full play to the role of guiding postgraduates: make scientific and reasonable clinical research ability training plan in advance according to the characteristics of clinical special master's postgraduates, carry out regular intra-team academic seminars, encourage students to participate in

Adding various academic lectures to learn about the latest research progress in the field of this specialty [16]. Students will learn about scientific research, develop the habit of literature search and reading, and form a set of their own scientific thinking system [17]. Participating in "clinical research proposal design" and "clinical research method practice training (experiment, investigation, research practice, etc.)" is an effective way to cultivate postgraduates' clinical research ability, and supervisors can adopt the above methods to strengthen the training of postgraduates' clinical research ability. The "scientific research training module" should be included in the training process of graduate students, and the university should organize each professional base and professional degree research direction to prepare scientific research training plan and scientific research training outline. Students are strictly required to participate in the dissertation opening report and mid-term examination, and strengthen the tracking and monitoring of the whole process. At the same time, the hospital should regularly invite high-level experts in various fields from other hospitals to give academic lectures, and the department should conduct more academic sharing sessions to provide a broad platform for cultivating postgraduates' clinical research ability.

#### **4.4. Standardize Clinical Competence Assessment**

To strengthen the clinical competence assessment, we must first implement comprehensive supervision and management of the assessment. The school and hospital should establish a linkage mechanism for mutual notification and supervision and management, actively take various management and supervision measures, strictly assess the system and all aspects of the assessment, and strive to change the status quo of the assessment work being formal. The content of the assessment should be reasonably set according to the "professional theory assessment syllabus" and the "scope of clinical practice ability assessment of standardized training completion assessment" issued by the state. After extensive consultation and discussion, the following measures were taken: taking the Professional Theory Assessment Syllabus and the Scope of Clinical Practice Ability Assessment for Standardized Training Completion Examination as the assessment benchmark, forming a standardized clinical assessment system with "step-by-step, phased and quantitative indexes" [18], highlighting the assessment of clinical operation ability in clinical skills training, and making full use of clinical teaching and learning. In the clinical skills training, the assessment of clinical operation ability is emphasized, and the clinical teaching resources and clinical skills center

are fully utilized to provide postgraduates with corresponding training and practice opportunities of clinical practice ability (including case analysis station and auxiliary result interpretation station, etc.). We can adopt "on-campus assessment", such as mutual assessment among training bases/clinical colleges, and employ external experts to review the students who have passed the on-campus assessment according to a certain percentage, so that the students can consciously and practically adhere to the clinical training.

#### **4.5. Strengthen base Construction and Implement Homogeneous Cultivation**

In response to the problem of homogenization of training between different training bases, the national training completion examination is currently implemented, and the state has formulated the "professional theory assessment syllabus" and "standardized training completion examination clinical practice ability assessment scope", and each training base should use this syllabus as a benchmark to carry out training in depth. At the same time, the Health Care Commission regularly conducts flight inspections to supervise the training bases, so that the training bases are as homogeneous as possible. The problem of differentiated training between different departments, the training bases should standardize the training management of each department, strict training system, so that the lead teachers can train according to the requirements, try to avoid the situation of obvious differentiation between different specialties, ensure equal clinical training opportunities for all students, and strengthen the management through process supervision. The training of teaching teachers and the training of clinical master's degree students in the entry of the department are strengthened respectively. Lead teachers play a crucial role in the training process, and the lack of awareness of the importance of training by teachers will affect the standardization of students' learning and the learning effect. Therefore, it is necessary to supervise the hospital department and organize regular unified training for the teaching teachers, which should include policy explanation, teaching requirements and training skills [19]. At the same time, the training of entry education for postgraduate students in clinical specialties should be strengthened to reinforce students' correct understanding of the training role of each specialty department. The university should develop a special inspection work plan and inspection and evaluation index system to achieve the supervision of the whole process of training. In view of the difference in the training of clinical master's students and trainees in training, it is suggested that the "training information management system" be shared or the management of clinical rotation training of clinical master's students be incorporated into the unified management of the Municipal Health Care Commission. It is suggested that the Ministry of Education and the National Health Care Commission should jointly issue a document to clarify the status of postgraduate clinical trainees as trainees and give them a reasonable position. In order to ensure the quality of their training, gradually establish and improve the management system of standardized training of clinical master's degree students. The training of clinical special master's degree students should also be regulated through policy channels, so that the teaching teachers can have a basis to be authorized in the process of postgraduate training, in order to make the clinical special master's degree students get sufficient training.

#### **4.6. Increase Funding for Graduate Students and Improve Incentive Mechanism**

The return cycle of medical postgraduate education is long, and most of the postgraduates of clinical degree are in the age of labor force, but because of their status as students, their current income can hardly meet their basic living expenses, which will cause psychological pressure and inconvenience to some students with financial difficulties, and will affect their study enthusiasm. The issue of treatment should not become a shackle for the development of postgraduates, so in order to realize the full convergence of "training and professional master's degree" and "medical

education synergy" to improve the quality of medical personnel training, we should focus on solving the treatment problem of clinical professional master's degree. The National Health Care Commission should incorporate clinical master's degree students into the "national training system" and introduce specific measures to improve funding, which should be managed by specialized institutions to guarantee training faculty and daily management [20]; and should explicitly require provinces and municipalities to allocate special subsidies or stipulate that the provincial and municipal health care commissions should issue a document "requiring each training base to grant living subsidies to professional students with reference to the standards of social training trainees". Government departments should play a leading role in improving the construction and top-level design of the investment system of clinical special master's education, raising the standard of per capita financial allocation [21], or requiring universities to reduce the tuition and fees of special master's students or raise the standard of scholarships and grants for special master's students, and making efforts to reduce the financial burden of students and their families. The university should improve the construction of the special scholarship system for clinical master's students and improve the level of scholarship, and also cooperate with the training base to improve the treatment of clinical master's students through setting special funds, rewarding subsidies and other reasonable incentive mechanisms to stimulate work motivation. In addition, according to the needs of self-actualization level in Maslow's needs hierarchy theory, non-material rewards can be increased, such as adopting incentives of praise and recognition for outstanding work, etc., to stimulate students' vitality [22].

#### **4.7. Change the Concept of Learning and Enhance Independent Learning Ability**

Undergraduate is an important stage to build a good clinical foundation, therefore, enhancing the clinical ability of postgraduates cannot ignore the undergraduate stage. Schools should strengthen theoretical knowledge and clinical practice training of undergraduates, pay attention to the connection of different stages of training, and prepare the foundation for the next stage of training. At the same time, the training requirements for postgraduates should be improved to achieve "strict entry and exit", so that the pressure can be transformed into motivation for postgraduates' learning. In terms of learning methods, American scholar Edgar Dale proposed the "learning pyramid". Dale, an American scholar, proposed the "learning pyramid" theory, which believes that the learning methods of "group discussion, learning by doing or practical exercises, teaching others or applying immediately" can retain 50%, 75% and 90% of the learning effect respectively. Therefore, in learning, graduate students should adopt more of the above learning styles, which are more conducive to improving their learning efficiency and ability. The above learning styles are active and participatory learning, so only when students give full play to their main role in learning and change their learning habits from "I want to learn" to "I want to learn" can their ability be truly improved. Psychologists believe that the development of good learning habits is conducive to the establishment of physiological and psychological "motivational stereotypes" [23]. Once a good habit of active learning is developed, it will have a positive impact on future learning and work. Therefore, students should take the initiative to get out of their comfort zone, overcome inertia and seek independent learning, and develop good learning habits in their studies. First of all, they should firmly grasp the theoretical basic knowledge of clinical medicine, adopt scientific learning strategies and learning methods for learning; at the same time, according to their professional characteristics and learning goals, selectively and purposefully expand or deepen the knowledge of related disciplines, and study theories and absorb them from the purpose of application, combine the theoretical knowledge learned with practical knowledge, improve clinical practice ability, and enhance job adaptability and Competence. In the study to be active, diligent to the teacher, to ask

the classmates to learn, to "have confusion that is solved, change ignorance to knowledge, change not much knowledge to know more", in-depth thinking, broaden the mind. In the future, I will lay a good foundation for being a physician with high moral and medical skills, and make contributions to the medical and health care in China.

## 5. Conclusion

Although the "dual-track integration" training mode of clinical master postgraduates has been carried out steadily, there are still many problems in the implementation process, which need to be continuously optimized and improved, and effectively strengthen the training and process management of clinical master postgraduates, so as to ensure the training quality of clinical master postgraduates and promote the medical and health level continuously.

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