

Medical Education Reform and Talent Specialisation in the Context of the New Coronary Pneumonia Epidemic

Dan Xiong

¹ Affiliated Hospital, Jiujiang University Jiujiang, 332000, China

² Philippine Christian University Center for International Education, Metro Manila, 1004, Philippines

Abstract

In the new era, China's medical education has made world-renowned achievements and provided a solid guarantee of medical human resources for the "Healthy China" strategy. However, in the process of preventing and controlling the new epidemic, the dilemma of changing the order of medical education, the lack of humanistic education for medical students, the uncoordinated distribution of medical education resources and the weaknesses of medical education training have been revealed. In the coming period, the inspiration for deepening the reform and development of medical education in China lies in: strengthening medical humanities education and quality education and innovating education methods; giving medical schools the right to run their own schools and improving the quality of medical education; deepening medical education and training and reconstructing the public health system.

Keywords

New Coronary Pneumonia Epidemic; Medical Education Reform; Talent Professional Development.

1. Introduction

The arrival of the 2020 Newcastle Pneumonia epidemic has brought a profound awareness of the importance, strategic and urgent nature of public health. In China, the epidemic spread to all provinces, autonomous regions and municipalities directly under the Central Government, including Hong Kong, Macao and Taiwan, with a cumulative total of over 80,000 confirmed cases and more than 3,000 deaths reported in 31 provinces, autonomous regions and municipalities directly under the Central Government as at 24 March 2020. Affected by the epidemic, the national economy slumped and relevant data showed that: the manufacturing purchasing managers' index (PMI) and production index weakened sharply in February 2020. The country has paid a heavy price for this, with the production index falling by 14.3 compared to January and the production index falling by 23.5 compared to January [1]. But on the other hand, the epidemic is also a test of medical education, a favorable opportunity to promote the reform of medical education.

2. Impact of the New Coronary Pneumonia Outbreak on Medical Education

2.1. Impact on Medical Students

After the arrival of the New Coronary Pneumonia epidemic, many medical students were isolated at home as a result of the epidemic, disrupting the original teaching order. At the same time the writing and defending of dissertations by recent graduates was hampered. Some major examinations were also faced with the problem of postponement and rescheduling. The re-

examination and admission of master's students and the admission of relevant units to the doctoral examinations were postponed, and the on-site confirmation of the national physician qualification examinations in all examination areas was postponed, while the specific implementation plan of the college entrance examination was adjusted by the relevant departments and localities still paying close attention to the changes of the epidemic. In this regard, the Ministry of Education proposed to actively carry out various online teaching activities based on major online course platforms to ensure the progress and quality of teaching during the epidemic, fully reflecting the concept of "stopping classes without teaching and stopping classes without learning" [2]. In response to the call from the Ministry of Education, all medical schools have been developing online teaching activities to replace traditional teaching. During the delayed start of the academic year, in order to solve the problem of graduates' dissertations and defences, pre-defences and reviews of dissertations are conducted by means of online video, and if it is true that the dissertation cannot be completed due to the epidemic, efforts are made to develop alternative plans so as not to delay the graduation of graduates as much as possible. In addition, many interns travel to and from the frontline of hospitals and are at great risk of contracting the new coronary pneumonia, which increases the anxiety and concern of medical students and reduces their confidence to take on the responsibilities of a doctor. Some of the medical students who came to Wuhan proposed to evacuate the hospital because it was too dangerous [3]. This phenomenon reveals the prevalence of egoism in the training of medical students. Also during the self-isolation period after returning home, students are isolated in relatively confined spaces for long periods of time, with nowhere to move and nowhere to release stress, exacerbating emotions such as anxiety and panic, leading to and possibly triggering vicarious trauma or anxiety transfer. At the same time, medical students study at home, with fewer activities outside and frequent sedentary lifestyles, adding to the unhealthy elements of medical students' lifestyles. Thus, the new coronary pneumonia epidemic not only affects students' learning pathways and graduation status, but also adds to the physical and psychological stress of medical students and exposes the moral issues of medical education.

2.2. Impact on Medical Education Resource Allocation and Planning

The new coronary pneumonia epidemic has highlighted the uncoordinated nature of medical education resources in China, with marked differences in development levels between provinces, autonomous regions and municipalities and between urban and rural areas. First, there is the problem of regional differences in matching the supply and demand of physicians. Since the outbreak of the epidemic, medical teams from all over China have supported Wuhan and Hubei to the tune of 4.26 million people. Among them, four provinces sent more than 2,000 medical personnel: Jiangsu (2,802), Guangdong (2,484), Liaoning (2,054) and Zhejiang (2,018), while more than ten other provinces and cities, such as Shandong, Shanghai and Chongqing, sent more than 1,000 medical personnel. The number of doctors in each province is closely related to the number of people sent. By comparing the number of physicians per 1,000 population in provincial regions, it can be seen that in 2018, the top three provinces and cities in the country in terms of the number of physicians per 1,000 population were all in the eastern region, namely Beijing (4.63), Zhejiang (3.33) and Shanghai (2.95), while the central and western provinces such as Anhui, Jiangxi, Yunnan, Guangxi and Gansu had a relative shortage of physicians. Secondly, there is an inequitable distribution of highly qualified and competent physicians. In other words, the number of physicians in central cities and tertiary hospitals is relatively concentrated, while the number of physicians in rural and urban grassroots areas is "stretched to the limit". By the end of 2018, there were 722 tertiary hospitals nationwide, accounting for 60.6% of the total number of tertiary hospitals, and almost all of the tertiary hospitals with high-quality medical resources are concentrated in provincial capitals and more economically developed cities. Medical students are generally only willing to enter developed

regions and work as doctors in tertiary hospitals, and despise the medical environment in central and western regions. Third, there are not enough resources for grassroots physicians in all regions. In 2018, the number of rural doctors and health workers in China was 907,000, accounting for less than 1/5 of the total number of doctors, and 17.4 million less than in 2013, showing a continuous decline [4]. The number of "gatekeepers at the grassroots level" is still short and the quality is still poor, which is not enough to fully build up the dam of disease treatment and prevention at the grassroots level. On the other hand, the resources for medical education are insufficient and the quality of medical education is worrying. According to the China Education Expenditure Statistical Yearbook 2018, in 2017, the public portion of the average education expenditure per student in universities under the ministry was about 29,000 yuan, while the public portion of the average education expenditure per student in local universities was only 1.4 million yuan, which was dwarfed by the ministry [4]. The quality of medical education is even more uneven, the deterioration of the medical environment and the lack of medical resources, so that the recognition of excellent high school graduates of the medical profession is reduced, lack of attraction, the quality of the student population has declined.

2.3. Impact on Medical Education and Training

The training of "job competence" is weak, and there are weaknesses in the training of medical education. Firstly, the situation of emphasizing the classroom over the clinic, skills training over humanities education, medical care over nursing, and clinical care over public health is widespread. Clinical medicine students have long focused on the learning of in-depth, detailed and subspecialty medical knowledge and the training of skills to treat diseases and save lives, but lack the integration and application of public health knowledge. The emphasis of clinical medicine students is only on the cultivation of the routine medical practice of consultation, examination and treatment, while the awareness of crisis intervention and the emergency handling ability of epidemic prevention and control are weak, especially the lack of emergency handling and rescue techniques to deal with new major infectious diseases. In addition, there are still omissions in the process of standardised residency training for clinical medical personnel, mainly lacking in systematic and thorough training in medical protection for complex diseases. Secondly, there is a lack of personnel training for major public health emergencies. At present, China lacks a composite public health incident response talent team that understands prevention, treatment, preventability, treatability, emergency response and normality, and also lacks an on-site epidemiology team and pathology team that can complete the task with high quality in the first instance. One of the main reasons for this is the generally poor treatment of graduates in preventive medicine and other public health professions and the relative difficulty in promoting public health personnel in their titles, which makes their sense of achievement and social status low. On the other hand, the cross-fertilization of knowledge between public health and preventive medicine and medical disciplines such as clinical medicine, basic medicine and nursing is not deep and extensive, and there is still no efficient and scientific mechanism for collaborative education between the School of Public Health and other secondary schools to promote the sharing of professional curriculum resources, mutual recruitment of teachers, mutual recognition of credits, conversion of credit hours and other "hard The "teaching system" is still not perfect, leading to a lack of training of talents for public health 0 In 2018, the number of disease prevention and control centres at all levels in China was only 3,443, and was 13 fewer than in 2017, accounting for about 1/5 of the total number of professional public health institutions [4].

3. Insights from the New Crown Pneumonia Epidemic on Medical Education Reform

3.1. Strengthen Medical Humanities Education and Quality Education, and Innovate Education Methods

The New Crown pneumonia epidemic exposed the inadequacy of medical patriotism education and alerted us to the fact that the essence of medicine is to maintain and promote human health. In the pursuit of modernization and talent training, we cannot forget the core concept of putting people first and promoting all-round human development and sustainable social development [5]. 577 Essays Compilation 1 April 2020, at the invitation of the Guangming Daily, I was invited to take the title of "understand history and law, specialize in knowledge and knowledge, and seek truth and goodness", and to rethink medical education from three micro levels I pointed out that medical jurisprudence and medical history should become compulsory courses in medicine, that "learning and then becoming a doctor" is a constant tenet of medical education, and that the "temperature" of medicine is reflected in the combination of rigidity and flexibility; the spiritual core of medicine is The spirit of medicine is to seek truth, goodness and beauty. At the same time, medical students are faced with heavy professional learning tasks from their undergraduate studies, and when they enter clinical work, the coordination between study, clinical work and research also becomes a source of stress. During the epidemic, medical students' physical activity was reduced and their physical fitness was a concern, while medical education did not place enough emphasis on physical and mental health. The sudden outbreak of the new coronary pneumonia epidemic has highlighted the shortcomings of medical students' physical and mental education. Therefore, medical schools should strengthen psychological construction and carry out psychological counselling and guidance work in addition to training students' professional abilities. At the same time, schools should strengthen the physical education of university students to ensure in the health of students. In terms of education methods, online teaching provides students with a variety of teaching methods and knowledge expansion platforms, which not only stimulates students' enthusiasm for learning, but also deepens their understanding and consolidation of course content retrospectively. However, there are some shortcomings in online teaching. The teacher is unable to complete class supervision, and although there is verbal communication during the course, the teacher is unable to capture students' expressions and does not receive adequate and timely feedback on the teaching. Therefore, it is required to get rid of the dilemma of limited mastery of information-based teaching tools by teachers of clinical medicine courses at this stage through strengthening the top-level design of online teaching organization, promoting the improvement of teachers' information-based teaching tools, and the awareness of the production and utilization of online teaching resources [2]. At the same time, teachers should learn to cultivate students' independent learning ability and mobilize students' initiative to participate in online teaching.

3.2. Empowering Medical Schools to Run Their Own Schools and Improving the Quality of Medical Education

Effectively implement the Opinions of the General Office of the State Council on Deepening Medical Education Synergy to Further Promote the Reform and Development of Medical Education issued on July 3, 2017, fully respect the special nature of medical education, systematically promote the integrated management of medical education in comprehensive universities, and effectively empower medical schools with the autonomy to run their own schools. The government should give full play to the strengths of medical education in each region and strengthen the tilting of educational resources towards economically backward regions. The government should therefore continue to invest in medical education during the

14th Five-Year Plan period, which is an indispensable step in building an efficient and sustainable healthcare system. In addition to increasing financial investment in medical education, priority should be given to investing in "dual-teacher" teachers, clinical teaching bases and simulation teaching facilities, so as to reduce the wasteful and inefficient use of limited funds, and to further pursue equity of opportunity and efficiency in funding through incentives and performance evaluation mechanisms. At the same time, establish a multi-channel investment mechanism and cost compensation mechanism for medical education by social groups, enterprises and individuals, and strengthen the transparency of medical education donations and the use of funds by private medical schools and regulate the supervision of school operation.

3.3. Deepen Medical Education and Training, and Reconstruct the Public Health System

While medical education should develop its specificity, it should also focus on the whole, breaking the situation of training talents limited to their respective professional systems and forming a general climate of integrated action between clinical medicine and public health. In particular, medical education should focus on the integration of the three areas - basic, clinical and health - in a way that brings out the strengths of each discipline, but also requires mutual integration and synergistic development. The process of training students in clinical medicine needs to include not only the study of internal medicine, surgery and diagnostics, but also the strengthening of knowledge in the field of public health. At the same time, measures should be taken to strengthen the teaching of general medicine and epidemiology, and to set up practice bases with the community so that clinical students can also receive training in the public health system, so that the goal of medical education can be changed from a "cure-centred" to a "health-centred" approach. The aim of medical education is to change from a "cure-centred" to a "health-centred" approach. The concept of health is implemented in the process of medical education and training. The concept of "Greater Health" is a development concept that encompasses all elements of physical, mental, psychological, physiological, social, environmental and moral well-being [2]. In a globalised world, traditional single control strategies are no longer able to cope with the speed of the spread of infectious diseases. Ways and means must be found to integrate human, natural, social and psychological factors. As President Xi Jinping emphasised".

integrate health into all policies". Modern medical education requires the integration of this concept and connotation of greater health into the whole process of medical student training, so that medical students and young doctors can grow up with a proactive focus on all aspects of the whole life cycle and a human-centred medical philosophy.

4. The Design of the Human Resources Training System in the Context of the New Coronary Pneumonia Epidemic

In general, the training of talents in the context of the new pneumonia epidemic should start with the overall design and planning of the medical school, specifically in terms of "infrastructure", which includes the construction of majors, curricula and teaching resources. Specialities are the basic units of talent training. It is important to focus on new planning for existing specialities, as well as designing cross-disciplinary specialities. We should proactively serve the national strategy of "Healthy China", set up and develop new medical specialties, and promote the reform and innovation of existing medical specialties, so as to promote the cross-fertilisation of disciplines and specialties and cultivate complex and innovative medical talents. The curriculum is the core element of talent training. It is necessary to focus on optimising the teaching content of existing courses, and to supplement the "Medicine + X" cross-cutting related courses. For example, on the basis of the original mathematics, science and chemistry,

strengthen the data and material science courses; on the basis of the original human system structure and function, strengthen the biomedical science courses; on the basis of the original Civics and Humanities courses, strengthen the humanities and social science courses. Teaching resources are conducive to the cultivation of talents. We should both rely on innovative cross-teaching teams to strengthen the construction of teaching resources related to the curriculum and accelerate the construction of practical teaching bases. At the same time, we must optimise and form teaching organisations that are compatible with the construction of the new medical school, build innovative cross-teaching teams across schools, faculties, disciplines and fields, strengthen in-depth cross-collaboration, and build teaching resources that are compatible with the new medical school. In addition, we should accelerate the construction of two major support systems for scientific research and medical care, i.e. medical schools should set up cross-teaching and research projects to promote scientific research and teaching research in the context of the new coronary pneumonia epidemic, promote teaching with research and teaching with research, and also provide medical students with "medical + X" innovative practice projects; accelerate the construction of smart hospitals with a focus on information technology construction, including "smart medical care" for medical staff. The hospital will also provide "medical + X" innovative practical projects for medical students; speed up the construction of a smart hospital based on information technology, including "smart medical care" for medical staff, "smart services" for patients and "smart management" for hospital management, as a practical teaching base for training talents under the new pneumonia epidemic. It will serve as a practical teaching base for the training of talents in the new pneumonia epidemic, promoting medical services and practical teaching.

5. Conclusion

This new crown pneumonia epidemic is a major public health emergency with the fastest spread, the greatest difficulty in prevention and control, and the widest scope of infection since the founding of New China. It is a great test for testing the medical education career in China, and at the same time a great opportunity. I believe that through this epidemic, we can learn from this experience, implement medical education reforms, improve medical education and better handle public health events in the future.

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