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Promote Linkage of “Four Medicals,” Effectively Elevate Strategic Importance of Medical Education—Interview with Academician CHEN Guoqiang

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The Bulletin: 2020 is an unusual year. In this year, COVID-19 suddenly broke out in full fury. Chinese government decidedly started the fight against the epidemic, and numerous medical workers threw themselves into the battle against COVID-19 without hesitation. The year of 2020 is also an unforgettable year for you. It is the 10th year that you serve as the Chancellor of Shanghai Jiao Tong University School of Medicine, and is also your 40th year in medicine. As a medical educator, a “warrior” having been fighting on the front of medical research for 40 years, and a master in medicine, what unforgettable experience did you get during the fighting against COVID-19? What are your feelings?

Chen Guoqiang: The COVID-19 epidemic is a major public health emergency with the fastest spread, widest infection, and greatest difficulty in prevention and control since the founding of the People’s Republic of China. Under the decisive command of General Secretary Xi Jinping, the 1.4 billion Chinese people have helped and supported each other, and with perseverance and dedication made major strategic achievements in the fight against the epidemic. In this battle without gunpowder, 42,600 medical workers responded to the call and rushed to Wuhan and other cities of Hubei, making all Chinese people moved and admired. Millions of medical workers have been fighting on the front to save lives and trying to reverse the situation. They have highlighted the spirit of “respecting the life, saving the dying, and healing the wounded with dedication and boundless love,” played an irreplaceable role as the tower of strength, and created countless eloquent and heroic stories.

As the Chancellor of Shanghai Jiao Tong University School of Medicine, I have also experienced some stories. For example, on New Year’s Eve on January 24, 2020, I saw off two intensive care staff of the first batch to Wuhan at Ruijin Hospital, Shanghai Jiao Tong University School of Medicine. At that time, the “go-against-the-tide” could be

deemed as an unpredictable life-or-death experience as well as an unimaginable physical and psychological test. However, the nurse Shen Hong, after staying at home for less than six hours, packed her luggage and returned to the hospital for rushing to the rescue of Wuhan, which is unforgettable. She said then, “When I entered the university in 2006, our teacher told us that medicine means dedication. Facing the epidemic, we all feel scared, even medical workers, and there are no absolute heroes.” I was choked with emotion at that moment. I was worried about them and also touched by them. This is the success of our medical education. For supporting Wuhan, 569 medical workers from Shanghai Jiao Tong University School of Medicine were dispatched in total, and there were also many other stories that moved me a lot.

However, there were also things that were depressing. For example, on the New Year’s Eve of 2020, after seeing off the two medical workers, I received an email from an intern of the hospital, who asked me to allow the interns to leave the hospital because of danger. On the next day, the intern wrote to me again, stating that they were students of the medical school, but not doctors, and the internship should be suspended to protect the safety of all the interns. Frankly speaking, I felt sad and concerned when I received the email. Are we cultivating sophisticated egoists? What is the particularity of the medical discipline? In the period of epidemic, students of other majors can have “class suspension,” but for senior medical students, they should take it as an opportunity for practice, be brave to confront the epidemic, and assume responsibility with passion. How can they withdraw and miss the “opportunity”? It was also a good time to foster character and civic virtue, and examine the effect of education. Therefore, in addition to dispatching our medical workers and offering medical supplies, I also reflected on our medical education.

The Bulletin: Medical science is a subject regarding life

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directly. It is lofty and also challenging. Over the years, you have been committed to the cultivation of souled and innovative medical talents with your foresightedness and insight in medical education. The COVID-19 epidemic is a test for the public health emergency system as well as the medical education in China. What new thinking do you have on medical education from this epidemic?

Chen Guoqiang: On February 16, 2020, we released a letter to grade three senior high school students themed “This is the best time to show love for medicine!” The letter pointed out, if you have been determined to cure sickness and save patients, please believe your choice and do not retreat due to the virus ravage; if you have been determined to engage in medicine and serve the people, please believe your choice and do not cower because of the current difficulty. Life and death are the most important issues concerned by the people, and doctors are those who can save the life. Good doctors would foster virtue rather than seek for fame and benefits; make contributions in the process of saving the life and treating the diseases; expound their ideas in books, which are the three virtues of doctors. We earnestly expect that you may remain true to the original aspiration, eliminate external interference, and adhere to your obsession with medicine in heart!”

On February 18, I published part of my reflections on medical education made in the past two weeks with the title of “Reflections should be made on medical education when the epidemic is not over!” The article was published on Shanghai Channel of the client of People’s Daily. It attracted more than 2 million readers in one day, indicating that Chinese people have been attaching great importance to medical education with great expectation. I was gratified. In the article, I pointed out that “at the beginning of 2020, Chinese people started realizing the marvelous role of doctors, and that medical science can save the country. Strong medical science leads to a powerful and prosperous nation. The dark night will pass, and the dawn will come as promised. We have no choice but overcome the epidemic. The essence of medical science is to maintain and improve people’s health. In fact, the well-being of mankind is the ultimate goal of our scientific experiments. At this moment when people’s life and health are seriously threatened, it is also necessary to make reflections on and improvement of the source of the medical science-medical education. During the epidemic of COVID-19, the casualties caused by the shortage of epidemiological professional teams and the insufficient protection awareness and ability of clinical medical workers fully exposed the lack of systematic arrangement in medical education in China, and the obvious shortcomings in the prevention of and response to the public health crisis, namely, emphasizing on “techniques,” “treatment,” and “specialty,” but neglecting “morality,” “prevention,” and “comprehensiveness.” Such shortcomings made us passive in dealing with the sudden epidemic, leaving a painful lesson. Therefore, I made reflections at three macro levels—“Unstable foundation may

shake the superstructure,” “chronic and severe diseases are more emphasized than ‘small’ subjects,” and “obtaining moral education precedes being a doctor.” Furthermore, I mentioned that during the fighting against the epidemic, our medical workers performed extremely well. However, under the ruthless conditions of the epidemic, medical education, medical research, and medical practice should be seriously examined and reflected from the macro to the micro levels, so as to awaken us and urge us to improve and take strict precautions against comeback of the epidemic.

On April 1, 2020, on invitation of Guangming Daily, I made further reflections from three micro levels, and the article was themed “understanding medical history and law, integrating medicine with extensive learning, and seeking for truth and goodness.” I put forward that medical law and medical history should be the compulsory courses, “extensive learning before becoming a doctor” should be the eternal credo of medical education, and medical science should demonstrate the combination of rigidity and softness; the spiritual core of medical science should be the seek for truth, goodness, and beauty. In addition to seeking for goodness, namely, showing compassion and taking care of patients like families, medical science should also seek for truth, namely, showing scientific and rational indomitable spirit and the awe to the occurrence, development, and consequence of diseases. Doctors should believe in science instead of “authority,” and also uphold the truth and treat patients through careful thinking, diagnosis, and operation.

The Bulletin: During the medical education, especially in the ten years as the Chancellor of Shanghai Jiao Tong University School of Medicine, you have been always taking the lead to reform with passion and perseverance, bringing a new trend in medical education in China. So in your opinion, what are the shortcomings of China’s medical education?

Chen Guoqiang: Without doubt, Chinese medical workers showed excellent performance in the fighting against the COVID-19 epidemic. In a sense, it has been a success for China’s medical education. However, basing on the spirit of “taking a long view, learning from the lessons, making up for shortcomings, strengthening the weak aspects, and adhering to, improving, establishing, and implementing the corresponding items,” we should further reflect on the weaknesses of China’s medical education, and make tangible improvements, so as to better cultivate medical talents, and serve the “Healthy China” and the Community of a Shared Future for Human Health, thus making huge contributions to the health of Chinese people in the great rejuvenation of the Chinese nation. Furthermore, I would like to mention my macro reflections on the “shortcomings” of China’s medical education in the following four aspects.

(1) The integrity and particularity of medical education have not been fully recognized and highly valued. As early as in the 1940s, it was stated in Goodenough Report (report of the Interdepartmental Committee on Medical Schools) in the UK that carefully planned and implemented medical education

was the foundation of comprehensive health services. Moreover, it emphasized the important role of medical talents, especially the doctors, in supporting the medical and health undertakings. The subjects of medical research are human beings, who possess biological and psychological attributes, as well as complex and changeable social attributes. Medical science has scientific and humanistic characteristics, and is an organic unity of natural science, social science, and humanities. It is the most scientific in humanities and the most humane in science. In addition to clinical medicine, medical science also covers many other subjects of equal importance, such as basic medicine, public health, preventive medicine, nursing, and experimental medicine. With the merging of medical universities and comprehensive universities, some comprehensive universities without any basis of medical education have also started establishing medical schools, which together with unmerged independent medical schools received no sufficient attention and investment. At the same time, for the National Health Commission of the People's Republic of China, there is lack of the administration authority of medical education, and in the Ministry of Education, there is only one department under the Department of Higher Education for the administration of medical education. In this case, the integrity and particularity of medical disciplines have not been fully valued, and the autonomy of medical schools has been severely impacted, resulting in a lack of scientific, rational, and complete top-level design for medical education and failing the actual needs of the construction of "Healthy China."

(2) The quality of medical education is not high enough, and the "post competency" is not fully cultivated. Firstly, we should highly affirm the great progress made in medical education in China and its contributions to human health. However, we should also see the imbalanced progress of medical education reform in China, and the uneven quality of medical education. For most medical schools, medical specialty is not attractive enough for outstanding high school graduates, and the enrollment quality has also decreased. High-level medical schools are limited in enrollment, and independent medical schools have kept increasing enrollment. They emphasize more teaching than clinical practice, skill training than humanistic education, medical treatment than nursing, and clinical practice than public health. Meanwhile, medical humanistic education is seriously lacking. Students in specialties directly regarding diseases, such as clinical medicine and nursing, only focus on professional learning. And due to further subdivision of the specialties, the cultivated doctors would be unable to systematically master and apply the public health knowledge. Moreover, because of the low payment, the general practice is unattractive; the "basic practitioners" are short in number and have not-high quality, so that they still cannot completely build the line of defense for the treatment and prevention of diseases at the grassroots level. Besides, medical education is a life-long education system, which involves post-graduation education

(including the training of resident doctors/specialist physicians, and specialized masters) and continuing education. With regard to post-graduation education, it is hard to realize the "post competency" due to the strained doctor-patient relationship and high medical risks, low motivation of teachers, and few opportunities in practice and low payment for trainees. Also, continuing medical education is often driven by the factors such as promotion, instead of the goal of learning new knowledge, new theories, new methods, and improving clinical capabilities.

(3) There is a lack of professional teams in response to major public health emergencies. At present, there is not a compound professional team being able to prevent and deal with emergencies in a normalized manner. There also lack field epidemiological teams and pathological teams that can complete tasks with high quality in the first time. The training of high-level public health talents is weak, and in the existing talent evaluation system, the public health talents are hard to be mentioned; thus, the loss of high-end public health talents is serious. The graduates with the major of public health such as preventive medicine are generally not well paid, and it is hard for them to be promoted, making their sense of accomplishment and social status low. These factors have affected the quality of enrollment in the field of public health, and a high proportion of students would engage in other fields. At the same time, the public health workers on the front of disease prevention and control, especially grassroots ones, have heavy workload and high pressure, but low income and professional gain. In addition, worker in grassroots disease control agencies and community health service agencies have low overall quality for emergency response and handling of epidemic, thus it is hard to deal with the increasingly complex and highly informationized prevention and control of diseases.

(4) The modern concepts of ONE Health and global health have not been effectively implemented. Human health is associated with animal health and environmental health. The distance between virus and civilization is only the distance of a flight. The virus may reach all parts of the world from the tropical rain forest in Africa within 24 hours. For decades, more than 75% of new and recurrent infectious diseases around the world are zoonoses. With the economic and social globalization, the spread of these infectious diseases is accelerating, and the scope of spread is gradually expanding; the traditional single control strategy cannot effectively prevent and control such diseases. At the same time, the environment and lifestyle may seriously affect human health. Animal health is inseparable from agricultural health, which in turn is related to ecosystem health, and the ecosystem health is inseparable from the health of air, water, soil, and the entire planet. Therefore, we should form a concept of harmonious coexistence between human beings, animals, and nature. As General Secretary Xi Jinping put it, we should "integrate health into all policies." The concept of "ONE Health" proposed internationally years ago is the important

practice of “green” development concept in the health field. Under this concept, the first-class universities in developed countries have established relevant institutions and trained many high-level talents. However, “ONE Health” in China is still in discussion of some scholars, and has not been implemented in medical education and medical and health practices, which is inappropriate with our international status.

The Bulletin: You have said that “the epidemic has widened the gap of medical talent shortage, and the medical sector should systematically and strategically cultivate a group of energetic young people who dare to fight.” What’s your opinion on the “systematical and strategic” cultivation?

Chen Guoqiang: Medical science will prosper when the young are thriving, and it will be advanced when the young are robust. However, contemporary young medical talents face slow growth, low remuneration, imperfect initiative mechanism of youth cultivation, “seniority” in the title system, and problems such as the impact of material gains and restlessness. In the past few years, Shanghai Jiao Tong University School of Medicine has helped the growth of the young from the aspects of motivation, training, title, and mentor selection, and certain achievements have been made. However, due to the restrictions of various policies, further efforts should be made.

It is recommended to promote the linkage between “medical treatment, medical insurance, medical drugs, and medical education,” and improve the strategic position of medical education. “Without public health, there will be no overall well-off.” COVID-19 greatly affects economic and social development, indicating that medical and health services are associated with the public health, social stability, economic development, and national security. We should integrate medical education and realize the linkage between “medical treatment, medical insurance, medical drugs, and medical education” on the basis of further deepening and scientifically and rationally promoting the medical system reform, and implementing the linkage between “medical treatment, medical insurance, and medical drugs.” Medical education is the main supply side of the force for promoting

the linkage between “medical treatment, medical insurance, and medical drugs,” and medical workers receiving medical education are the main staff in the fighting against various epidemics. Without high-quality medical education, it would be hard to realize the linkage between “medical treatment, medical insurance, and medical drugs.” Therefore, we can promote the reform and development of medical education from the following three aspects.

(1) Give medical schools the autonomy in running schools. It is necessary to strictly implement the Opinions of the General Office of the State Council on Deepening Medical Education and Further Promoting the Reform and Development of Medical Education issued on July 3, 2017. We should fully respect the particularity of medical education, systematically promote the overall management of medical education in comprehensive universities, earnestly give medical schools the autonomy in running schools, and maintain the integrity and systematicness of medical education.

(2) Establish a macro-management and coordination mechanism for medical education. We should set up a separate department for medical education under the Ministry of Education or entrust the National Health Commission of the People’s Republic of China to guide medical education, and coordinate the top-level design and reform of medical education; we should release policies and provide funds for the cultivation of medical talents; it is recommended to reduce or exempt the tuition of medical students and increase the remuneration of educational medical students. National institutes of continuing education for doctors should be established based on high-level medical colleges and universities, and the training of medical workers should be intensified for knowledge update.

(3) Ensure medical education reform based on laws. We should clarify the goals, tasks, and functional positioning of medical education while formulating the Health Care and Health Promotion Act, and revise relevant laws and regulations such as the Law of the People’s Republic of China on Medical Practitioners, so as to provide legal protection for the reform of medical education.



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