

# New medical education reform in China: Towards healthy China 2030

Peipei Song<sup>1,2</sup>, Chunlin Jin<sup>1</sup>, Wei Tang<sup>3,\*</sup>

<sup>1</sup> Shanghai Health Development Research Center, Shanghai Medical Information Center, Shanghai, China;

<sup>2</sup> Graduate School of Frontier Sciences, The University of Tokyo, Kashiwa-shi, Chiba, Japan;

<sup>3</sup> Department of Surgery, Graduate School of Medicine, The University of Tokyo Hospital, Tokyo, Japan.

## Summary

On July 11, 2017, the State Council of China issued a bold plan to revolutionize medical education and promote collaboration between medical education and practice. The cornerstone of the plan is training more qualified medical professionals to improve public healthcare on the path to Healthy China 2030. According to this plan, a "5+3" training system will be instituted to train medical professionals in China, and top medical colleges will be encouraged to recruit more students. However, given the less-than-ideal professional status of Chinese doctors, the frequent incidents of violence against them, long working hours and a heavy workload, and an unsatisfactory income, attracting personnel to work in medicine and health care has become a challenge. Prior to the end of 2016, there were 3.19 million practicing (assistant) physicians in China, amount to 2.31 per thousand population. The average workload of physicians was 7.3 outpatient visits per day and 2.6 beds per day, and these figures are much higher for physicians working in tertiary hospitals. Studies have found that 78% of physicians work more than 8 hours a day and 7% of physicians work more than 12 hours a day, but the average annual income of physicians in 2015 was 77,000 yuan (about \$12,360), in contrast to an average annual income of \$294,000 for physicians in the United States. Medical humanities education is also emphasized by the new medical education reform to foster the humanistic spirits of medical students in order to improve public healthcare in China. In the face of a mindset that "medical technology comes first" and growing expectations among the public, public education is needed to provide the public with a more comprehensive view by explaining the limitations of modern medicine since "medicine is not a panacea". Additional efforts should be undertaken by the Government, organizations, physicians, patients, and the public to create a virtuous cycle of healthcare in China.

**Keywords:** Healthcare, reform, medical education, medical humanities

## 1. Introduction

On July 11, 2017, the State Council of China issued a bold plan to revolutionize medical education and promote collaboration between medical education and practice (1). This was the first guideline issued by the State Council of China on medical education reform since 1949. The main goals of this reform are to make breakthroughs in the system of medical education management and

to foster the best medical personnel through incentives by 2020. Additional goals are to foster a better policy environment for reform and development of medical education, to standardize the training system for medical personnel, and to meet China's health needs by 2030 (2).

The cornerstone of the plan is to train more qualified medical professionals by reforming medical education in order to improve the public healthcare in China. In addition, medical humanities education is emphasized as part of medical education to promote the integration of humanities education and professional education and to foster the humanistic spirits of medical students in order to improve public healthcare in China (2). The goals are laudable, but many pressing issues must be addressed.

\*Address correspondence to:

Dr. Wei Tang, Department of Surgery, Graduate School of Medicine, The University of Tokyo Hospital, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8655, Japan.  
E-mail: tang-sur@h.u-tokyo.ac.jp

## 2. "5+3" Training system vs. Dampened enthusiasm for the study of medicine

Prior to the end of 2016, there were 11.17 million health personnel in China, of which 3.19 million were practicing (assistant) physicians (3). However, only 51% of physicians have received undergraduate or postgraduate education, and most had not received standard training in clinical medicine (4). This led to substantial differences in clinical practice. Chinese medical personnel face challenges in terms of both education and professional training.

According to this new medical education reform, a "5+3" training system – a 5-year-program of undergraduate clinical medicine plus a 3-year residency training or a 3-year postgraduate program – will be instituted to train medical professionals in China. In order to increase the supply of quality professionals, top medical colleges are encouraged to recruit more s medical students of higher quality.

Due to the less-than-ideal professional status of Chinese doctors and frequent incidents of violence against them over the past five years (5-7), a growing number of outstanding young people are losing their enthusiasm to study medicine, and there is declining interest among medical graduates in pursuing careers in clinical practice in China. A study has indicated that Chinese universities have produced about 4,727,977 medical graduates over the past 10 years, but the total number of registered physicians in clinical practice increased by only about 752,233 (15.91%) (8).

Physicians' dissatisfaction with the practice of medicine will affect how the profession is viewed. In 2015, the Chinese Medical Doctors Association analyzed 9,524 responses to a survey, and 64.48% of physicians

responded that they would not encourage their child to become a physician in the future (9). Making matters worse, the sudden death of a 25-year-old resident in anesthesiology at Sir Run-Run Shaw Hospital, Zhejiang University School of Medicine on June 28, 2017 shocked the public (10). This was the fifth case of a sudden death of a young doctor in 2017, and it caused widespread concern about the grim situation for young doctors in China in terms of long working hours and a heavy workload.

According to data from the National Health and Family Planning Commission of China (11), there were 983,394 medical and health care facilities nationwide prior to the end of 2016. This included 29,140 hospitals, 926,518 primary health care facilities (community health care centers, township hospitals, etc.). There were 3.19 million practicing (assistant) physicians, amounting to 2.31 per thousand population (Table 1).

The workload of physicians in hospitals is considerable. Physicians dealt with 3.27 billion outpatient visits in 2016, with an average workload of 7.3 visits per day, and they dealt with 175.3 million inpatients, with an average workload of 2.6 beds per day (Table 2). In particular, physicians working in tertiary hospitals are responsible for 8.1 outpatient visits per day and 2.7 beds per day. Physicians at primary hospitals dealt with more outpatient visits. Physicians working at community health care centers had an average workload of 15.9 visits per day and physicians working at health clinics in towns and townships had a workload of 9.5 visits per day (Table 2).

More than 30,000 Chinese physicians were surveyed about their income in 2016, and results indicated that the average annual income of physicians in 2015 was 77,000 yuan (\$12,360) (12). In contrast, a study involving over

**Table 1. The national number of hospitals and primary health care facilities, beds and their usage, and practicing (assistant) physicians in China in 2016\***

Facilities	Number	Beds	Bed usage (%)	Average duration of hospitalization (days)
Hospitals	29,140	5,688,875	85.3	9.4
Public hospitals	12,708	4,455,238	91.0	9.6
Private hospitals	16,432	1,233,637	62.8	8.6
Hospitals				
Tertiary hospitals	2,232	2,213,718	98.8	10.1
Secondary hospitals	7,944	2,302,887	84.2	8.8
Primary hospitals	9,282	517,837	58.0	9.0
Primary health care facilities	926,518	1,441,940	–	–
Community health care centers	8,918	182,191	54.6	9.7
Community health care station	25,409	20,498	–	–
Township hospitals	36,795	1,223,891	60.6	6.4
Village clinic	638,763	–	–	–
Clinic (Infirmary)	201,408	154	–	–
Practicing (assistant) physicians (million)			3.19	
Practicing (assistant) physicians per thousand population			2.31	

\*Data are from the National Health and Family Planning Commission of China (11).

**Table 2. The national medical service workload and the workload of physicians in China in 2016\***

Facilities	Outpatients (100 million visits)	Average workload posed by outpatients (visits)	Inpatients (million)	Average workload posed by inpatients (beds per day)
Hospitals	32.7	7.3	175.3	2.6
Public hospitals	28.5	7.6	147.5	2.6
Private hospitals	4.2	5.5	27.8	2.2
Hospitals				
Tertiary hospitals	16.3	8.1	76.9	2.7
Secondary hospitals	12.2	6.9	75.7	2.7
Primary hospitals	2.2	6.1	10.4	1.9
Primary health care facilities	43.7	—	41.7	—
Community health care centers	5.6	15.9	3.1	0.6
Township hospitals	10.8	9.5	38.0	1.6

\*Data are from the National Health and Family Planning Commission of China (11).

19,200 physicians in the United States in 2017 indicated that the average annual full-time compensation for physicians providing patient care was \$294,000 (13). The per capita disposable income of urban residents in China is 21,966 yuan (\$3,527), and the income in cities such as Shanghai, Beijing, and Zhejiang is as high as 40,000-50,000 yuan (\$6,000-8,000) (12). In contrast, the physicians' income is not low. However, many physicians believe that their work is not adequately reflected in their income in light of their huge workload and work stress, the time and effort spent to receive their education, and the long-standing risks to their physical safety that they must face because of violence against health professionals. A point worth noting is that physicians are commonly overworked. According to one study, 78% of physicians work more than 8 hours a day and 7% of physicians work more than 12 hours a day (12).

In the face of these challenges, the Chinese Government is expected to devote greater attention to the following aspects as it reforms medical education: improving the mechanism for balancing the supply of and demand for medical training; attracting talents to engage in medical and health work; speeding up the establishment of mechanism for rationally reflecting the expertise and labor value of medical personnel, and improving the evaluation mechanism of physicians to enhance the occupation attraction.

### 3. Medical humanities education vs. Pressing issues in healthcare

Incentive policies, including the increase in income, and improved evaluations are greatly needed in order to guide career choices by young Chinese. Meanwhile, medical humanities education is also being emphasized. As indicated in this new medical education reform, medical humanities education should be provided during medical education to promote the integration of humanities education and professional education and to foster the humanistic spirits of medical students in order to improve healthcare in China.

Revival of the humanities in Chinese medical education is being given great expectation as a way to resolve predicaments in Chinese healthcare (14,15), and medical humanities education will be enhanced under the new plan to reform medical education. However, will medical humanities education actually resolve those problems? One cannot help but be somewhat circumspect.

Previous reform of medical education emphasized medical humanities in an effort to increase the professionalism of future physicians. Some universities have established institutes of medical humanities, such as the Institute of Medical Humanities of Peking University that was founded in 2008. Courses such as an online course entitled Introduction to Medical Humanities created at Fudan University in 2015 have benefited almost 500,000 students from 140 universities (16). However, healthcare in China still has many pressing issues, including the social phenomenon of mistrust between patients and physicians, violence against health professionals, commercialization of healthcare, and perverse incentives for medical professionals. The mindset of "medical technology comes first" and the rising expectations among the public compound the problem.

Moreover, the current courses in medical humanities were arbitrarily established due to a lack of organizational independence. Medical humanities is spread out amongst the disciplines of philosophy, sociology, political theory, education, and traditional Chinese medicine. Various problems like a shortage of instructors are obstacles that are delaying the integration of humanities into the medical curriculum at most medical universities in China.

### 4. "Medical technology comes first" vs. "Medicine is not a panacea"

Today, medical humanities education has placed greater emphasis on the doctor's sense of social responsibility in order to train medical students to develop sensitivity to,

empathy for, and understanding of the human condition. Nonetheless, a point worth mentioning is that in addition to the doctor's level of expertise and humanistic care, the present predicaments facing healthcare in China are caused by a variety of factors, including national health policy, medical costs, and patient circumstances. A wide range of legal, social, and financial efforts are also necessary.

In the face of a mindset that "medical technology comes first" and growing expectations among the public, public education is needed to provide the public with a more comprehensive view by explaining the limitations of modern medicine since "medicine is not a panacea".

The focus of new medical education reform in China is "to foster medical personnel with a high level of both expertise and humanistic spirits". Additional efforts should be undertaken by the Government, organizations, doctors, patients, and the public to create a virtuous cycle of healthcare in China.

## References

1. The State Council of the People's Republic of China. China issues plan on medical education reform. [http://english.gov.cn/policies/latest\\_releases/2017/07/11/content\\_281475721608510.htm](http://english.gov.cn/policies/latest_releases/2017/07/11/content_281475721608510.htm) (accessed on July 12, 2017)
2. The State Council of the People's Republic of China. China issues plan to reform medical education and promote collaboration between medical education and practice. [http://www.gov.cn/zhengce/content/2017-07/11/content\\_5209661.htm](http://www.gov.cn/zhengce/content/2017-07/11/content_5209661.htm) (accessed on July 12, 2017) (in Chinese)
3. MedSciCn. Major news! Undergraduates who receive standard training in clinical medicine can be directly hired as mid-level professionals. [http://www.medsci.cn/article/show\\_article.asp?id=e56c10538865](http://www.medsci.cn/article/show_article.asp?id=e56c10538865) (accessed on July 13, 2017) (in Chinese)
4. Chinanews. Signals gleaned from the first plan for medical education reform issued by the State Council. <https://www.chinanews.com/gn/2017/07-13/8276335.shtml> (accessed on July 13, 2017) (in Chinese)
5. Peng W, Ding G, Tang Q, Xu L. Continuing violence against medical personnel in China: A flagrant violation of Chinese law. Biosci Trends. 2016; 10:240-243.
6. Tucker JD, Cheng Y, Wong B, Gong N, et al. Patient-physician mistrust and violence against physicians in Guangdong Province, China: A qualitative study. BMJ Open. 2015; 5:e008221.
7. Wang F, Song ZZ, Zhang W, Xiao YW. Medical humanities play an important role in improving the doctor-patient relationship. Biosci Trends. 2017; 11:134-137.
8. Lien S, Kosik R, Fan A, Huang L, Zhao X, Chang X, Wang Y, Chen Q. 10-year trends in the production and attrition of Chinese medical graduates: An analysis of nationwide data. Lancet. 2016; 388:11.
9. Chinese Medical Doctors Association. White Paper on the Licensing of Chinese Physicians. [http://news.medlive.cn/all/info-news/show-78986\\_97.html](http://news.medlive.cn/all/info-news/show-78986_97.html) (accessed on July 22, 2017) (in Chinese)
10. Sir Run-Run Shaw Hospital, Zhejiang University School of Medicine. Statement on the circumstances of the sudden death of Doctor Chen during the standard residency training program at Sir Run-Run Shaw Hospital. <http://www.srrsh.com/article/2921.html> (accessed on July 25, 2017) (in Chinese)
11. National Health and Family Planning Commission of China. Statistical Communique on the Development of Health and Family Planning in China in 2016. <http://www.nhfpc.gov.cn/guihuaxxs/s10748/201708/d82fa7141696407abb4ef764f3edf095.shtml> (accessed on August 20, 2017) (in Chinese)
12. VOTE.DXY.CN. Report on Chinese doctors' salaries in 2015. <http://vote.dxy.cn/report/dxy/id/492740> (accessed on August 20, 2017) (in Chinese)
13. Medscape. Medscape Physician Compensation Report 2017. <http://www.medscape.com/slideshow/compensation-2017-overview-6008547> (accessed on August 20, 2017)
14. Song P, Tang W. Emphasizing humanities in medical education: Promoting the integration of medical scientific spirit and medical humanistic spirit. Biosci Trends. 2017; 11:128-133.
15. Chang Y1, Zhou X2, Zhang Y3. Medical humanity: How do we learn it? Chin Med J (Engl). 2014; 127:4292-4294.
16. Yun X, Guo J, Qian H. Preliminary thoughts on research in medical humanities. Biosci Trends. 2017; 11:148-151.

(Received July 15, 2017; Revised August 23, 2017;  
Accepted August 26, 2017)