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Health care reform in China from the perspective of physicians

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SUMMARY Health care reform is a worldwide problem. To address the problems of costs, access, quality, efficiency, and equity, China initiated healthcare reform in 2009. The progress of China's healthcare reform has been internationally recognized as the reform has expanded insurance coverage and improved access to and reduced the costs of care over the ten-year period from 2008 to 2018. To achieve sustainable goals, attention must be focused on whether and how the reform encourages physicians. This paper highlights the role of physicians, the challenges that need to be addressed, and the direction in which to advance health reform in China from the perspective of physicians. The slow-growing and aging physician population cannot meet the ever-increasing medical demand. Physicians have a heavy workload, work long hours, have unsatisfactory income, and have a fraught relationship with patients. The situation calls for rethinking the value of physicians and rebuilding trust between physicians and patients. Further healthcare reform is needed to equitably allocate physicians with adequate training, time, and resources to deliver evidence-based practices and patient-centered care.

Keywords China, healthcare, reform, physicians

1. Introduction

Healthcare reform is a worldwide problem. For China, a developing country with a large population, it is even more difficult and challenging. In response to the problems of cost, access, quality, efficiency, and equity, China initiated the long-awaited and much-needed healthcare reform in 2009. From 2009 to 2012, the five priority areas were: *i*) expanding basic health insurance programs; *ii*) establishing an essential drug list; *iii*) upgrading primary care delivery; *iv*) greater parity between rural and urban public healthcare; and *v*) initiation of pilot reforms in public hospitals (*1,2*). From 2012 to 2015, the healthcare reform was aimed at deepening public hospital reforms in terms of their operation, governance, compensation, and other aspects. From 2015 to 2020, the strategic goals were: *i*) universal coverage of basic healthcare for all citizens by unifying three public insurance schemes; *ii*) providing an integrated health system by enhancing primary care and reforming public hospitals; and *iii*) a "Healthy China 2030" blueprint focusing on improvements in medical care and health determinants such as environment health, lifestyle, and health education (*3*).

The progress of China's healthcare reform has been internationally recognized (*4*). Over the ten-year period from 2008 to 2018, the percentage of the national gross domestic product (GDP) devoted to healthcare has been steadily increasing (Figure 1). Total healthcare expenditures increased from 1.453 trillion RMB in 2008 (*5*) to 5.800 trillion RMB in 2018 (*6*), an increase of 299% (Figure 1). With three major health insurance programs: the Urban Employee Basic Medical Insurance, the New Rural Cooperative Medical Scheme, and Urban Resident Basic Medical Insurance, insurance coverage improved markedly since 2003, thereby covering over 95% of citizens in 2018 (*7*). As a result of the improved benefits package under these insurance systems, the direct out-of-pocket spending as a share of total healthcare expenditures declined from 40.4% to 28.7% (Figure 1) (*5,6*). Markups in drug prices have been eliminated and drug prices have been reduced; consequently, China has seen a proportional decline in drug expenses over the ten-year period of the medical reform from 2008 to 2018 (*5,6*) (Table 1). According to Lancet's ranking of medical quality and accessibility in 195 countries and regions of the world, China rose from 60th place to 48th in 2015 and was one of the countries with the fastest progress (*8*).

However, medical reform initiatives focused on improving patient care may neglect the welfare of healthcare providers. To achieve sustainable goals,

attention must be focused on whether and how the reform encourages physicians. This paper highlights the role of physicians, the challenges that need to be addressed, and the direction in which to advance health reform in China from the perspective of physicians.

2. Supply of physicians

With an aging population and expanded medical insurance coverage, China is seeing an increasing demand for medical care and medical personnel. Data from the National Health Commission of the People's Republic of China showed that, from 2008 to 2018, the number of outpatient visits increased by 100.9% and the number of inpatient admissions increased by 170.8% (*5,6*). However, the growth rate of supply of physicians has not kept pace with growing healthcare demands. In 2018, China had 3.0 million licensed physicians, with 2.2 physicians per 1,000 population. The annual number of licensed physicians increased by only 1.2 million (68.0%) from 2008 to 2018 (Figure 2A). As the population ages and the demand outpaces supply, the physician shortage will intensify.

With the Gini coefficient as an indicator of distribution inequity, China has a severe geographical disparity in physicians (a Gini coefficient higher than 0.6), and this trend is worsening (*9,10*). The distribution of licensed physicians by age warrants attention as well (Figure 2B). The proportion of young physicians under the age of 35 was 26.4% in 2009 (*11*); in 2017, it fell to 21.1% (*12*). Moreover, the proportion of physicians over the age of 60 rose from 7.2% to 13.2%. The percentage of physicians with over 20 years of experience exceeded 47.7%, while the proportion of physicians with 10-20 years of experience steadily declined (*11,12*). There are many reasons for the slow-growing and aging physician population, such as extensive medical education and training (including undergraduate, postgraduate, and continuing education), mounting pressures at work, and a substantial decline in income. According to surveys in 2019, 46.6% of Chinese neurology postgraduates regretted their career choice (*13*) and the dropout rate

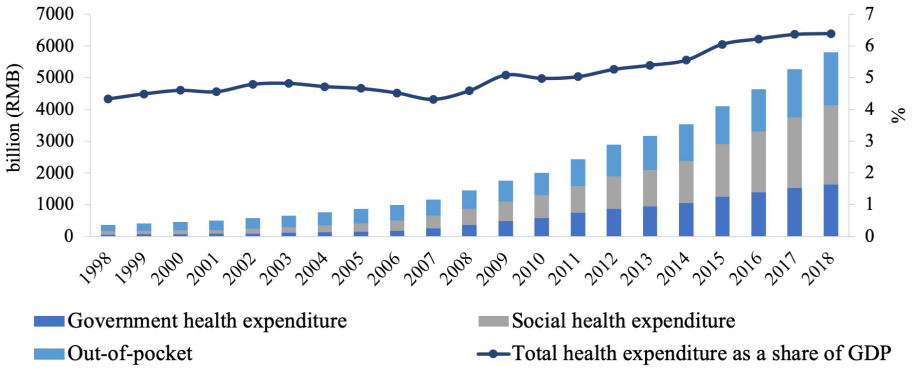

Figure 1. Nationwide healthcare expenditures. Changes in healthcare expenditures in China, 1998-2018. *Data are from the National Health Commission of the People's Republic of China.

Table 1. Hospital outpatient and inpatient costs

Year	Outpatient cost per visit (RMB)	Outpatient cost growth rate (%)	Outpatient drug expenses (%)	Inpatient cost per discharge (RMB)	Inpatient cost growth rate (%)	Inpatient drug expenses (%)
1995	39.9	-	64.2	1667.8	-	52.8
2000	85.8	-	58.6	3083.7	-	46.1
2005	126.9	7.5	52.1	4661.5	8.8	43.9
2006	128.7	1.4	50.5	4668.9	0.2	42.7
2007	135.8	5.5	50.0	4964.4	6.3	43.2
2008	146.5	7.6	51.3	5463.8	9.9	43.5
2009	152.0	9.9	51.5	5684.0	8.6	43.6
2010	166.8	9.7	51.3	6193.9	9	43.1
2011	179.8	7.8	50.6	6632.2	7.1	41.8
2012	192.5	7.1	50.3	6980.4	5.3	41.1
2013	206.4	7.2	49.3	7442.3	6.6	39.5
2014	220.0	6.6	48.3	7832.3	5.2	38.3
2015	233.9	6.3	47.3	8268.1	5.6	36.8
2016	245.5	5	45.5	8604.7	4.1	34.6
2017	257.0	4.7	42.7	8890.7	3.3	31.1
2018	274.1	6.7	40.9	9291.9	4.5	28.8

*Data are from the National Health Commission of the People's Republic of China. Note: growth rates are calculated at current prices.

of pediatricians was 12.6% (*14*). According to another survey, 71.0% of physicians in China would not encourage their children to pursue a medical specialty (*15*). An inadequate supply, uneven distribution, and low job satisfaction among physicians are the major obstacles facing China's healthcare system.

3. Work stress

A hierarchical medical system is at the core of the sustainable development of public healthcare in China. Since 2009, various approaches have been explored to establish an efficient, stable, and standardized mechanism for cooperation between public hospitals and primary healthcare providers, including prioritizing the development of primary care, building primary care facilities, a tiered reimbursement to encourage patients to receive primary care, dual referral systems, a standardized residency training program to equalize the delivery of quality care at all levels, and improving standard operating procedures for clinical practice (*16,17*). However, the uneven distribution of quality healthcare resources has not been properly addressed. Patients are still more willing to visit hospitals, and especially tertiary hospitals. Therefore, hospitals account for only a small proportion of total medical facilities (2-3%) in China, but they provided 43% of the outpatient care and 79% of the inpatient care in 2018 (*6*). Tertiary hospitals account for 6-8% of all hospitals, but tertiary hospitals account for 46% of inpatient admissions and 52% of outpatient visits.

The patient preference for large hospitals places a substantial burden on physicians in those hospitals. Physicians worked an average of 10 hours a day and slept 6 hours on average. Only 35.78% thought that they were in good health (*15*) and 64.8% were dissatisfied with their jobs (*18*). The prevalence of burnout among Chinese physicians ranged from 66.5 to 87.8%, according to a systematic review of 9,302 participants in 11 studies (*19*). In the United States, the burnout rate was 45.2% among resident physicians (*20*). Long working hours and severe burnout symptoms were independently associated with an increased risk of medical errors. According to a cross-sectional survey of 1,537 physicians in 46 hospitals across China, 39.6% of physicians in primary hospitals, 50.0% in secondary hospitals, and 59.5% in tertiary hospitals had recently made a medical error (*21*).

4. Financial stress

Controlling rising medical costs is one of the top priorities for healthcare reform. China's efforts to control the growth of costs are focused on eliminating markups in drug prices, reducing the price of drugs, and controlling the behavior of public hospitals. Public

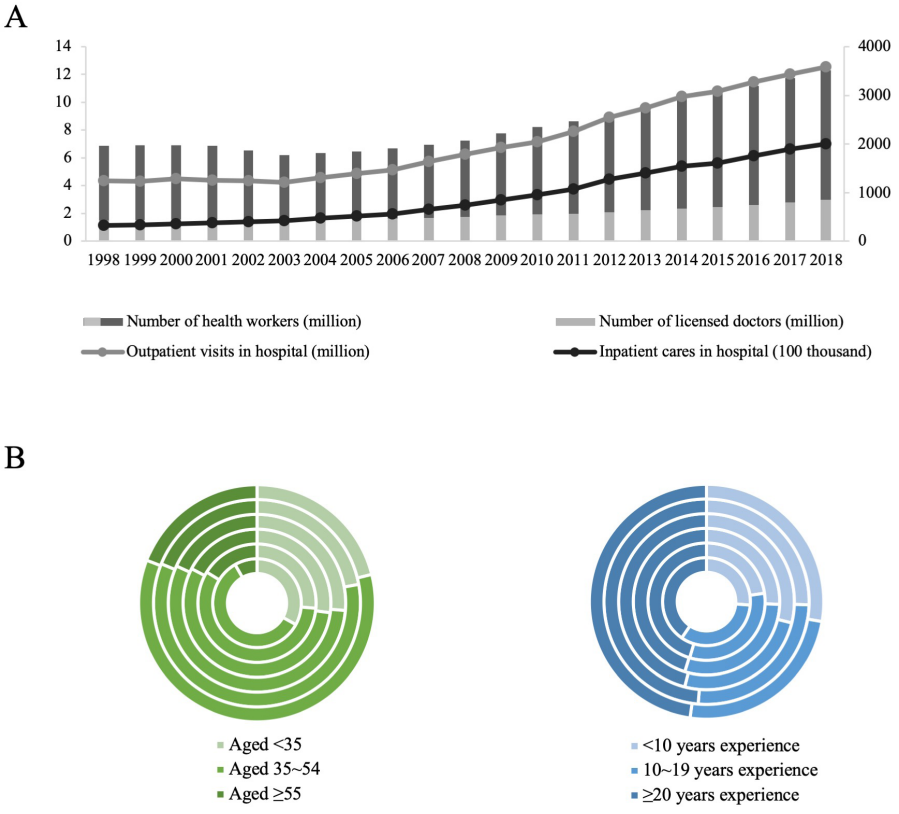

Figure 2. The trends in and features of the healthcare workforce supply in China. (**A**) Changes in the healthcare workforce supply and workload in China, 1998-2018. (**B**) Characteristics of licensed physicians, 2005-2017. Starting from the inside, each ring represents the years 2005, 2009, 2011, 2013, 2015, and 2017. *Data are from the National Health Commission of the People's Republic of China.

hospitals used to recoup medical costs through income from mark-ups on drugs because healthcare providers are underfunded and medical care is undervalued. Now, the brutal separation of medical care from drug sales prior to the establishment of a corresponding mechanism of compensation will place a great financial burden on hospitals and affect the income of medical staff. It will also reduce the motivation of medical personnel to implement healthcare reforms and raise doubts about the sustainability of those reforms.

According to a national survey of 17,945 physicians across China in 2016, 60.31% of physicians felt that the current medical pricing system did not reflect their value (*15*). The income distribution policy was one of the leading factors that influenced job satisfaction, according to 45.92% of physicians. Among 762 young physicians aged 15-45, 76.1% have a monthly income of 2,000 to 7,000 RMB (*22*). How to value physicians is one of the most discussed and highlighted problems for healthcare reform to address. Efforts are underway to more closely involve physicians in healthcare reform. Ways to encourage physicians include: prompting private actors to help supply medical care, encouraging physicians' mobility, and allowing multisite practice (*23*). Ultimately, how the society pays for care strongly influences how care is delivered.

5. Physician-patient relationship

Trust between physicians and patients is essential for the free flow of information necessary for medical care. However, there has been an unprecedented deterioration in the physician-patient relationship over recent years. Violence against physicians in China is particularly prevalent and severe. According to a survey of 2,617 physicians, respondents were often subjected to verbal abuse (76.2%), unreasonable demands (58.3%), baseless complaints (40.8%), disruptions (40.2%), threatening behavior (27.6%), physical violence (24.1%), and sexual harassment (7.8%) (*24*). From 2013 to 2016, there were 459 criminal cases of patient-initiated violence against medical staff in China (*25*). On December 24, 2019, Wen Yang, an emergency physician at the Beijing Civil Aviation General Hospital, was brutally killed by a patient's son who was dissatisfied with what he thought was the inadequate treatment of his 95-year-old mother (*26*). Workplace violence has strongly influenced physicians' regret of their career choice, professional turnover, and word-of-mouth communication (*27*).

Patient disappointment and resentment reflect a flawed medical system that victimizes both patients and physicians. In an effort to control medical fees, physicians need to be more productive and increase their competitiveness in order to make a profit, which means seeing patients faster. The average physician was seeing 40 patients per day, and 67.2% of physicians spent no more than 10 minutes with each outpatient (*28*). Moreover, there are many restrictions imposed on physicians that affect aspects of their work such as drugs they can prescribe and hospitalization. Paperwork, meetings, and scientific research have distracted physicians from actual patient care. Patients feel that physicians ignore their needs and are rushing them through simply to make a profit. The large proportion of negative news (74.9%) regarding the physician-patient relationship on Chinese social media has negatively affected the perceptions of both patients and physicians (*29,30*). Fixing this damaged relationship is central to healthcare reform.

6. Directions for the future

Physicians play a major decisive role in patient assessment, examination, diagnosis, and treatment planning, determining the total costs for medical care. Through direct communication with patients, physicians are key actors in the formation and development of the physician-patient relationship. Physicians' roles extend beyond an individual patient's health. They can shape and implement government public healthcare policy. They are of critical importance to medical research, basic health education, combating misinformation, and fighting epidemics. Following the outbreak of SARS, Ebola virus, H7N9 virus, and SARS-CoV-2, physicians are on the front line of the fight against disease regardless of the risks (*31,32*). While physicians are widely considered to be the most important human resources in the field of healthcare, the welfare of physicians is overlooked. The slow-growing and aging physician population cannot meet the ever-increasing medical demand. Physicians have a heavy workload, work long hours, have unsatisfactory income, and have a fraught relationship with patients. Rethinking the value of physicians and rebuilding trust between physicians and patients should be prioritized. The solution lies in further healthcare reform that equitably allocates physicians with adequate training, time, and resources to deliver evidence-based practices and patient-centered care throughout the country.

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