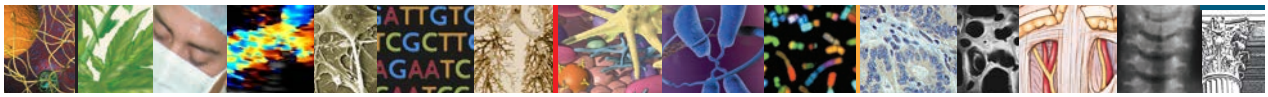

The NEW ENGLAND JOURNAL of MEDICINE

Perspective

APRIL 2, 2015

INTERNATIONAL HEALTH CARE SYSTEMS

Lessons from the East — China's Rapidly Evolving Health Care System

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At first glance, China might seem unlikely to offer useful health care lessons to many other countries. Its health system exists within a unique geopolitical context: a country of more than 1.3 billion people, occupying a huge, diverse landmass, living under authoritarian single-party rule, and making an extraordinarily rapid transition from a Third-World to a First-World economy.

But first impressions can be misleading. Since its birth in 1949, the People's Republic of China has undertaken a series of remarkable health system experiments that are instructive at many levels. One of the most interesting lessons from the Chinese experience concerns the value of an institution that many countries take for granted: medical professionalism.

Because the changes in China's health care system have been so rapid and profound, it is helpful to briefly review its recent history.[1] What might be seen as the first of four phases began when the Chinese Communist Party took power in 1949. The new government created a health system similar to those of other communist states such as the Soviet Union and its Eastern European allies. The government owned and operated all health care facilities and employed the health care workforce. No health insurance was necessary, because services were nearly free. A distinctive accomplishment of this phase was the system's successful use of community health workers, so-called barefoot doctors, to provide basic public and personal health services at the village level. Between 1952 and 1982, China's infant mortality rate fell from 200 to 34 per 1000 live births, and age-old scourges such as schistosomiasis were largely eliminated.[2]

In 1984, a second phase began: China turned its health system on its head, almost as an afterthought to dramatic free-market reforms in the rest of its economy. Led by Communist Party leader Deng Xiaoping, China converted to a market economy and reduced the role of government in all economic and social sectors, including health care. Government funding of hospitals dropped

Selected Characteristics of the Health Care System and Health Outcomes in China.*

Variable	Value	Urban/Rural
Health expenditures		
Per capita (U.S. $)	375	
Percentage of GDP	5.57	
Public sources (% of total)	63†	
Health insurance		
Percentage of population covered in 2012	95	
Source of funding	Taxes + premiums	
Average annual base salary for senior physicians (U.S. $)	15,000–50,000	
Access		
No. of hospital beds per 10,000 population	4.55	
No. of physicians per 1000 population	2.06	
Life and death		
Life expectancy at birth in 2010 (yr)	74.8	78/72
Additional life expectancy at 60 yr in 2014 (yr)	19	
Annual no. of deaths per 1000 population	7.16	
Annual no. of infant deaths per 1000 live births	6.3	3.7/7.3
Annual no. of deaths of children <5 yr of age per 1000 live births	12	6/14.5
Annual no. of maternal deaths per 100,000 live births	23.2	22.4/23.6
Fertility and childbirth		
Average no. of births per woman	1.6	
Births attended by skilled health personnel in 2012 (%)	100‡	
Pregnant women receiving any prenatal care in 2012 (%)	95	
Preventive care		
Colorectal-cancer screening generally available at primary care level	No	
Children 12–23 mo. of age receiving measles immunization (%)	>90	
Prevalence of chronic disease (%)		
Diabetes in persons >18 yr of age in 2010	11.6	
Hypertension in persons >18 yr of age in 2010	33.5	
HIV infection	<0.1	
Prevalence of risk factors (%)		
Obesity in persons >18 yr of age in 2010§	12	
Overweight in children <5 yr of age in 2010¶	7.1	
Smoking in persons >15 yr of age	28.1	

* Data were obtained from the World Bank, the Organization for Economic Cooperation and Development, the Commonwealth Fund, the World Health Organization, the Chinese Center for Disease Control and Prevention, the Global AgeWatch Index, and the Chinese Ministry of Health (now reorganized as the National Health and Family Planning Commission) and are for 2013 except as noted. Data on urban versus rural life expectancy were estimated by the authors from the 2010 national census published by the Chinese National Bureau of Statistics. Data on diabetes and hypertension were derived from testing of a sample of about 100,000 adults by the China Noncommunicable Disease Surveillance, 2010; among adults who were found to have hypertension or diabetes, only 42.6% and 30.1%, respectively, were aware of their condition. GDP denotes gross domestic product, and HIV human immunodeficiency virus.

† The government's budget pays 30% of the total, and premiums for social health insurance pay 33%.

‡ Out-of-wedlock births are not included; no data on such births are available.

§ Obesity in adults was defined as a body-mass index (the weight in kilograms divided by the square of the height in meters) of 28 or more.

¶ Overweight in children less than 5 yr of age was defined as a weight-for-height ratio more than two standard deviations above the median for the international reference population of the corresponding age, as established by the World Health Organization's new child growth standards.

dramatically, and many health care professionals, including barefoot doctors, lost their public subsidy. The government continued to own hospitals but exerted little control over the behavior of health care organizations, which acted like for-profit entities in a mostly unregulated market. Many health care workers became private entrepreneurs. Physicians working for hospitals received hefty bonuses for increasing hospital profits.

As they responded to these new economic imperatives, Chinese physicians had little history or tradition of professionalism or independent professional societies to draw on. China had transitioned from a society organized according to Confucian principles (which did not envision the existence of a modern, independent profession such as medicine) to a communist country (in which clinicians were state employees owing their primary allegiance to the Communist Party) to a quasi-market environment. At no point along this journey did physicians have the opportunity or support to develop the norms and standards of medical professionalism or the independent civic organizations that could promote and enforce them. Indeed, the Chinese language has no word for "professionalism" in the Western sense.

To make China's experiment with free-market health care even more dramatic, the Chinese reforms left the vast majority of the population uninsured, since the government did not provide coverage and no private insurance industry existed. As of 1999, a total of 49% of urban Chinese had health insurance, mostly through government and state enterprises, but only 7% of the 900 million rural Chinese had any coverage.[2] Thus, a population largely unprotected against the cost of illness confronted a health care delivery system intent on economic survival and a health-professional workforce that had never had the opportunity to develop as independent professionals. Indeed, prevailing new economic rules and incentives strongly encouraged physicians to operate like entrepreneurs in a capitalist economy.

The government kept its hand in one major aspect of health care: pricing. Presumably to ensure access to basic care, it limited the prices charged for certain services, such as physicians' and nurses' time. However, it allowed much more generous prices for drugs and technical services, such as advanced imaging. The predictable result: hospitals and health care professionals greatly increased their use of drugs and high-end technical services, driving up costs of care, compromising quality, and reducing access for an uninsured citizenry.

By the late 1990s, this market-reform experiment had resulted in public anger and distrust toward health care institutions and professionals, and even in widespread physical attacks on physicians. Discontent with lack of access to health care fueled public protests, especially in less affluent rural areas, that threatened social stability and the political control of the Communist Party.

In 2003, a third phase began, when the Chinese government took a first step toward mitigating popular discontent with health care by introducing a modest health insurance scheme covering some hospital expenses for rural residents. The focus on hospital care reflected the fact that hospital services were expensive and therefore drove many patients into poverty.

But this hospital orientation also reflected limitations in the leadership's understanding of the critical role that competent primary care plays in managing health and disease and controlling the costs of care. Chinese authorities were also preoccupied with relieving the financial burden created by much more expensive hospital services. Not surprisingly, the 2003 reforms proved insufficient to ameliorate China's deep-seated health care problems.

By 2008, China's leaders had concluded that major reforms in both insurance and the delivery system were necessary to shore up the system and ensure social stability. In a fourth and ongoing phase of evolution, they officially abandoned the experiment with a health care system based predominantly on market principles and committed to providing affordable basic health care for all Chinese people by 2020. By 2012, a government-subsidized insurance system provided 95% of the population with modest but comprehensive health coverage (see table).[3] China also launched an effort to create a primary care system, including an extensive nationwide network of clinics.[3]

Though China's extensive 2008 reforms are still in process, a number of problems, mostly concerning tertiary hospital care, continue to challenge its leadership. First, many of the country's publicly owned but profit-driven tertiary hospitals successfully resisted the latest reform efforts — a reality that probably reflects the hospitals' power within China's political system. As a result, frustrated authorities sought to

PREGNANCY AND CHILDBIRTH

A healthy 23-year-old woman is pregnant for the first time.

Ms. Wang lives in rural China. Her perinatal care, which is relatively uniform throughout China, relies on the country's three-tiered system for essential health services: village or neighborhood clinics provide preventive and basic primary care services, township or subdistrict health centers staffed by primary care physicians provide more advanced outpatient services and have beds for observing patients who are not very ill, and county hospitals provide basic specialty care and inpatient services.

Ms. Wang registers with the village clinic as required to receive the maternity services covered by China's rural insurance: five prenatal visits, various routine prenatal and postnatal tests, hospital delivery, and four postnatal visits. Though routine tests are free, she must pay the full charge for some services considered elective, such as advanced three- or four-dimensional ultrasound. She has to pay a 10 to 20% copayment ($35 to $70) for her delivery in the 300-bed county hospital; she would pay 10 times as much at a tertiary care hospital.

At weeks 12 and 28 of her pregnancy, Ms. Wang visits the township health center 3 miles away for examinations by a physician with 3 to 4 years of medical training. She receives prenatal screening tests, a routine ultrasound, and counseling. Starting at week 29, Ms. Wang visits the township health center every 3 to 4 weeks for monitoring of blood pressure, weight, and fundal height. The village doctor does regular follow-up after these visits.

Ms. Wang would stay at the county hospital 3 days for a normal delivery. However, China has a high incidence of cesarean section, partly because it is more lucrative for physicians. When she's discharged, she will be visited by the village doctor three times in the first month. After 42 days, she'll return to the hospital for examination and tests.

use market forces once again to bring the hospital sector into line.

An interactive graphic is available at NEJM.org

In 2012, the leadership announced that they would invite private investors to own up to 20% of China's hospitals by 2015, double the preexisting rate.[4]

Second, major inequities continue between the health care available in poor rural areas and that in more affluent cities.[5] Third, China continues to struggle with creating a high-quality, trusted, professionalized physician workforce. One legacy of China's market experiment is a widespread perception that physicians put their economic welfare ahead of patients' interests.

Though China's health care system is still rapidly evolving, several potentially useful lessons emerge from its recent history. The first is that in low-income countries, and perhaps high-income ones as well, community health workers such as China's barefoot doctors can significantly improve the health status of local populations.

Second, relying largely on markets to fund and distribute health services creates risks that need careful consideration. Though government price setting created market distortions, these do not fully explain the problems with quality, access, and cost that China experienced in the second phase of its recent history. Health care is subject to serious market failures. Asymmetries in information between patients and health care providers make it difficult for patients to make sound choices in free health care markets, and patients' lesser knowledge may be exploited by clinicians. Patients' resulting vulnerability, resentment, and distrust can be socially destabilizing — and may intensify when patients are heavily exposed to the costs of care, as they were until recently in China.

Third, physician professionalism may be underappreciated as a foundation for effective modern health care systems. The inculcation of professional norms during and after training and the existence of professional institutions that reinforce these norms certainly do not guarantee that professionals will act only in the interest of their patients and the public. But there seems little question that the lack of a widely shared tradition of professionalism has complicated China's efforts to create a health care workforce that its leaders and the public trust to do the right thing.

Finally, China's health care experience shows that it may be

MYOCARDIAL INFARCTION

A 55-year-old man with no serious health conditions has a moderately severe myocardial infarction.

Management of myocardial infarction in China varies considerably between rural and urban areas, and Mr. Li lives in a rural area, where he's covered by rural health insurance. He develops chest pain around midday. An hour later, he calls the village doctor, who arrives at his home about 30 minutes later and administers nitroglycerin tablets. When the pain is not alleviated, the doctor calls a senior internist at the county hospital, who advises the patient to call an ambulance to transport him to the hospital, which is 30 minutes away. As is customary in China, however, Mr. Li waits for his daughter to come home from work so she can accompany him. He arrives at the hospital around 7 p.m.

There, electrocardiography and myocardial-enzyme tests confirm that he's having a myocardial infarction. He has two treatment options: intravenous thrombolysis at the county hospital or cardiac catheterization at a tertiary care hospital. His doctor recommends the latter, since it's too late for thrombolysis to be effective.

Mr. Li hesitates because of the added expense of care at the tertiary facility: treatment at the county hospital requires a $300-to-$600 copayment, as compared with $2,000 to $2,500 at the tertiary facility. His family's annual income is only $6,000. Nevertheless, he opts for the tertiary hospital.

Mr. Li undergoes angiography and receives two stents. He stays in the hospital for 2 weeks, spending half that time in the cardiac intensive care unit. He is discharged on aspirin, clopidogrel, an angiotensin-converting–enzyme inhibitor, a beta-blocker, spironolactone, and a statin. His insurance pays 60% of the cost of these medicines up to a maximum of $800, leaving him with out-of-pocket medication expenses of $700 to $800 per year.

Mr. Li receives very little counseling about preventive measures such as smoking cessation or hypertension or lipid management. He returns to his village with no arrangements for primary care follow-up.

easier to reform health insurance than delivery systems and that in creating effective delivery systems, primary care seems to play a vital role.

A review of China's health care journey reveals that its leadership has made significant errors but has also acted with flexibility and decisiveness in correcting its mistakes. China's willingness to undertake major health care experiments will make its system an interesting one to continue to observe in the future.

Disclosure forms provided by the authors are available with the full text of this article at NEJM.org.

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DOI: 10.1056/NEJMp1410425

Informed Consent and the First Amendment

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For more than two decades, states have been adding to the things that physicians must say and do to obtain "informed consent" — and thereby testing the constitutional limits of states' power to regulate medical practice. In 1992, the Supreme Court upheld states' authority to require physicians to provide truthful information that might encourage a woman to reconsider her decision to have an abortion, finding that such a requirement did not place an "undue burden" on the woman.[1]

Now, there is a potential vehicle for a new Supreme Court ex-