

China's Capacity to Manage Infectious Diseases

Global Implications

A Report of the CSIS Freeman Chair in China Studies

PROJECT DIRECTOR
Charles W. Freeman III

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INTRODUCTION

Charles W. Freeman III

During the Seventeenth Party Congress in October 2007, improving health care in China had clearly become a political priority for the country's leadership. Three decades of double-digit economic growth had not been matched by developments in China's ability to prevent and treat diseases. The Maoist-era health care infrastructure, rudimentary as it was, had largely collapsed in the reformist years of Deng Xiaoping and Jiang Zemin. That infrastructure, particularly in rural China, was in tatters by the time President Hu Jintao took office in 2002. Given the current health care system, nearly four in five farmers are unlikely to see a doctor during their lifetimes. The nation's hospital and clinic system is understaffed, underfunded, overmatched, and overlooked.

All this has unfolded at a time when the socioeconomic changes wrought by China's economic explosion and openness to the outside world have created enormous new health care challenges and strains on the country's capacity to manage these challenges. Increasingly, the lack of adequate health care is becoming a source of significant public disgruntlement. Thus it is small wonder that, as part of his government's efforts to reduce social inequities resulting from 30 years of runaway growth, Hu Jintao has focused on improving China's health care system as a political priority.

So in October 2007, when Hu Jintao pledged to "establish a basic medical and health care system and improve the health of the whole nation," offered sweeping changes in the medical methodological order, and assembled a group of top ministers to promise universal health care by 2020, it was a significant gambit. The popular legitimacy of the Communist Party as the sole political authority in China rests in no small part on its ability to reverse the downward spiral in national health.

In many respects, Beijing's effort to prevent and treat infectious diseases only hints at its full goal of restoring public confidence in the health care system. The severe acute respiratory syndrome (SARS) crisis of 2003 was a catalyzing period for China's political elite in this regard, and since then Beijing's blueprint for national health care has been drawn and redrawn any number of times. The problems are deep and multifaceted; identifying solutions is not an easy task, no matter how clear a priority a task it might be.

But China's efforts to manage its health care challenges, particularly with respect to infectious diseases, have more than domestic political significance. China's particular medical diagnostic and therapeutic practices and its dynamic social changes are, effectively, laboratories for both new health care risks and solutions. Health issues in China thus have global implications. In earlier eras, when China's population was largely stationary and problems related to sanitation were less prevalent and more localized, containment of spreading diseases could be more easily achieved. No more. These days, Chinese are more mobile and their environment is more hazardous. This is an increasingly target-rich environment for infectious diseases.

China's efforts to manage infectious diseases thus have global implications. On the one hand, if China cannot meet the challenge, it will further tax an already strained international infrastructure with both new patients and, almost certainly, new strains of disease. On the other hand, if China is successful, China cannot only short-circuit an international spread of disease but also begin to become a net donor to the global health community.

To that end, and with the generous contributions from the Bill and Melinda Gates Foundation, the Freeman Chair in China Studies at the Center for Strategic and International Studies in Washington has assembled a group of international experts to address some of the issues facing China and the world as China tackles the problems of infectious diseases. This book is intended as a tool to help international policymakers and practitioners, and Chinese officials and academics in the field of health care reform, as they meet the challenges of health care in China head on.

In part I, Joan Kaufman of Harvard University reviews in chapter 1 the current status of infectious disease challenges in China, noting the progress made over the first 40 years since the founding of the People's Republic, as contrasted with some of the more recent trends in significant infectious threats. Despite some clear improvements in social awareness and government attention since the SARS crisis in 2003, managing some particularly difficult challenges like tuberculosis and sexually transmitted diseases (and emerging challenges like HIV/AIDS and avian influenza) are increasingly problematic.

In part II, we examine challenges in China's infectious disease management, looking at three areas in particular. In chapter 2, Janet Vail of PATH looks at the unique considerations in health care management raised by China's migratory "floating population," which is 150 million strong (though not uniform). In chapter 3, Xiaoqing Lu of CSIS's Freeman Chair in China Studies looks at significant challenges of tuberculosis and related serious diseases to China's efforts to manage its infectious disease burden. And in chapter 4, Yuanli Liu of Harvard University's School of Public Health examines the structure of China's health care system and its capacity to manage current and future challenges.

In part III, we look at China's efforts to reform its health care system to meet both the humanitarian and political demands that have emerged in recent years. In chapter 5, Gordon Liu of Beijing University reviews the internal debate in Beijing on the need and way forward for health care reform. In chapter 6, Drew Thompson of the Nixon Center follows that with a gap analysis of China's reform efforts to date and some related areas of interest for the United States. As we were completing the publication of this volume, China's State Council passed a long awaited health reform plan on January 21, 2009, which promised to spend over \$123 billion by 2011 to establish universal health care for the country's 1.3 billion people. These two chapters offer important insights into the ongoing, behind-the-scenes reform process.

Finally, in part IV, we review the regional and global implications of China's efforts to manage infectious diseases from three important perspectives. In chapter 7, Thomas Tsang of the Hong Kong Centre for Health Protection recounts Hong Kong's experience in working on these issues in relation to Mainland China. In chapter 8, Yanzhong Huang of Seton Hall University examines China's use of health care aid and cooperation as a diplomatic tool, particularly in the wake of the SARS epidemic. And in chapter 9, J. Stephen Morrison of CSIS's Global Health Policy Center draws lessons from China's experience for the international community, with a look ahead at the prospects for engaging China with global health issues in the future.

In many respects, how China deals with its emerging health care challenges will set the tone for the global health care debate in the years to come. A strategic reorganization to meet the needs of an aging population more vulnerable than ever before as a result of social, economic, and environmental changes will require enormous financial and political resources. The choices that China makes along the way with respect to its health care system, payment mechanisms, research and development, and openness to overseas technology (and relative degrees of protection for them) will influence the direction of health care globally. It is our hope that this effort will contribute to the debate on these choices.



PART I
THE CURRENT SITUATION

1

INFECTIOUS DISEASE
CHALLENGES IN CHINA

Joan Kaufman

In the late nineteenth and early twentieth centuries up to the time of the 1949 revolution, China was known as the “sick man of Asia” because of its high rates of death from infectious and preventable diseases. In fact, the blatant neglect of the public’s health in China was a rallying cry for change at the end of the republican era. One appeal of communism for China’s vast rural population was the promise of equitable social welfare investment, especially for health and education. In the precommunist era, millions were sickened and killed by preventable infectious diseases such as plague and cholera, vaccine-preventable childhood diseases such as measles and polio, and vector-borne diseases such as schistosomiasis (snails) and intestinal parasites (worms). Sexually transmitted diseases (STDs), especially syphilis, were pervasive.

The control of infectious diseases, which were rampant in precommunist China, was an initial priority for the communist government. During the early years of the new regime, attention to health and other social issues began to pay off. A campaign approach to public health, utilizing propaganda and mass mobilization, was developed during these early years of the regime, “the patriotic health campaign”, and has been a hallmark of China’s political system ever since. The “barefoot doctors” model, developed during the 1960s and 1970s, helped make basic primary health care available to most of China’s rural residents,¹ and this model became the template for the World Health Organization’s (WHO’s) call for “health care for all by 2000.”² STDs were virtually wiped out in the 1950s.³ Deaths, including infant deaths, began to rapidly decline,⁴ contributing to both a booming population increase and one of the highest life expectancies in the developing world. Infant mortality declined from 200 to 23 per 1,000 live births between 1949 and 2005, and life expectancy rose during the same period from 35 to 72 years of age.⁵

However, at the beginning of the twenty-first century, China faces a new set of challenges in controlling infectious diseases—resulting from the emergence of new infectious diseases, such as severe acute respiratory syndrome (SARS) and avian influenza, and from the resurgence of syphilis and other STDs, tuberculosis (TB), and HIV/AIDS. At the same time, 20 years of fiscal devolution and privatization of the health care system have weakened China’s preventive health infrastructure

1. Victor Sidel and Ruth Sidel, *Serve the People: Observations on Medicine in the People’s Republic of China* (Boston: Beacon Press, 1974).

2. World Health Organization (WHO), *Primary Health Care. Report of the International Conference on Primary Health Care, Alma Ata, USSR, 6–12 September 1978, Jointly Sponsored by the World Health Organization and United Nations Children’s Fund* (Geneva: WHO, 1978); and WHO, *Declaration of Alma-Ata* (Geneva: WHO, 1978), http://www.euro.who.int/aboutwho/policy/20010827_1.

3. Myron S. Cohen, Gail E. Henderson, P. Aiello, and H. Zheng, “Successful Eradication of Sexually Transmitted Diseases in the People’s Republic of China: Implications for the 21st Century,” *Journal of Infectious Diseases* 174, supplement 2 (1996): S223–S229.

4. Judith Banister, *China’s Changing Population* (Stanford, Calif.: Stanford University Press, 1987).

5. United Nations Development Program, *Human Development Report 2007/2008* (New York: Palgrave Macmillan, 2007).

and rural health service access. Emergency preparedness for infectious disease threats, while improving, is still hampered by bureaucratic rivalries and poor sector and hierarchical coordination and reporting responsibilities. The SARS epidemic was a wake-up call for Chinese leaders about the state of the rural health system and its lack of capacity to deal with new threats and has led to both improvements in disease surveillance and new initiatives to reform the ailing rural health system. This chapter reviews China's main current infectious disease challenges, highlighting both recent efforts to strengthen disease control and continuing constraints to future success. China's recent strengthened response to its HIV/AIDS epidemic will serve as an example of how it can better deal with other new threats.

Infectious Disease Morbidity, Mortality, and Reporting Requirements

In December 2007, the top five infectious diseases in China, accounting for 86.65 percent of the total reported cases, were TB, hepatitis B, syphilis, diarrhea, and gonorrhea. In 2007, more than 4.7 million cases of infectious diseases were reported, an increase of 3 percent from 2006. For the 13,037 deaths from infectious diseases in 2007 (2,311 more than 2006), the top five killers were rabies, TB, AIDS, hepatitis B, and hemorrhagic fever. In 2007, blood-borne diseases increased by 3.55 percent, including hepatitis C, which increased by 30 percent.⁶

China has required routine reporting of selected infectious diseases since 1950 through county-level public health institutions known as epidemic prevention stations. In 2002, these stations were renamed local Centers for Disease Control and Prevention (CDCs) and began reporting to the newly established national Chinese CDC system. In September 1989, China had enacted its Law on the Prevention and Treatment of Infectious Diseases, which requires mandatory reporting for many infectious diseases. This law mandates three categories of classification: class A, which includes plague and cholera; class B, which includes 25 diseases such as viral hepatitis; and class C, which includes 10 diseases such as influenza. HIV/AIDS, gonorrhea, and syphilis were added to the notifiable disease list in 1990, and TB was added in 2004. There are 18 notifiable diseases that have required reporting since 1970: plague, cholera, cerebrospinal meningitis, scarlet fever, Japanese encephalitis B, malaria, haemorrhagic fever, leptospirosis, brucellosis, rabies, anthrax, hepatitis, pertussis, diphtheria, tetanus neonatorum, polio, measles, dysentery, typhoid, and paratyphoid.

HIV/AIDS

The evolution of China's response to HIV/AIDS provides a window into how the country has strengthened its response to one serious new infectious disease threat and bypassed some of the inadequacies of its current health care system. Its first AIDS case was confirmed in 1985, when the disease was viewed as a foreign malady associated with illicit behavior to be controlled by testing all foreigners who entered the country. Today, however, China has an AIDS prevention and treatment policy that endorses many best practices and is promoted by the senior leadership and praised by international observers. Though many factors contributed to this turnaround, the major impetus for change was the 2003 SARS epidemic and the response to it.

6. "Infectious Diseases Claim 13,000 Lives in China in 2007," Xinhua, February 23, 2008, http://news.xinhuanet.com/English/2008-02/23/content_7652107.htm.

China's AIDS epidemic began in the early 1980s as a localized epidemic among needle-sharing intravenous drug users along the border with Myanmar (Burma). The government now estimates that 700,000 people in the country are infected with HIV,⁷ with 223,501 confirmed cases and the disease is found in all of China's 37 provinces, municipalities, and autonomous regions and with new infections growing at an alarming rate—45 percent in 2007.⁸ The overall prevalence of HIV remains low in the general population (0.05 percent), but given China's large population, the number of infected persons and persons requiring antiretroviral drug treatment (about 85,000) constitutes one of the largest disease burdens in the world. Though infections among injecting drug users still predominate, 40.6 percent of all new infections are now sexually transmitted, mainly among commercial sex workers, the sexual partners of injecting drug users, and men who have sex with men. A separate epidemic among former paid plasma donors in central China accounts for a large proportion of current AIDS cases. These cases among poor farmers who sold their blood for extra cash are concentrated in Henan and neighboring provinces, where large numbers of people requiring treatment and financial assistance. The proportion of infections in women has also increased, from 19.4 percent in 2000 to 27.8 percent in 2006.⁹ The epidemic continues to expand, and some of the challenges for its control include the size of China's young sexually active population, changing sexual behaviors and norms, massive internal economic migration, low knowledge about AIDS and perception of risk among the general population, and the expanding epidemic among hard-to-reach gay men.

In 2003, immediately following the SARS crisis, the Chinese government established its Comprehensive AIDS Response (CARES) project to begin to deal with the urgent humanitarian needs of its AIDS crisis and as a vehicle for partnership with the Global Fund to Fight AIDS, Tuberculosis, and Malaria. In September 2003, China's government announced a free national AIDS treatment program, making it one of the few countries in the world to do so. This effort mainly focused on the (then) predicted 80,000 infected persons, mostly in central China, requiring immediate treatment. The program, named "The Four Frees and the One Care," provided free HIV testing and treatment using a cocktail of domestically manufactured generic AIDS drugs for all rural residents and poor people in cities, free counseling and testing services, free treatment for pregnant women and testing for their babies, free school admission for children affected by HIV and AIDS, and financial support for affected families.¹⁰

Recognizing the inadequacies of the current health system, the free HIV/AIDS treatment program is subsidized by national and provincial authorities and international partners, while prevention services bypass routine medical provision and are spearheaded by the publicly funded CDC system. The government's response has continued to become more aggressive and open. A State Council AIDS Working Committee was established in early 2004, chaired by Wu Yi, then vice premier, elevating the importance of the AIDS issue at the national level. Following similar

7. Xinhua News Agency, "Reported HIV/AIDS Cases in China Increase 45 percent from 2006 to 2007, Health Ministry Report Says," *Shanghai Daily*, February 25, 2008, <http://www.medicalnewstoday.com/articles/98651.php>.

8. "Infectious Diseases Claim 13,000 Lives in China in 2007"; State Council AIDS Working Committee Office, UN Theme Group on AIDS in China (2007), "A Joint Assessment of HIV/AIDS Prevention, Treatment and Care in China (2007)."

9. "More Women Suffer from HIV/AIDS in China," Xinhua, June 4, 2007.

10. Z. Y. Wu, S. G. Sullivan, Y. Wang, M. J. Rotheram-Borus, and R. Detels, "Evolution of China's Response to HIV/AIDS," *The Lancet*, February 24, 2007, 679–690; <http://download.thelancet.com/pdfs/journals/lancet/PIIS0140673607603158.pdf>.

moves as a result of the SARS epidemic in 2003, the government clearly stated its intention to hold all its officials accountable for their honesty in dealing with AIDS and for heightened attention and resources for infectious diseases. Recent years have seen the ban on condom ads removed (2002), the publication of an aggressive five-year action plan (2006–2010),¹¹ a State Council decree on AIDS from Prime Minister Wen Jiabao,¹² and greater tolerance for the role of nongovernmental organizations (NGOs) in China's AIDS response.¹³ This more aggressive government AIDS response points to the Communist Party's long-overdue high-level political commitment and is essential in the Chinese context for mobilizing local-level action.

However, even with this newfound political will to tackle AIDS through public service provision, the government is beginning to realize that it lacks the full capacity to accomplish its goal and needs help from both civil society and the private sector. The SARS crisis in 2003 exposed serious deficiencies in China's public health system, which has been weakened by insufficient funding, decentralization, and privatization over the nearly three decades of market-oriented reforms. There is a need for new types of partnerships for social service provision, especially for diseases like AIDS, for which the government is less able to reach beneficiaries than an NGO might be.¹⁴

It is increasingly clear that for China to achieve its ambitious AIDS Action Plan goals, it must involve NGOs that can reach the populations most affected or at risk. For example, recent studies show alarming increases in HIV incidence among men who have sex with men. Studies in Beijing revealed a doubling of syphilis rates among men who have sex with men between 2004 and 2007 to nearly 10 percent, and the HIV rate was 5 percent in 2007.¹⁵ Together with increased international funding for AIDS-related NGOs, this has resulted in some limited endorsement of the NGO role by the state and led to a proliferation of new grassroots organizations, especially those serving gay men. The overall climate of political will to tackle AIDS is providing a unique opportunity for AIDS-related NGOs to push the boundaries of local government's willingness to engage with such groups, by demonstrating their value as indispensable service providers, most particularly to these hard-to-reach populations. As the epidemic shifts to a sexually transmitted one and continues to expand among gay men in urban areas, the Northeast, and in communities like Shenzhen (one of China's most economically vibrant cities), the government is cooperating, both formally and informally, with groups that have access to these high-risk men.¹⁶

In urban areas, numerous AIDS-related NGOs have emerged to provide outreach and education to gay men through hotlines and in bars and bath houses. In both urban and rural areas,

11. State Council of the People's Republic of China, *China's Action Plan for Reducing and Preventing the Spread of HIV/AIDS, 2006–2010*, Office Document 13 (Beijing: State Council of the People's Republic of China, 2006).

12. State Council of the People's Republic of China, *Regulations on AIDS Prevention and Control*, Decree 457, January 29 (Beijing: State Council of the People's Republic of China, 2006).

13. Joan Kaufman, "The Role of NGOs in China's AIDS Response: Update, Challenges and Possibilities" in *Serving the People: State-Society Negotiations and Welfare Provision in China*, ed. Jonathan Schwartz and Shawn Shieh (London: Routledge, 2008).

14. Bates Gill, J. Stephen Morrison, and Xiaoqing Lu, "China's Civil Society Organizations: What Future in the Health Sector?" CSIS HIV/AIDS Task Force, Center for Strategic and International Studies, Washington, D.C., 2007; Anthony Saich, "Changing Role of Government and Civil Society," PowerPoint presentation and lecture at Brandeis-Harvard China AIDS Policy Leadership and Management Course, Brandeis University, September 5, 2007.

15. Adam Legge, "HIV Rate Hits 5 percent Among Men Who Have Sex with Men in Beijing," *AIDS-MAP*, September 7, 2007.

16. Kaufman, "Role of NGOs in China's AIDS Response."

patient support groups have formed, often affiliated with infectious disease hospitals or as vehicles for raising funds, or to provide antiretroviral drug treatment education and adherence support based on programs developed by international organizations like MSF. Other groups have been established either for AIDS orphan relief or to provide subsidies and services to AIDS-affected families. Overall, few AIDS-related NGOs are based outside cities, and most have difficulty operating in rural areas unless explicitly contracted by or supported by the local CDC. The groups that do exist are often closely monitored by local government. Poor understanding and support for NGOs by local government leaders means that the AIDS-related NGO role is hard to institutionalize at local levels.

However, some high-risk groups for HIV/AIDS are falling through the cracks in government outreach efforts. Drug users and sex workers, two high-risk groups engaged in illegal behavior, avoid government services for fear of arrest, and there are fewer NGOs working with these groups. Economic migrants (miners, truckers, and construction workers) are not easily reached due to their mobility, their lack of workplace-organized AIDS education efforts, and their lack of entitlement to social services in the places where they work. In big cities, some new public-private partnerships have been launched to reach migrant workers. Several large multinational companies, such as Standard Charter Bank, Coca Cola, and Esquel, are promoting AIDS awareness-raising programs in the workplace and workplace policies in collaboration with international bodies like the International Labor Organization, the World Economic Forum, and the Global Business Coalition on AIDS. These programs are especially important for reaching migrant workers who are flocking to big cities for work, potentially engaging in high-risk behaviors, but who are difficult to reach outside their places of employment. Other large corporations, such as Merck and Bayer, have launched AIDS projects and training programs in partnership with the Chinese government and academia, modeling successful initiatives on those in Africa (for instance, Merck's ACHAT program in Botswana) or elsewhere.

New Infectious Disease Challenges in China

Despite important gains in controlling infectious diseases in China in recent decades and a heightened awareness of the need to do so, a new set of challenges is confronting public health officials. Sexually transmitted diseases are resurging, along with the massive movement of people around the country and with the changing sexual behaviors and norms accompanying 30 years of economic prosperity and opening to the world. Tuberculosis has also resurged, along with the HIV epidemic, and new infectious diseases such as SARS and avian flu are emerging in densely populated areas where animals and people live in close proximity.

Resurgent Syphilis and Other STDs

Related to the expanding sexual spread of HIV/AIDS in China, especially in southern provinces, coastal areas, and big cities, is a resurgent syphilis epidemic and a rise in other STDs. STDs increased by 7 percent in China in 2007. At the start of the Communist regime in 1949, syphilis prevalence was 5 percent in the general population and an astounding 84 percent among sex workers in major cities.¹⁷ Though virtually wiped out by the 1960s, both gonorrhea and syphilis

17. Chen Zhi-Qiang, Guo-Cheng Zhang, Xiang-Dong Gong, Charles Lin, Xing Gao, Guo-Jun Liang, Xiao-Li Yue, Xiang-Sheng Chen, and Myron S. Cohen, "Syphilis in China: Results of a National Surveillance

are now again among the top five most common notifiable diseases in China. In 2007, syphilis increased by 24 percent in China. Not only has syphilis increased among men who have sex with men in Beijing (as noted above), but it has resurged throughout the country. A nationwide survey showed that after remaining below 0.2 cases per 100,000 before 1993, incidence increased to 0.17 cases in 1993 and 6.5 cases in 1999, with primary and secondary syphilis accounting for 5.85 of the 6.5 cases while congenital (mother-to-child transmission) syphilis has grown rapidly, increasing 71.9 percent a year in recent years to 19.68 cases per 100,000 live births in 2005. Syphilis cases are highest in Shanghai, Zhejiang, and Fujian (China's southeastern coastal areas), Beijing, and the Zhujiang River Delta in southern China bordering Hong Kong.¹⁸

This resurgent syphilis epidemic also poses an increased threat of HIV transmission. A previous large population based national study undertaken in 1999–2000 found that the prevalence of chlamydia was 2.6 percent for men and 2.1 percent for women,¹⁹ significant and, like syphilis, higher in urban, coastal, and southern areas. A survey conducted by the author and associates of more than 2,000 women in rural Yunnan in 1994 also found surprisingly high rates of laboratory-confirmed chlamydia (5.5 percent) and trichomonas (16.2 percent) among low-risk rural women,²⁰ a population for which there is no routine screening for STDs. Many of these women did not seek care for symptoms because of a lack of knowledge and the cost. Similar findings have been reported elsewhere.²¹ These undiagnosed and untreated STDs increase the risk of HIV transmission for China's population and may be related to increasing heterosexual transmission of HIV/AIDS in southern China and coastal regions.

The control of STDs in China is the responsibility of the National Center for STD Control, located in Nanjing, which was established in 1996. Mandatory case reporting from government health facilities is required for syphilis and gonorrhea. However, because many people seek care for STDs from private practitioners, many cases of STDs likely go unreported (more than 75 percent in one provincial quality-control study).²² A network of 16 national sentinel surveillance sites for STDs was established in high-prevalence areas in 1987 to better assess incidence and was expanded to 26 sites in 1993.

Tuberculosis

China has the world's second-largest TB epidemic (after India), constituting 17 percent of the entire global TB burden. China is one of 22 high-burden TB counties in the world. Despite progress in reducing TB before 1990, there has been little change in TB morbidity levels in recent years, and the fall in TB prevalence slowed to 2.5 percent a year during the 1990s, most likely affected

Programme," *The Lancet*, January 13, 2007, 132–138; <http://download.thelancet.com/pdfs/journals/lancet/PIIS0140673607600749.pdf>.

18. Ibid.

19. William L. Parish, Edward O. Laumann, Myron S. Cohen, Suiming Pan, Heyi Zheng, Irving Hoffman, Tianfu Wang, and Kwai Hang Ng, "Population-Based Study of Chlamydial Infection in China: A Hidden Epidemic," *Journal of the American Medical Association* 289, no. 10 (March 12, 2003): 1265–1273.

20. J. Kaufman, L. Q. Yan, and T. Y. Wang, "A Study of Field-Based Methods for Diagnosing Reproductive Tract Infections in Rural Yunnan Province, China," *Studies in Family Planning* 30, no. 2 (1999): 112–119.

21. H. J. Zhang, S. Y. Gao, F. L. Li, Y. Qin, and G. Zeng, "Analysis on the Situation of RTI Prevalence and Behavior of Health Care-Seeking in Married Women in Miyun County," *Chinese Journal of Family Planning* 5 (2002): 273–276.

22. Chen Zhi-Qiang et al., "Syphilis in China."

by rising HIV infections and co-morbidity. There are an estimated 4.5 million prevalent active cases of TB in China, of which 1.5 million are sputum smear positive. Each year in China, there are more than 1.4 million new TB cases (of which 600,000 are highly infectious) and 150,000 TB-related deaths. China also has 25 percent of the world's burden of multi-drug-resistant TB, with 25,000 new cases detected each year requiring expensive second-line treatment. Of TB cases in China, 75 percent are among 15- to 59-year-olds, men are twice as likely as women to be infected, rural residents are twice as likely to be infected as urban residents, and those living in the central or western parts of the country are more than twice as likely to be infected than those living in the east. However, China has made substantial progress in TB control. The World Bank, the U.K. Department for International Development, the Global Fund to Fight AIDS, Tuberculosis, and Malaria, the Japanese and Canadian governments, and other donors have provided funding and technical assistance to help China address its TB problem. A National Center for TB Control is in charge of the national response and works closely with WHO's "Stop TB" strategy. According to the government, the case detection rate for TB increased from 30 percent in 2002 to 80 percent in 2005, and coverage with directly observed therapy increased from 60 percent in 2000 to 100 percent by 2005.²³

However, a household survey of 40,000 rural households undertaken in 2003 showed a less rosy picture of the extent of TB case identification and treatment coverage. This survey revealed that 37 percent of people with a suspected TB case (those with a persistent cough of more than 3 weeks) did not seek medical care; that only 35 percent of those seeking care received recommended diagnostic tests; and that of those with a confirmed diagnosis, only 57 percent received the recommended treatment. Household payments for the poorest segment amounted to 45 percent of annual household income.²⁴ China's decades-long rural health privatization has affected the government's ability to carry out its TB strategy, as it has affected every other disease control program in China.

The SARS Epidemic

China's SARS epidemic in 2003 signaled a new chapter in infectious disease challenges for both China and the world. SARS emerged around the same time that the Institute of Medicine of the National Academy of Sciences in Washington issued a report, *Microbial Threats to Health*, which noted that "in the highly inter-connected and readily traversed 'global village' of our time, one nation's problems soon becomes every nation's problems."²⁵ Because animals—especially pigs and chickens—live in close proximity to humans, southern China with its dense backyard farming practices has been a breeding ground for new viruses. There has been a huge increase in China's animal population in the last 40 years—from 5.2 to 508 million pigs between 1968 and 2005, and

23. See Longde Wang, Jianjun Liu, and Daniel P Chin, "Progress in Tuberculosis Control and the Evolving Public-Health System in China," *The Lancet*, February 24, 2007, 691–696; <http://download.thelancet.com/pdfs/journals/lancet/PIIS014067360760316X.pdf>. Also see Global Fund to Fight AIDS, Tuberculosis, and Malaria, "Scaling Up Programmatic Management of Drug Resistant Tuberculosis in 10 Additional Provinces in China: Global Fund Round 7 Proposal," 2008, <http://www.theglobalfund.org/programs/grant-details.aspx?compid=1490&lang=en&CountryId=CHN>).

24. Zhang Tuohong, Shenglan Tang, Gao Jun, and Margaret Whitehead, "Persistent Problems of Access to Appropriate Affordable TB Services in Rural China: Experiences of Different Socio-economic groups," *BMC Public Health, Biomed Central* 7, no. 19 (2007): 1471–2458.

25. Institute of Medicine, National Academy of Sciences, *Microbial Threats to Health: Emergence, Detection, Response* (Washington, D.C: National Academy of Sciences, 2003).

from 12.3 to 13 billion poultry.²⁶ Recently, several new strains of flu have emerged from the area and moved quickly from southern China to Hong Kong with the massive movements of people across relaxed borders.

The SARS epidemic began in Guangzhou Province in November 2002 as an outbreak of atypical pneumonia. Between November 16, 2002, and mid-January 2003, the outbreak gained momentum in Guangdong. Pneumonia is not a mandatory reportable infectious disease in China and therefore did not fall under the requirements for surveillance and reporting set up for other communicable disease,²⁷ allowing the initial outbreak to be kept from the public in Guangdong until February 11.²⁸ The epidemic was reported to WHO on February 11, 2003, only after WHO initiated an inquiry based upon reports received from Hong Kong's Global Outbreak Alert and Response Network, and Global Public Health Intelligence Network. A WHO team was dispatched from Geneva to investigate the Guangdong outbreak on February 19, but it was not granted permission to travel to Guangdong until April 2.²⁹ The SARS outbreak then spread to Hong Kong, and from there to the rest of the world. For the first time in its history, WHO issued a global health alert on March 12, which it strengthened on March 15, and it recommended against travel to all affected countries.³⁰

These failures in early acknowledgement and appropriate response set the stage for China's massive SARS epidemic in the following months. The Chinese government fired the minister of health and the government dramatically changed course, instituting a rarely seen transparency and honesty in reporting, and allocating 2 billion yuan (\$250 million) in emergency funding for national SARS control. The government revised Beijing's SARS case number up to 339, 10 times the number reported one week earlier. By May 20, there were 5,248 cases of SARS in China.³¹ Despite firing senior officials and the government admission of the full extent of Beijing's SARS epidemic, public panic resulted followed by a mass exodus of migrants from Beijing. Millions of migrants fled in fear that they would be unreasonably quarantined with no concern for their personal rights. Fortunately, this mass exodus did not result in a widespread rural epidemic because of a combination of luck and strong, albeit belated, local actions. Chinese rural communities quickly built local-level infectious disease hospitals modeled after the SARS hospital built in Beijing. Staff were temporarily moved from all health institutions in the county and provided training on infectious disease control, including quarantine and reporting procedures, and returning rural migrants were required to self-quarantine at home for two weeks after their return, with fever checks carried out by local health personnel.³² Toward the end of the worldwide epidemic (August 7, 2003), of the

26. Michael T. Osterholm, "Preparing for the Next Pandemic," *New England Journal of Medicine* 352, no. 18 (2005): 1839–1842.

27. Law on the Prevention and Treatment of Infectious Diseases, Article 23 (enacted September 1989), as cited by Huang Yanzhong, Congressional Executive Commission on China, in "Implications of SARS Epidemic for China's Public Health Infrastructure and Political System, Testimony before the Congressional Executive Commission on China," presented at roundtable on SARS, Washington, May 12, 2003, 2.

28. Donald G. McNeil Jr. and Lawrence K. Altman, "As SARS Outbreak Took Shape, Health Agency Took Fast Action," *New York Times*, May 4, 2003.

29. *Ibid.*; Karl Taro Greenfield, *China Syndrome: The True Story of the 21st Century's First Great Epidemic* (New York: HarperCollins, 2006).

30. McNeil and Altman, "As SARS Outbreak Took Shape."

31. WHO, May 3, 2005, http://www.wpro.who.int/chn/docs/Pref_May20.pdf.

32. Joan Kaufman, "SARS and China's Health Care Response: Better to Be Both Red and Expert!" in *SARS: Prelude to Pandemic?* ed. Arthur Kleinman and James L. Watson (Stanford, Calif.: Stanford University Press, 2006).

8,422 cases and 916 deaths in 30 countries and Hong Kong, 5,327 and 349 deaths were in China, or a full 63 percent of all worldwide SARS cases.³³

During the SARS epidemic, the patriotic health campaign approach was resurrected to mobilize the population to self-quarantine, report fellow citizens with fevers, and glorify those medical personnel, especially nurses, who were at the forefront of the control effort and played an important role in keeping the epidemic from spreading in China's rural areas.³⁴ Because of a combination of luck (virus seasonality) and effective person-to-person control measures, the epidemic subsided by the summer of 2003. But the lessons China learned from its SARS response had lasting benefits for controlling other infectious disease threats in China.

Avian Influenza

In April 2005, a massive die-off of more than 6,000 wild migratory birds in the Qinghai Lake nature reserve in northwestern China signaled the beginning of China's avian flu problem. Following this, the number of countries reporting avian influenza (H5N1 type) outbreaks increased dramatically, with 55 countries now reporting H5N1 virus outbreaks in wild birds and/or poultry. China has had 30 confirmed human cases, the first two being reported in November 2005, and 20 deaths so far. That the global avian influenza threat likely originated in China is not surprising. The H5N1 virus was first isolated in China in 2003 from diseased pigs on farms in Southern China.³⁵ This was the first documented infection of pigs with any H5N1-type virus. Densely populated southern China has been a historic breeding ground for new influenza viruses because of the huge numbers of animals and people living in close proximity; the ubiquity of backyard animal husbandry of pigs, chickens, and ducks; and the presence of live animal markets. All these factors were implicated in the SARS outbreak of 2003. However, other factors are also at play in the current threat of avian influenza. China plays a huge role in the global poultry industry, and at any one time has a poultry population of 14 billion, according to WHO, 70 to 80 percent of which are reared in backyard conditions.³⁶ Individual poultry farmers have little incentive to report sick birds.

Full surveillance, timely reporting, and transparency in reporting bird and human avian influenza cases are very important for the timely identification and control of outbreaks. Containment and effective quarantine and culling after a reported outbreak are also essential. The need for communication about basic hygiene practices for humans and for the poultry and animals in their care are also key prevention measures. In the case of an outbreak, social distancing including self-quarantining, is essential for success. Both the surveillance system and access to basic public health education and first-line care have received heightened attention in recent years, but serious deficiencies in China's rural health care system and in bureaucratic collaboration and local governance and accountability are causes for concern. Public trust, needed for success in obeying social distancing and quarantine recommendations, is not assured in China, as evidenced by public reactions during the SARS epidemic.

33. WHO, May 3, 2005.

34. Kaufman, "SARS and China's Health Care Response"; Anthony Saich, "Is SARS China's Chernobyl or Much Ado about Nothing?" in *SARS: Prelude to Pandemic?* ed. Kleinman and Watson.

35. Klaus Stohr, "Avian Influenza and Pandemics: Research Needs and Opportunities," *New England Journal of Medicine* 352, no. 4 (2005): 405–407.

36. C. Murphy, "Why Asia's Bird Flu Plans Are Grounded," *Far Eastern Economic Review*, April 2005.

Another area of concern is China's veterinary surveillance and its ability to control its widespread live animal markets or put restrictions and controls on its backyard poultry- and duck-raising industry. It is a matter of some concern that in parts of Asia, mammals that were thought not to be susceptible to H5N1-type viruses have developed the disease.³⁷ Live animal markets were implicated in the emergence of the SARS epidemic, where the civet cat, sold in live animal markets in southern China, was initially thought to be the likely source for the mutated human SARS virus (later studies pointed to bats). Many of the animal markets were shut down in the immediate aftermath of SARS, but many have reopened or operate behind closed doors, catering to age-old traditions for food preparation and traditional health beliefs about the consumption of certain foods. How these markets are monitored is far from clear, and the possibility for animal-to-human infections remains high. A recent analysis pointed to both direct and indirect factors facilitating the spread of the avian influenza virus and discussed 8 high-risk farming practices related to poultry and farm animals, 5 unsafe poultry transport practices, and 11 high-risk practices at "wet markets" (or live animal markets), which are common in China, Vietnam, and other Asian countries.

The Surveillance of Infectious Disease Threats

China's surveillance system for infectious disease threats has been strengthened in the post-SARS era, perhaps one of the biggest lessons learned from that mishandled epidemic. Both the U.S. Centers for Disease Control and Prevention and the WHO Beijing office have been working closely with the Chinese Ministry of Health and Chinese Centers for Disease Control in the post-SARS era to strengthen and computerize routine disease reporting for many infectious diseases in accordance with China's strengthened Law and Regulations on Infectious Disease Reporting. By mid-2005, all 2,800 counties in China had direct Internet connections to a Ministry of Agriculture monitoring system for avian influenza, and 93 percent of counties or higher-level hospitals and 43 percent of township hospitals now have direct connections to the Chinese Centers for Disease Control's disease reporting system.³⁸ Rural doctors are now required to report by telephone to township health centers all cases of suspicious pneumonia or serious flu.

WHO is working with China to develop an integrated surveillance system, to strengthen laboratory diagnostic capacity, and to create a reporting system that will allow epidemiological, clinical, and laboratory information from both human and animal surveillance, the environment, and other sectors to be analyzed and shared with decisionmakers in all sectors. WHO and China are also working on strengthening the early response to an outbreak event and on fostering better collaboration between the animal and health sectors, and working with health institutions on facility-acquired-infection surveillance and health facility infection control. China's capacity and infrastructure to accomplish this is high. Communications infrastructure and designated personnel exist throughout the country's three-tiered medical system down to the county level. China has a strong laboratory and science infrastructure. With the political will that resulted from the acknowledgement of failures in the timely reporting of SARS, there are now both a strong mandate and financial support for an effective disease surveillance infrastructure for avian influenza and other potential emerging infectious diseases.

37. WHO, <http://www.who.int/SARS>.

38. Alan Garber, Yu Wei, and Wu Ming, "Control of Infectious Disease: Challenges to China's Public Health System," presentation at Stanford Center for International Development / Stanford Institute for Economic Policy Research Conference on Economic Challenges in Asia, Stanford University, Stanford, Calif., May 31–June 3, 2006.

The challenges for surveillance, however, are great, and a number of factors might interfere. For emerging infectious diseases such as avian influenza, there are economic reasons (noncompensation for culled birds) why farmers and government officials may not report suspected outbreaks in a particular region. The weakened health system and its privatized nature prevent many sick people from seeking care at a health facility where the reporting would originate (townships), as shown by the evidence given above for both STD and TB health seeking. Moreover, local officials, who control the work of the sectors under their jurisdiction, may hide cases if they suspect it might result in economic losses for their communities. In the case of avian influenza, many suspect that unreported large-scale deaths of fowl have occurred in many places in China because similar outbreaks in poultry are occurring across the borders in Hong Kong, Vietnam, or other neighboring countries with no other plausible explanation than an origin in China.³⁹

Discussion and Conclusion

After a significant reduction of infectious disease morbidity and mortality in China in the first 40 years of the communist regime, progress has slowed and even reversed for some important threats like TB and STDs, and new challenges have emerged (HIV/AIDS and avian influenza) that require sustained attention and financing. Though there have been many improvements in infectious disease control in the post-SARS era, problems remain.

Although China's surveillance and reporting systems are now among the best in the world, the country remains insufficiently prepared for a rapid response to contain an infectious disease outbreak. It has only weak capabilities for crisis management and for coordinating the different agencies responsible for agriculture, livestock, and health, especially at the local level. Public trust to obey quarantines is not assured. During the SARS epidemic, it became clear that the Ministry of Health was unable to put in place the needed interventions at either the national or local levels. In the case of the strengthened AIDS response, a new State Council AIDS Working Committee was created to manage the needed multisectoral collaborations, but no such similar multisectoral agency yet exists for a potential communicable disease outbreak. The weakness of the health sector both in mobilizing other sectors and in assuring access for the rural poor (and thus early identification of potential cases) must be addressed, and an emergency response agency and plan must be formulated to avoid the problems that occurred in the early response to SARS and the current constraints to public-sector service seeking (as evidenced by the low utilization of public facilities for TB and STDs). For serious threats, the SARS hospitals built in local areas still exist and could be mobilized in the case of another infectious disease emergency. In the case of a contagious influenza epidemic, stronger measures to ensure quarantine and social distancing would be needed and may be hard to enforce because of problems with public trust.

Another significant concern for infectious disease control are the shortcomings in proper case management (as in the TB study cited above) and in hospital infection control practices. By some estimates, more than 70 percent of the health care visits in China that do occur (many do not seek care at all) happen at village-level clinics. These clinics are staffed by village-level rural doctors and doctors of traditional medicine. Though they are certified to practice and capable of dealing with common illnesses and first aid, they may not be capable of recognizing and dealing with the early

39. Elizabeth Rosenthal, "Experts Doubt Bird Flu Tallies from China and Elsewhere," *New York Times*, December 2, 2005.

symptoms of emerging infectious diseases, as happened in the case of SARS. Infection control in many rural facilities leaves much to be desired, and there is a serious and well-documented problem of facility-acquired infections in China (mainly from improperly sterilized syringes and through blood transfusions).

The capacity for outreach and mobilization of the population also threatens to be a major limitation of any infectious disease control effort in China. The country's public health information outreach system has been seriously weakened by the privatization of its rural health care system, which has driven service providers to focus on income-earning curative care. Because of this, health education capacities (human resources and responsible institutions) have been seriously weakened. But traditions of community political mobilization mean that there is the potential for reaching rural citizens with public health information when this is mandated from above. China's ability to mobilize its population has been one enduring feature of its one-party governance system for the last 50 years. Early patriotic health campaigns were responsible for important public health achievements in the barefoot doctor era. The patriotic health campaign approach was resurrected during the SARS epidemic, and its success in mobilizing and reaching the public with critical prevention information was impressive. It is likely, therefore, that it can be used in an outbreak of avian influenza or other emerging infectious diseases to reach rural citizens with behavior change communication and hygiene messages.

Finally, important issues concerning the co-morbidity of infectious diseases must be better addressed by China's health care system. It is no coincidence that the incidence of TB has begun to rise again as the incidence of HIV has increased, or that TB, HIV, and STDs are all rising in southern China, big cities, and coastal areas. HIV, TB, and STDs are all closely connected, causing an increased risk of infection and progression to illness. These three serious threats to China's health and future are managed by different agencies and infrastructures and insufficiently coordinated in financing, front-line medical personnel, and interagency coordination and management. China's bureaucratic health care system—which is based on province, county, and township, each with its own level of financing for health staff and services—may not be flexible enough to address the massive movement of people migrating around the country who may carry both new and old disease threats. China's AIDS response has moved in many of the right directions by creating a multisectoral body to coordinate actions; by creating policy and legislative mandates for action, including performance targets and accountability to lower levels, reducing financial constraints to health care; and by beginning to reach out to civil society partners, including the private sector, to fill gaps in service. These lessons should be extended to other infectious disease control efforts, and these types of actions should be expanded, as outlined above. As shown by the lessons learned in the wake of SARS, China's mismanagement of infectious disease threats can lead to economic losses, global embarrassment, and public outrage and distrust. Thus it is now time for China to meet its current challenges and avert future problems.



PART II

CHALLENGES IN CHINA'S INFECTIOUS DISEASE MANAGEMENT

2

MANAGING INFECTIOUS
DISEASES AMONG CHINA'S
MIGRANT POPULATIONS

Janet Vail

The term “migrants” can be a confusing one. On the basis of data from China’s 2000 census, migrants include both permanent and floating populations. Floating populations are people remaining at the place of destination for at least six months without local household registration status. At the time of the 2000 census, the floating population totaled 144 million, with 60 percent moving to cities. Urbanization is most often thought of when addressing migrant populations. Yet approximately 65 million (or 46 percent) of the floating population was estimated to have moved within the same county, including 14 million within a rural area (not migrating to the urban county seat), and 30 million within the same city (see figure 2.1). Of those moving between counties (approximately 79 million), more than a quarter moved for reasons that did not suggest a lack of social support or an increased risk pattern, namely, education or training, demolition of residence, marriage, and joining dependents, relatives, or friends. City-origin migrants accounted for 15 percent of the interprovincial floating population. Of the total floating population, 31 million (22 percent) moved *to* rural areas.¹ These overlooked data are important reminders about the diversification of the floating population and our assumptions when we address migrant health issues.

In terms of gender, the 2000 census showed that 57 percent of those moving out of a county were between the ages of 15 and 29 years, almost evenly divided between men and women. The next largest category was men, age 30 to 44, who accounted for 16 percent of this intercounty population. Women age 30 to 44 accounted for 9 percent.²

Among children, the 2000 census showed that approximately 10 percent of migrants were age 0 to 14.³ In 2006, the Chinese government’s English Web portal reported that more than 19 percent of China’s total migrant population were children, or almost 20 million.⁴ Additionally, in 2000, the number of children left behind when one or more of their parents migrated was approximately 20 million. In early 2008, the All-China Women’s Federation estimated that this number had almost tripled, to 58 million children.⁵

1. Zai Liang and Zhongdong Ma, “China’s Floating Population: New Evidence from the 2000 Census,” *Population and Development Review* 30, no. 3 (September 2004): 467–488.

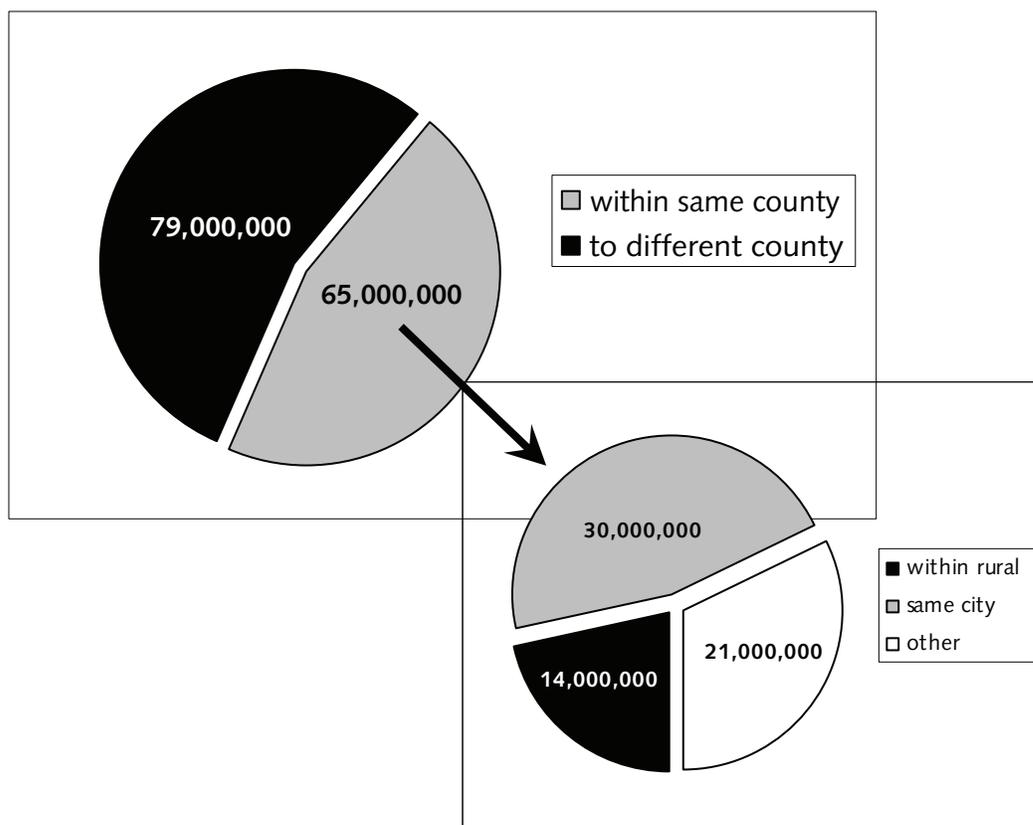
2. Ibid.

3. Zai Liang, Lin Guo, and Chenrong Duan, “Migration and Children’s Well-Being in China,” presentation at “The Well-Being of a Floating Population: A Symposium on Migrants and Health in China,” Yale University, New Haven, Conn., April 26, 2007.

4. “Premier Visits Community Health Center, Stresses Vaccination for All Children,” Xinhua, April 25, 2006.

5. “Migrant Kids’ Lot a Lot Better,” *Shanghai Daily*, March 29, 2008.

Figure 2.1. The Total Floating Population



The Health Needs of Migrants

As described above, the category of “migrants” comprises many different groups, each with different health needs. To clarify, from here on, the term “migrant” refers to those in the floating population, but not necessarily those who are residing on site for more than six months, because that was a measure used for census purposes only. Most of the data cite migrants who moved to cities, but some studies are based in specific occupational settings, counties, or towns.

Men

By far, the largest health need of adult male migrants is the protection or treatment from injuries or illness occurring in the workplace. In 2003, adult migrants reportedly accounted for 80 percent of deaths in mining, construction, and chemical factories.⁶

Two studies of adult migrant health perceptions revealed they had the best self-rated health compared with other groups,⁷ and that more than 80 percent perceived themselves to be in good

6. Max Tuñón, “Internal Labour Migration in China: Features and Responses,” International Labor Organization, Beijing, April 2006, http://www.ilo.org/public/english/region/asro/beijing/download/training/lab_migra.pdf.

7. Therese Hesketh, Ye Xue Jun, and Wang Hong, “Health Status and Access to Health Care of Migrant Workers in China,” *Public Health Reports* 123, no. 2 (2008): 189–197.

or very good health.⁸ At the same time, almost 40 percent had at least one health problem in the past month—mainly depression or physical injury. Notably, migrants in the study began working healthy, but as they continued to work, their health status declined.⁹

Women

One study reported that women migrants self-identified reproductive health as their main health issue, focusing on pregnancy and safe birth.¹⁰ Another study from Shanghai showed substantially worse pregnancy outcomes for migrants compared with permanent residents.¹¹ And still another final study showed a need for contraception and abortion services.¹²

Children

Injuries and nutritional issues are relevant for all children, not just migrants. However, access to immunizations is a critical health issue specifically for migrant children, as indicated by a number of studies that migrant children have lower immunization rates than resident children.¹³

The Infectious Disease Situation among Migrants

In China as a whole, chronic, noncommunicable diseases and injuries account for 80 percent of deaths. Emerging health threats relate to the environment, the workplace, and lifestyle (mainly smoking and diet). As for infectious diseases, tuberculosis (TB), HIV, hepatitis B, and schistosomiasis are the highest national priorities. TB is China's deadliest infectious disease, with approximately 150,000 deaths related to the illness each year and 1.3 million new cases reported annually. 80 percent of TB patients in China are from rural areas.¹⁴ Approximately 700,000 people were HIV-positive at the end of 2007. The HIV epidemic has been concentrated among the most-at-risk groups of injecting drug users, sex workers, and men who have sex with men.¹⁵

8. Mark Strand, Wang Xiaobing, Duan Xiaoqin, Kristin Lee, Alex Wang, Li Yanqing, Ni Jinxi, and Cheng Guangming, "Presence and Awareness of Infectious Disease among Chinese Migrant Workers," *International Quarterly of Community Health Education* 26, no. 4 (2006–2007): 379–395.

9. Ibid.

10. Xiang Biao, "Migration and Health in China: Problems, Obstacles and Solutions," *Asian MetaCentre Research Paper Series*, no. 17 (2004), <http://www.populationasia.org/Publications/RP/AMCRP17.pdf>.

11. Shaokang Zhan, Zhenwei Sun, and Erik Blas, "Economic Transition and Maternal Health Care for Internal Migrants in Shanghai, China," *Health Policy and Planning* 17, supplement (2002): 47–55.

12. Zhenzhen Zheng, Yun Zhou, and Lixin Zheng, "Sexual Behavior and Contraceptive Use among Unmarried Young Women Migrant Workers in Five Cities in China," *Reproductive Health Matters* 9, no. 17 (2001): 118–127.

13. Zhenzhen Zheng and Pengling Lian, "Health Vulnerability among Temporary Migrants in Urban China," paper presented at 25th International Population Conference, Tours, France, July 18–23, 2005; <http://iussp2005.princeton.edu/download.aspx?submissionId=51980>.

14. Global Forum for Health Research, *Equitable Access: Research Challenges for Health in Developing Countries*, Report on Forum 11, October 29–November 2, 2007, Beijing (Geneva: Global Forum for Health Research, 2008): 19–20; http://www.globalforumhealth.org/filesupld/forum11/Forum11_Report.pdf.

15. State Council AIDS Working Committee Office and United Nations Theme Group on AIDS in China, *A Joint Assessment of HIV/AIDS Prevention, Treatment and Care in China*, December 1, 2007, <http://www.undp.org.cn/downloads/otherlocal/HIV/20080104.pdf>.

Migrants are assumed to be a disease vector for infectious diseases because they are mobile and generally less educated, making them unaware of risks and unable to access health services (due to both poverty and structural registration factors). Most of the literature on this subject relates to HIV and other sexually transmitted infections, but the issue is possibly just as or more relevant for TB, measles, and other vaccine-preventable diseases.

Tuberculosis

Migrants with TB are shown to have lower cure rates and higher losses to follow-up care.¹⁶ A study in Beijing from 1997 to 2004 showed cure rates of 37 percent for migrants, compared with 90 percent for residents.¹⁷ In Shanghai, treatment success was 55 percent for migrants versus 89 percent for residents.¹⁸ Other data indicated cure rates from 1997 to 2002 of 11 percent for migrants, compared with 95 percent for residents, with more than 88 percent of migrants lost to follow-up care. Notably, by 2006, cure rates for migrants were up to almost 72 percent.¹⁹ Despite this success, reaching migrants remains a challenge.²⁰ The difference in results between migrants and residents has been attributed to delays in seeking health attention,²¹ delays in appropriate diagnosis and referral, and challenges in directly observing treatment.²²

Vaccine-Preventable Diseases

As of 2006, 91 to 94 percent of infants were immunized nationally for Bacilles Calmette-Guérin, measles, diphtheria-tetanus-pertussis, polio, and hepatitis B.²³ However, as noted above, migrant children have lower immunization rates than resident children. For example, in one study, immunization coverage in migrant children was less than 60 percent, and coverage of complete immunization was only 32 percent, far lower than that in local children.²⁴ For all childhood immunizations, rates for migrant children in ten cities were lower than national rates.²⁵ For oral polio vaccine, one study reported that migrant children had lower rates of immunization than permanent-resident children in receiving all three doses of the vaccine (41 percent, compared with 62

16. Global Forum for Health Research, *Equitable Access*; Strand et al., “Presence and Awareness.”

17. L. X. Zhang, D. H. Tu, Y. S. An, and D. A. Enarson, “The Impact of Migrants on the Epidemiology of Tuberculosis in Beijing, China,” *International Journal of Tuberculosis and Lung Disease* 10, no. 9 (2006): 959–962.

18. Xiaolin Wei, “COMDIS Example: TB Control in China,” presentation to the UK All-Party Parliamentary Group on Global Tuberculosis, London, April 1, 2008, <http://www.research4development.info/news.asp?ArticleID=50203>.

19. Global Forum for Health Research, *Equitable Access*.

20. Longde Wang, Jianjun Liu, and Daniel P Chin, “Progress in Tuberculosis Control and the Evolving Public-Health System in China,” *The Lancet*, February 24, 2007, 691–696; <http://download.thelancet.com/pdfs/journals/lancet/PIIS014067360760316X.pdf>.

21. Weibing Wang, Qingwu Jiang, Abu Saleh M. Abdullah, and Biao Xu, “Barriers in Accessing to Tuberculosis Care Among Non-Residents in Shanghai: A Descriptive Study of Delays in Diagnosis,” *European Journal of Public Health* 17, no. 5 (2007): 424–429.

22. Zhang et al., “Impact of Migrants.”

23. World Health Organization, “Immunization Profile: China,” August 26, 2008, <http://www.who.int/vaccines/globalsummary/immunization/countryprofileresult.cfm>.

24. W. Guo, Z. Feng, and L. Diao, “Investigation of Immunization Status in Children of Floating Population in Henan Province,” *Chinese Journal of Preventive Medicine* 34, no. 5 (2000): 287–289.

25. Liang, Guo, and Duan, “Migration and Children’s Well-Being.”

percent).²⁶ In 2000, 7 percent of measles cases occurred in floating populations. Measles incidence in Beijing and Shanghai were 11.6 cases out of 100,000 floating-population migrants, compared with 1.5 cases out of 100,000 residents.²⁷

HIV

A number of studies show that migrants lack knowledge about HIV, have casual sex, and do not use condoms. A recent review of the HIV situation showed that migrants accounted for disproportionately more persons infected with HIV.²⁸ However, another researcher identified no HIV infection and no difference in syphilis prevalence between resident and migrant workers in Hangzhou.²⁹

Although mobility, a lack of knowledge, multiple sex partners, and not using condoms can increase the risk of sexually transmitted infections, for HIV transmission, the nature of the epidemic in China indicates that focusing on those most at risk—injecting drug users and sex workers (including men who have sex with men)—is the key to disease control. The following examines the extent to which migrants are a subset of these most-at-risk groups.

First, are migrants injecting drugs? One researcher found that urban living rather than migrant status was a risk factor for drug abuse.³⁰ High drug use was the most important risk factor among HIV-positive migrant female sex workers and clients.³¹ Another study of migrants in Shanghai found no intravenous drug use.³²

Second, are migrants the clients of sex workers? Three studies found that migrant status was not a significant factor as clients of sex workers, because they did not have enough money or flexibility to leave work sites.³³ Other studies found that approximately 10 percent of male migrants patronized sex workers, which compares with 9 percent of nonmigrants in a national survey.³⁴

26. F. Q. Du et al., “Analysis of the Oral Poliomyelitis Vaccine Immunization Status of Mobile Resident Children and Permanent Resident Children in Yunnan Province,” *Chinese Journal of Vaccines and Immunization* 1 (2000).

27. Lixia Wang, Guang Zeng, Lisa A. Lee, Zhiwei Yang, Jingjin Yu, Jun Zhou, Xiaofeng Liang, Chang Xu, and Hugun Bai, “Progress in Accelerated Measles Control in the People’s Republic of China, 1991–2000,” *Journal of Infectious Diseases* 187, Supplement 1 (2003): S252–S257.

28. Xiushi Yang, “Temporary Migration and the Spread of STDs/HIV in China: Is There a Link?” *International Migration Review* 38, no. 1 (Spring 2004): 212–235.

29. Hesketh, Jun, and Hong, “Health Status and Access.”

30. Xiushi Yang and Huasong Luo, “Migration, Urbanization, and Drug Use and Casual Sex in China: A Multilevel Analysis,” presentation at “The Well-Being of a Floating Population: A Symposium on Migrants and Health in China,” Yale University, New Haven, Conn., April 26, 2007.

31. Jun Jie Xu, Ning Wang, Lin Lu, Yi Pu, Guo Lei Zhang, Michelle Wong, Zheng Lai Wu, and Xi Wen Zheng, “HIV and STIs in Clients and Female Sex Workers in Mining Regions of Gejiu City, China,” *Sexually Transmitted Diseases* 35, no. 6 (June 2008): 558–565.

32. Na He, R. Detels, J. Zhu, Q. Jiang, and Z. Chen, “Characteristics and Sexually Transmitted Diseases of Male Rural Migrants in a Metropolitan Area of Eastern China,” *Sexually Transmitted Diseases* 32, no. 5 (2005): 286–292.

33. Biao, “Migration and Health;” Therese Hesketh, L. Li, X. Ye, H. Wang, M. Jiang, and A. Tomkins, “HIV and Syphilis in Migrant Workers in Eastern China,” *Sexually Transmitted Infections* 82, no. 1 (2006): 11–14; Strand et al., “Presence and Awareness.”

34. Hongmei Yang, Xiaoming Li, Bonita Stanton, Hongjie Liu, Hui Liu, Ning Wang, Xiaoyi Fang, Danhua Lin, and Xinguang Chen, “Heterosexual Transmission of HIV in China: A Systematic Review of Behavioral Studies in the Past Two Decades,” *Sexually Transmitted Diseases* 32, no. 5 (May 2005): 270–280; Bo

Conversely, the same mining study cited above found that more than 85 percent of the clients were migrants.³⁵

Third, are commercial sex workers migrants? In general the answer is “Yes, but...” Two researchers posit that migration may not be the cause of sex work; rather, one migrates *because* one is a sex worker.³⁶ A study of sex workers and clients in a mining region demonstrates that more than 90 percent of the female sex workers were migrants. However, the number in the study was small (96 participants) and may not be representative.³⁷ Another study notes the importance of differentiating between general male migrants and “money boys” (having sex with men for money).³⁸ Additionally, a study found that “whereas male temporary migrants did not differ from nonmigrants in the likelihood of having casual or commercial sex, . . . female temporary migrants were eighty times more likely to be engaged in commercial sex than the corresponding prevalence rates of nonmigrants.”³⁹

Although the data are mixed as to the role and risk of migrant populations in transmitting HIV, one clear link is between young migrant women and their entry into commercial sex work through the entertainment industry. Based on data from the 1990s, depending on the destination, young women are generally employed in large factories—for example, as garment workers—or in hotels and the entertainment industry.⁴⁰ Data according to gender and migrant status showed that for migrant women there is a strong association between employment in the service sector (such as the entertainment industry) and the likelihood of having commercial sex.⁴¹

Barriers

What are the issues and challenges to be addressed in order to improve the health of migrants? A fundamental challenge is poverty itself. For example, with TB, after adjusting for migration, poverty itself is a high risk factor.⁴² Migrants are most often moving to seek employment.⁴³

Related to poverty is a migrant’s need to pay for health services. Without residence permits (*hukou*) and employment contracts, migrants are ineligible for medical coverage or municipal health services in their destination location. Health insurance coverage for migrant populations

Wang, Xiaoming Li, Bonita Stanton, Xiaoyi Fang, Danhua Lin, and Rong Mao, “HIV-Related Risk Behaviors and History of Sexually Transmitted Diseases among Male Migrants Who Patronize Commercial Sex in China,” *Sexually Transmitted Diseases* 34, no. 1 (January 2007): 1–8.

35. Xu et al., “HIV and STIs.”

36. Biao, “Migration and Health,” 10; Yang et al., “Heterosexual Transmission.”

37. Xu et al., “HIV and STIs.”

38. Na He, Frank Wong, Z Jennifer Huang, Yingying Ding, Chaowei Fu, Brian Smith, Darwin Young, and Qingwu Jiang, “HIV Risks among Two Types of Male Migrants in Shanghai, China: Money Boys vs. General Male Migrants,” *AIDS* 2007 21, supplement 8 (December 2007): S73–S79.

39. Xiushi Yang and Guomei Xia, “Gender, Migration, Risky Sex, and HIV Infection in China,” *Studies in Family Planning* 37, no. 4 (2006): 241–250; the quotation is on 245–246.

40. C. Cindy Fan, “Rural-Urban Migration and Gender Division of Labor in Transitional China,” *International Journal of Urban and Regional Research* 27, no. 1 (2003): 24–47.

41. Yang and Xia, “Gender, Migration, Risky Sex.”

42. Sukhan Jackson, A. C. Sleigh, G. J. Wang, and X. L. Liu, “Poverty and the Economic Effects of TB in Rural China,” *International Journal of Tuberculosis and Lung Disease* 10, no. 10 (2006): 1104–1110.

43. Liang and Ma, “China’s Floating Population.”

ranges from 10 to 19 to 23 percent.⁴⁴ Therefore, migrants need to pay for health services, and urban health care is expensive.⁴⁵ The national government leaves it up to the discretion of municipal governments to offer migrants participation in basic health insurance.⁴⁶ In cases where participation has been offered (for example, in municipalities in Guangdong), barriers remained, including the need to have a formal employment contract and the exclusion of the self-employed. When free treatment is offered to all, as it is for HIV/AIDS and TB, delays in diagnosis and referral services can lead to substantial costs before the free treatment can be accessed.⁴⁷ Adult immunizations (for example, for measles and meningitis) are also intended to be available free of charge to adult migrants, although restrictions that the worker be less than 40 years old and in a company with a large number of migrants limit availability and application.⁴⁸

Employment situations are additional barriers. For example, only 26 percent of migrants were entitled to sick pay.⁴⁹ Temporary workers work for pay; and if they are sick, they lose their jobs entirely.

Housing conditions in the employment context can be barriers to health, especially in dormitories for large factories and urban construction sites. Poor, high-density conditions put residents at a higher risk of TB and respiratory infections. Very large factories employing more than 10,000 workers who reside in onsite dormitories are isolated and far away from health services—this is a real obstacle to onsite health education programs that encourage testing for HIV and TB.

If health services are affordable and accessible, then mobility can be a real factor in promoting treatment adherence. For TB, directly observed therapy is an essential factor in treatment. In one study, migrants had less than 60 percent directly observed therapy, compared with 84 percent of permanent residents with new smear-positive cases.⁵⁰ For migrants who are moving every few months or returning home for a visit, this loss to follow-up care is a key barrier to TB control.

Gender itself is a barrier, too, because young women migrants are disproportionately in entertainment jobs associated with commercial sex. In addition, a study in Shanghai found that migrant women were at higher risk of delay in seeking TB diagnosis.⁵¹

Policy Implications

These barriers to migrant health can be addressed through policy changes at the national, community, and employer levels. At the same time, successful policies need to take into account the

44. Tuñón, “International Labour Migration;” Hesketh, Jun, and Hong, “Health Status and Access;” Suyun Hu and Weina He, “Health System and Health Service for Floating Population: A Case Study of Shanghai,” presentation at “The Well-Being of a Floating Population: A Symposium on Migrants and Health in China,” Yale University, New Haven, Conn., April 26, 2007.

45. Hesketh, Jun, and Hong, “Health Status and Access.”

46. Till Bärnighausen, “Willingness to Pay for Social Health Insurance among Informal Sector Workers in Wuhan, China: A Contingent Valuation Study,” *BMC Health Services Research* 20, no. 7 (2007): 114.

47. Wang et al., “Barriers in Accessing”; Global Forum for Health Research, *Equitable Access*.

48. “Beijing Offers Free Vaccination Service for Migrants,” *Shanghai Daily*, March 21, 2006..

49. Hesketh, Jun, and Hong, “Health Status and Access.”

50. Zhang et al., “Impact of Migrants.”

51. H. . Deng, “Study on Factors Causing the Delay of Access to Tuberculosis Diagnosis and Its Influencing Factors in Migrating Tuberculosis Patients in Putuo District, Shanghai,” *Zhonghua Liu Xing Bing Xue Za Zhi* 27, no. 4 (2006): 311–315.

diversity of the migrant population and recognize that different groups within the floating population have different health needs.

The first implication for policy is the need to extend medical access and insurance coverage regardless of residence and employment status. Even with insurance coverage, the barriers of high deductibles and copayments need to be reduced, and catastrophic coverage and the portability of insurance need to be increased.⁵² In terms of services, access to low-cost appropriate health diagnosis (not screening) and treatment is needed. In 2001, *hukou* registration reforms began to enable improved access to services. In the past few years, more employees in urban settings have been receiving workplace insurance against injury, family planning services have become available, and Beijing and Shanghai have been finding ways to extend social services to migrants. However, these are still limited and not uniformly enforced.

It is China's policy to offer free prevention and treatment of major communicable diseases. Budget decisions beginning in 2007 resulted in the central government becoming the main funding source for these costs. Extending national-level policy to local implementation (and making the funding available) will be the next step.

To reach migrant children, the immunization program needs to continue its efforts in outreach and publicity to parents of migrant children. Childhood immunizations are free to all, and they usually do not bear additional referral costs such as those that have been seen in the TB program. But challenges remain in reaching migrant children, and one study recommended going house to house to reach this population.⁵³ Generally, school admission procedures are used as a way to check that all children have received their required vaccinations. However, in urban areas, migrant children are not eligible to attend municipal schools free of charge, and schools for migrant children are often not registered. Therefore, it is less likely that school admissions will be a way to identify unvaccinated migrant children in major cities.

At the employer level, conditions need to be improved both in terms of physical living standards to prevent respiratory disease transmission and in terms of support for health-seeking behavior. Large employers in China have become increasingly aware of the risks of HIV, but much less so in the case of TB. Given the high mortality rate for those with TB in China, this situation deserves much more attention. Examples of possible improvements are improved housing ventilation and conducting directly observed therapy on site for employees with TB. Fundamentally, sick workers need to be paid sick leave or receive assurances that they will not lose their jobs when seeking diagnosis or treatment.

Policy implications also exist within the health service system. For TB, preventive and curative services need to be better linked to reduce delays in referral from one system to another. Strengthening community health clinics in urban areas has been shown as a successful way to reach migrant populations.⁵⁴

In many cases, changes in policy are not needed. The correct policies are in place, and the challenge is to expand programming focus and implementation. For HIV prevention, methadone programs for injecting drug users and condom use in commercial sex are critical to reduce transmission among those at highest risk.

52. Bärnighausen, "Willingness to Pay for Social Health Insurance."

53. Wang et al., "Progress in Accelerated Measles."

54. Hu and He, "Health System and Health Service"; Biao, "Migration and Health."

A final policy implication is to address the prospects of young migrant women. For this population, vocational training before migration could help to provide an alternative to employment in the entertainment industry. For example, Project GLOW (Giving Leadership Opportunities to Young Women), initiated by the Mercy Corps in Szechuan Province, supports and empowers young ethnic Yi women. The program provides literacy, health, life skills, and vocational training so that the girls can be prepared before migrating.⁵⁵

55. Mercy Corps, "China: The Disparity of Change," <http://www.mercycorps.org/countries/china/591>.

3

THE CHALLENGE OF TUBERCULOSIS CONTROL IN CHINA

Xiaoqing Lu

China, home to more than 1.5 million new cases of tuberculosis (TB) each year, suffers from a heavy burden of this disease. With 4.5 million estimated cases of active TB and 45 percent of the population infected with the TB bacilli, the country has the second highest number of TB cases in the world, behind India, accounting for 17 percent of the world's TB burden.¹ More than 600,000 of the new cases are the highly infectious, smear-positive type.²

As one of the 22 TB high-burden countries, China faces significant public health challenges posed by this single disease. Official reports indicate that TB is the leading fatal infectious diseases among adults in China, causing approximately 270,000 deaths each year.

TB is not just a health problem. The socioeconomic cost of the disease should not be overlooked. The impact of TB on China's economy is particularly troubling because the disease primarily afflicts persons in the most productive years of their lives. According to the Chinese Ministry of Health (MOH), 63.8 percent of TB patients in China are currently between ages of 15 and 59 years, representing at least 350 million people in the workforce and an annual GDP loss of over \$1 billion.³ A joint study conducted by the MOH and the Shanghai Medical University revealed that each case detected cost approximately \$83 and that the cost per new smear-positive cured was \$537.

To add to the economic concerns, TB hits China's rural areas the hardest, where the disease is attributed to low levels of living conditions, health and nutritional status, health care funding, and TB awareness and knowledge. The vast majority (about 80 percent) of Chinese TB patients live in the countryside. The high number of TB cases, coupled with China's ailing health care system particularly in the countryside, poses a persistent barrier to improving the well-being of rural residents, who constitute the major portion of the Chinese population.

The size of China's TB burden reflects the global importance of its TB control effort. The World Health Organization (WHO) reports that four countries—China, Cambodia, the Philippines, and Vietnam—account for 95 percent of the estimated TB cases in the Western Pacific Region.⁴ Yet China alone accounts for about 70 percent of the regional TB burden.⁵ Progress in controlling TB in China thus largely shapes the regional effort to meet the goal of halving the TB burden in the Western Pacific Region by 2010.

1. United Nations Health Partners Group in China, *A Health Situation Assessment of the People's Republic of China* (Beijing: United Nations, 2005).

2. Ibid.

3. MOH, "Current Situation of TB Control in China" (Woguo Jihebing Fangzhi Gongzuo Xianzhuang), March 2006, http://www.gov.cn/xwfb/2006-03/10/content_224058.htm.

4. WHO, *The Global Plan to Stop TB 2006–2015*, <http://www.stoptb.org/globalplan/assets/documents/GlobalPlanFinal.pdf>.

5. WHO, *China: Summary Plan 2006–2010*, http://www.wpro.who.int/internet/files/stb/busnan/raw_files/Country_summaries_HBC/CHN%20summary%20final.doc.

The Government's Effort

Since 1991, when a World Bank–assisted TB program was first launched in the country, China has revitalized its effort to curb the epidemic. In comparison with other Western Pacific high-burden countries, in recent years China's performance has progressed significantly in its political commitment, leadership, adequate funding, and strong technical approaches.⁶

The government initiated its National TB Control Program in 1991 to expand the implementation of the Directly Observed Therapy, Short-Course (DOTS) strategy, an approach recommended by WHO. In the DOTS program, treatment was provided free of charge and village health workers were paid a bonus for every TB case they identified and for every patient they cured. Overall, the DOTS program in China prevented about 30,000 deaths a year and more than 90 percent of patients treated were cured.⁷ As the largest DOTS effort in the world, China's program is often cited by WHO as one of the most successful TB control interventions.

Political commitment to TB control has increased, particularly since the outbreak of severe acute respiratory syndrome (SARS) in 2003. In the 2004 national TB video-conference held by the State Council, China's cabinet, then–vice premier Wu Yi stressed China's needed to keep its commitment and meet the pledged targets throughout the country.⁸ Thus, TB has been listed as one of the priority diseases that need to be controlled in China's Eleventh Five-Year Program, the nation's blueprint for economic and social development for 2006 to 2010.

Building on the SARS experience, Beijing has become more and more determined to enhance China's disease surveillance and reporting system. China's Law on the Prevention and Treatment of Infectious Diseases, revised in 2004, classifies TB, HIV/AIDS, and several other diseases as class B. The law, which requires mandatory reporting for diseases in class A and class B, is expected to improve TB reporting substantially. However, some local authorities tend to conceal disease information due to fear of censure. Corruption, cover-ups, and misreporting among local officials have raised concerns over how Beijing's political determination to fight emerging and reemerging infectious diseases, including TB, has actually been implemented in localities.

The Chinese government has also stepped up its investment in TB programs. In 2001, the government allocated \$5.4 million a year to fund free TB examinations and treatment.⁹ This funding has been steadily increasing. In 2005, the government set aside an annual subsidy of \$70 million to launch a comprehensive government TB containment initiative, aimed at providing free screening and drug therapy for all rural and urban residents.¹⁰ Meanwhile, there has been an increase in funding from the international community. Total funding for TB control in China grew from \$20 million in 2001 to \$100 million in 2005.¹¹

6. WHO, *Global Plan to Stop TB 2006–2015*.

7. WHO, *China Halves TB Deaths through DOTS*, 2001, <http://www.who.int/inf-new/tuber2.htm>.

8. Speech by then–vice minister of health Longde Wang at the 36th World Conference on Lung Health of the International Union against TB and Lung Disease, Paris, October 25, 2005, <http://www.med8th.com/medinfo/0510/20051026zgjhbkzjz.htm>.

9. “More Effort Needed to Tackle TB, Minister,” *China Daily*, December 20, 2007.

10. “Calls for More Help in Fight against TB,” *China Daily*, March 25, 2008.

11. Presentation on “Progress of TB Control in China” by then–vice minister of health Longde Wang, October 18, 2005, http://www.stoptb.org/news/archives/mega_meeting_20051018/assets/Presentations/Tuesday%20October%2018%20IUATLD%20Symposium/02.%20Progress%20of%20TB%20Control%20in%20China.pdf.

As a result, China achieved its intermediate TB control target on time by the end of 2005. Between 2001 and 2005, 2 million infectious TB patients were provided free-of-charge diagnosis and treatment. And DOTS program's geographic coverage has expanded from 68 percent in 2001 to 100 percent in 2005.

The success of China's TB programs demonstrates the government's ability to effectively implement the DOTS strategy. Despite substantial progress, however, the disease is not yet under control. In 2006, the rate of increase in detecting new cases slowed down globally and stalled in China and India, partly as a result of the inability of some national programs that had been making rapid strides to continue at the same pace. Though China's DOTS program has reached its 100 percent coverage, it is the quality of DOTS' implementation, rather than its coverage, that may be more important for the reduction of TB prevalence. China, along with India and the African region, accounts for 69 percent of undetected TB cases. The slowing progress in the detection of new TB cases is worrisome, because the more cases that are detected early interrupt transmission and provide a better chance of cure, and this ultimately has a great impact on the incidence of the disease, according to WHO.¹²

Emerging Challenges for TB Control in China

In spite of major increases in domestic and international resources, the establishment of new programs, and an unprecedented commitment from the central government to dealing with the disease, significant gaps exist in China's capabilities and policies to fight TB. Thus, TB programs in China face new, persistent challenges.

MDR-TB

Drug resistance is becoming rampant worldwide. For a range of reasons—including inconsistent treatment, wrong treatment regimes, inadequate investment in detection, unreliable drug supplies, and poor monitoring of patients—TB evolves to become multi-drug-resistant TB (MDR-TB) and can be easily spread to others. The emergence of MDR-TB impedes TB control efforts worldwide.

According to WHO estimates, China has the world's largest MDR-TB epidemic, more than 30 percent of global cases.¹³ Currently, about 1 in 10 of the annual new MDR-TB infections worldwide is contracted in China. Drug-resistant TB cases have reached record high levels in China and in parts of the former Soviet Union. Nearly 1.5 million Chinese have drug-resistant TB, and 500,000 have MDR-TB.¹⁴

China's high level of MDR-TB cases complicates its delivery of effective TB interventions. MDR-TB is more dangerous and fatal because it is more difficult to cure. Patients infected with MDR-TB have to take second-line anti-TB drugs, which cost about 20 times more than common ones, often have more side effects, and require longer treatment. MDR-TB cases are currently treated outside China's national program at individual cost. Ironically, many of China's MDR-TB patients live in the poor countryside and cannot afford treatment.

12. "WHO Reports Problems in Detecting TB," *International Herald Tribune*, March 19, 2008.

13. WHO, *Global Plan to Stop TB 2006–2015*.

14. "Calls for More Help in Fight against TB."

What is more worrisome is that MDR-TB rate is very high in some Chinese provinces, where a successful DOTS program has been implemented for nearly 10 years. This raises concern that implementing DOTS alone cannot tackle the uniquely serious MDR-TB epidemic in China. Because of various factors, such as a fear of high medical costs and the lack of awareness of existing TB diagnosis and treatment services, many Chinese TB patients, especially rural ones, are not able to receive an early diagnosis or carry through TB therapy. TB treatment standards are not uniformly implemented across the country. Reportedly, some Chinese physicians are infamous for overprescribing antibiotics, which also accelerate the emergence of drug-resistant categories of bacteria.¹⁵

With the sharp rise in MDR-TB cases, more funding and aggressive action are needed to halt the further spread of the epidemic. China's priority for controlling the disease must be the prevention of MDR-TB, even as the DOTS strategy is implemented. The national program should take into consideration the emergent, key challenge of high MDR-TB prevalence. Also, there is a growing need to adopt international standards of TB treatment and care. Managing China's MDR-TB cases is critical; otherwise, the global fight against TB is going to be far more costly and complex.

Coinfection with TB and HIV

HIV/AIDS and TB form a deadly combination. As we know, TB, the most common opportunistic infection among people with HIV/AIDS, is the leading cause of death among them worldwide. HIV is, however, partly responsible for the global increase in TB cases. Globally, nearly half the people with HIV/AIDS develop a TB infection at some point of their illness. This is a serious public health concern beyond the HIV epidemic, because TB is an airborne infection and can easily spread to people who are not HIV positive.

Although China is considered a country with a low prevalence of HIV, it already has many local areas with high prevalence of the epidemic. As HIV/AIDS has spread from high-risk groups to the general population in China, the number of TB-HIV coinfection cases is rising. In some areas with high HIV prevalence—such as Yunnan, Henan, Guangxi, Xinjiang, Guangdong, and Sichuan, anecdotal reports suggest that HIV-associated TB is already a serious problem.

Although the real impact of HIV/AIDS on China's TB epidemic remains unknown, with an estimate of 700,000 total HIV cases and 50,000 new cases per year in China as of 2007, the introduction of HIV into a population with a TB infection rate as high as 45 percent is likely to increase the incidence and mortality of both diseases.¹⁶ Without promptly tackling the HIV-TB coinfection problem, the gains achieved by implementing DOTS in China over the past years could be easily reversed by the HIV/AIDS epidemic.

Although the Chinese government has implemented separate national programs to address TB and HIV/AIDS, controlling two interlinked epidemics requires closer collaboration. The TB-HIV epidemic is highly concentrated in a few areas of China. In some high HIV-prevalent areas, anecdotal reports suggest that HIV-associated TB has been on the rise. The Chinese government has outlined a national framework to address the coinfection problem. However, efforts are

15. U.S. Embassy in Beijing, "Beijing Environment, Science and Technology Update," March 29, 2002.

16. PRC State Council AIDS Working Committee Office and U.N. Theme Group on AIDS in China, *A Joint Assessment of HIV/AIDS Prevention, Treatment and Care in China*, 2007, <http://www.unaids.org.cn/uploadfiles/20080725151739.pdf>.

needed to facilitate collaboration between government initiatives on TB and HIV/AIDS, as well as with other intervention programs implemented by international partners such as the Global Fund to Fight AIDS, Tuberculosis, and Malaria.

An Ailing Health Care System

China's poor health care system is one of the fundamental barriers to implementing an effective TB control strategy. Despite the steadily increasing government investment in TB programs, China still faces a lack of resources, trained medical personnel, and a functioning health care system in its fight against the disease. Without proper health care mechanisms in place, it is very difficult to effectively monitor and treat TB patients.

According to then-vice premier Wu Yi, one-third of China's TB prevention and control agencies are understaffed, and most of the country's grassroots TB prevention facilities have not met national biological safety standards.¹⁷ As a result, undetected cases and delayed treatment are rampant throughout the country. Undiagnosed and untreated patients are likely to infect 10 to 15 people a year and develop the drug-resistant TB variety, which remains insufficiently treated through the national program due to funding constraints. The high number of MDR-TB cases, along with the increasing TB infection rate among the HIV population, place an extra heavy burden on China's ailing health care system.

Many of China's MDR-TB patients live in the countryside, where the public health infrastructure is particularly inadequate and close monitoring of TB therapies is practically impossible. China's TB effort reflects the major rural/urban gaps in the nation's health care system. In recent years, China's medical resources have been mostly allocated to benefit urban areas or government departments and state-owned units.¹⁸ In rural areas, however, residents are often reluctant to visit doctors due to the fear of high medical costs. Most of the rural TB prevention and control facilities are based within the local Centers for Disease Control system. Yet, as a result of the lack of awareness of such programs, most rural patients initially seek medical care at nonpublic health facilities, such as village and township clinics, or the general hospital, where care is provided on a fee-for-service basis.

Besides delayed treatment, improper treatment by health care workers and failure to ensure that patients complete the entire treatment course also contribute to the increase of drug-resistant TB cases in China. This is largely due to the lack of qualified health care workers, particularly in the countryside. A shortage of trained staff has become a major barrier to ensuring close monitoring of patients and drug dosage adherence among patients. A recent study in southwestern China's Chongqing found that only 16 percent of local TB patients were directly observed during their treatment, and fewer than 5 percent were observed by staff.¹⁹ Health care officials also point to the lack of standardized therapies for MDR-TB at medical institutions. As a result, inconsistent TB therapy and wrong treatment regimens, coupled with China's understaffed TB prevention and control agencies, have exacerbated TB's increasing resistance to many drugs.

17. "China Meets Tuberculosis Control Target: Vice Premier," *People's Daily*, June 16, 2006, http://english.people.com.cn/200606/16/print20060616_274432.html.

18. U.S.-China Security and Economic Review Commission, "Bates Gill's Testimony on China's Health Care and Pension Challenges," February 2006.

19. Daiyu Hu et al., "Direct Observation and Adherence to Tuberculosis Treatment in Chongqing, China: A Descriptive Study," *Health Policy and Planning* 23, no. 1 (2008): 43–55.

The massive TB burden in China enlarges the challenges of the nation's ongoing health care reform effort. Though this reform aims to provide the entire population with basic medical care by 2020, the system is plagued with a severe lack of resources, especially for the rural poor. The scale of China's TB epidemic, and the resources necessary to fight it, make it particularly difficult for Beijing to roll out its health care reform plan that is affordable and extensive.

TB among the “Floating Population”

In search of better economic opportunities, millions of Chinese peasants—China's “floating population”—have abandoned the countryside and flocked to urban areas in recent years. The number of internal migrants increased from 53.5 million in 1995 to 150 million as of 2007, and migrants now account for 40 percent of the urban labor force.²⁰ The heavy influx of rural-urban migrant workers presents a formidable barrier to curbing the spread of TB in China.

Migrant workers are often the toughest to reach with programs and interventions. Without a proper residence permit (*hukou*), China's migrant workers rarely have easy access to free TB diagnosis and treatment services. The floating population's high mobility has led to a high rate of incomplete diagnosis or treatment. The Chinese government has recently launched a special TB care program for the floating population. In Shanghai, Tianjin, and five other economically advanced provinces, a monthly allowance of RMB 100 is distributed to each infected migrant worker. However, health experts note that many migrants are reluctant to seek diagnosis or treatment, not only because of concerns over high medical costs but also because of frequent discrimination, which leads to their fear of losing their jobs.

Because migrant workers face delays in seeking medical attention and adequate treatment along with a lack of follow-up care, they have lower detection and cure rates than residents. TB data for migrant workers are limited in China, because official reporting focuses on the resident population. However, available data indicate that the number and proportion of TB cases among migrant workers are increasing in many parts of the country. A total of 40 percent and 50 percent of the TB cases are reported, respectively, from migrants in Beijing and Shanghai. In Shenzhen alone, 80 percent of the TB cases are found within the migrant population.²¹

The sheer size and high mobility of China's floating population raise new concerns about effective TB control strategies. Recognizing the significant risks associated with this group, it is important to integrate the health needs of migrant workers into existing TB programs and encourage patients to seek care at local TB prevention and treatment centers where services are free of charge.

Conclusion

The TB epidemic poses significant risks for China's health and development. Though the government has implemented successful TB initiatives in recent years, the disease is still not under effective control and new challenges have emerged in the nation's fight against TB.

20. Carin Zissis, *China's Internal Migrants*, Council on Foreign Relations, March 26, 2007, <http://www.cfr.org/publication/12943/>.

21. WHO, *China Summary Plan: 2006–2010*, http://www.wpro.who.int/internet/files/stb/busan/raw_files/Country_summaries_HBC/CHN%20summary%20final.doc.

TB presents a fundamental burden for the Chinese government: to bring affordable health care to the majority of the Chinese population, especially those in the countryside. Controlling TB is at the core of the leadership's aspiration to build a "harmonious society."

As demonstrated in the 2003 outbreak of SARS, China's health record matters to the rest of the world. With the massive growth of China's economic engagement with the rest of the world, China's response to its TB challenge has global implications. The success of China's effort to control TB is likely to contribute to a dramatic turnaround in the regional and global effort against TB. China, along with the international community, should respond to the emerging challenges for TB control with a collaborative approach and a strong health care system.

4

THE ANATOMY OF CHINA'S PUBLIC HEALTH SYSTEM

Yuanli Liu

Public health is the science of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. Public health professionals analyze the effect on health of genetics, personal choice and the environment in order to develop programs that protect the health of your family and community.¹

There are two strategies to control diseases and improve population health status—one focusing on specific diseases (e.g., the Global Fund to Fight AIDS, Tuberculosis, and Malaria), and the other focusing on health systems (e.g., the Primary Health Care movement launched by the World Health Organization in 1978, which the WHO is currently trying to renew). Though the disease-specific strategy has attracted substantial support and produced significant results, it has helped create a fragmented array of uncoordinated “vertical” programs. Meanwhile, system failures have inhibited the scaling up of vertical programs and a collective call from system reformers and disease-oriented strategists has arisen in recent years on the need for global action on health care systems. This represents a new phase in global health policy—seeking to restore an appropriate balance between disease-specific actions and actions to strengthen health systems.²

This chapter aims to put the discussions of controlling infectious diseases in China's health system context and to examine the question why a system approach is needed to enhance the success of disease control programs. Successfully controlling infectious diseases involves three kinds of strategies—*prevention*, *detection*, and *response*. How does China perform on these three dimensions? A recent study measuring China's health system performance produced mixed results.

China's health system seemed to perform well in the areas of access to safe drinking water, prenatal care, and childhood vaccinations, as indicated by the high level of coverage of these interventions. For urban and rural areas, respectively, coverage of these interventions was 99 and 97 percent, 95 and 80 percent, and 86 and 85 percent in 2003. However, concerns may arise regarding the low rate of examination of suspected tuberculosis (TB) patients. In the 2003 China National Health Services Survey, only 36 percent of the urban and 28 percent of the rural samples of interviewed people who reported TB-like symptoms actually underwent formal testing for TB (including X-ray and smear examination). Therefore, China's ability to detect TB cases remains questionable, despite recent progress in TB control. This example is indicative of deficiencies in China's health system which underlie problems in infectious diseases control.³

1. See <http://www.whatispublichealth.org/about/index.html>.

2. M. Reich, K. Takemi, M. Roberts, and W. Hsiao, “Global Actions on Health Systems: A Proposal for the Tokyo G8 Summit,” *The Lancet*, March 8, 2008, 865–869.

3. Y. Liu, K. Rao, J. Wu, and E. Gakidou, “China's Health System Performance,” *The Lancet Online*, October 20, 2008, [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(08\)61362-8/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(08)61362-8/fulltext).

Focusing this chapter on China's health system is timely, because the country is at a critical juncture for system reforms. Responding to the mounting public demand for policy actions to reform China's health care system, the State Council Health Care Reform Leading Group, involving 14 ministries, was formed in September 2006 to develop new policies for a more effective and equitable health care system. A package of new health system reform policies is likely to be announced in late 2008.⁴

In this chapter, I first develop a framework for the structural and performance analysis of health systems. Then I apply this framework to investigating the major characteristics of and critical issues confronting China's public health system. The chapter concludes by discussing major policy implications that can be derived from health system analysis for controlling infectious diseases in China and other countries.

Although I draw on important insights and lessons from previous studies on health systems, the major weakness of the existing literature is that it tends to either focus on performance measurement while treating health systems as a "black box" or to selectively examine parts of the system. Critically lacking is the comprehensive work that examines the whole system structure and links performance to structure in a coherent way. In trying to fill the gaps in the literature, I seek here to answer two fundamental questions: What is a health system? And what makes a good health system?

A Structural Model of Health Systems

This section proposes that a health system can be defined as having four major subsystems: resources supply, services provision, financing and payment, and regulation.

The major function of the first subsystem, resources supply, is to produce and supply material and human resources to the health sector. In most countries that have adopted a market economy, resource allocation in this sector is dominated by market mechanisms, with governments usually subsidizing human resources development to promote health.

The major function of the second subsystem, services delivery, is to convert resources into services, including public and personal health services. How different provider organizations are organized at the macro level and managed at the micro level would affect both efficiency and quality. There are four fundamental decisions regarding the macro organization: competition, decentralization, vertical integration, and ownership.

The major function of the third subsystem, financing and payment, is to identify the sources of, generate, and allocate financial resources and to arrange appropriate mechanisms to compensate and pay providers. There are five major models of health care financing: general revenue financing, social insurance, private insurance, community financing, and consumer out-of-pocket payment at the point of service delivery.

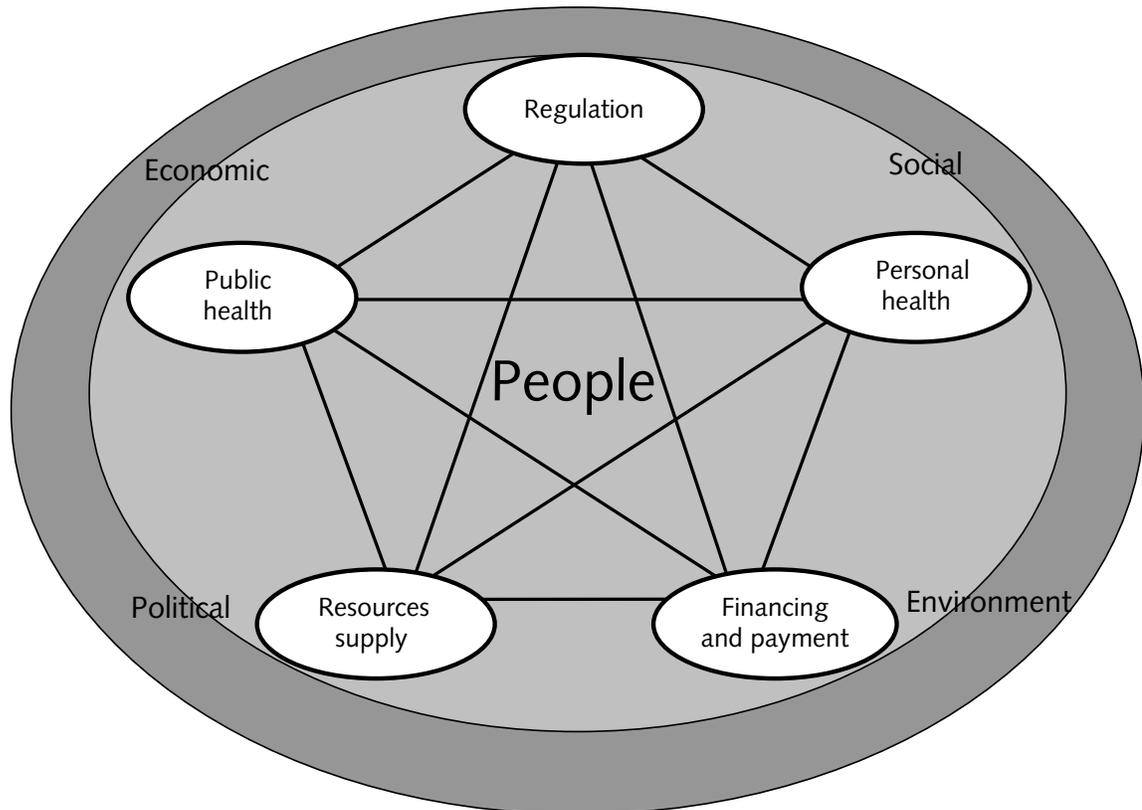
The fourth and last subsystem is policy and regulation. Regulation, in a narrow sense, refers to the government's use of coercive power to impose constraints on organizations and individuals.

4. Q. Gao, "Using Creative System Mechanisms to Stimulate Health Reform and Development," *China Development Observation* 4 (2007); Z. Chen and Q. Gao, "Health Reform and Development with Chinese Characteristics: Ensuring Medical and Health Care Services for Each and Every Citizen," *Qiushi*, January 2008.

Regulatory instruments may include laws, decrees, orders, codes, administrative rules, and guidelines issued by governments and by nongovernmental organizations, which are either self-regulatory organizations (e.g., professional associations) or quasi-governmental bodies to which governments have delegated regulatory power. The major functions of this subsystem are to monitor and modify behaviors, and to design and enforce the overall direction for and rules of the game for the whole system.

The anatomy of a health system is illustrated in figure 4.1. Here, a health system is likened to the human body, which provides a metaphor for the health system. The interaction of these subsystems, as depicted by the lines in figure 4.1, is through the flow and exchange of information and resources. Beside interaction among the four subsystems, the health system as a whole and its four constituent parts also constantly interact with and are constrained by their economic, political, and cultural environments.

Figure 4.1 The Anatomy of a Health System



Source: Developed by the author based on a similar figure in Y. Liu, "What Is Wrong with China's Health System?" *Harvard China Review* (Spring 2006): 65–73.

A Simple Model of Health System Performance

The performance (effectiveness) of the whole health system depends on the nature (cooperation vs. competition) and efficiency of the four subsystems' interactions. My simple model of health system performance identifies three necessary and sufficient conditions that determine health system performance: capacity, incentives, and the accountability of each subsystem and the system as a whole. It can be called the "CIA Model."

Capacity

In simple terms, an organization's capacity is its potential to perform—its ability to successfully apply its skills and resources to accomplish its goals and satisfy its stakeholders' expectations.⁵ *Organizational capacity* refers to the resources, knowledge, and processes employed by the organization, including

- staffing;
- infrastructure, technology, and financial resources;
- strategic leadership;
- program and process management; and
- networks and linkages with other organizations and groups.

Major shortfalls in the health care workforce, weak information systems, and other critical infrastructure challenges restrain the systems of low-income countries' abilities to attain the Millennium Development Goals.⁶

Incentives

An *incentive* is any factor, financial or nonfinancial, that provides a motive for a particular course of action. Incentives can be classified according to the different ways in which they motivate agents to take a particular course of action:

1. *Financial incentives* are said to exist where an agent can expect some form of material reward—especially money—in exchange for acting in a particular way.
2. *Moral incentives* are said to exist where a particular choice is widely regarded as the *right thing to do*, or as particularly admirable, or where the failure to act in a certain way is condemned as indecent.

Numerous studies have found significant effects of both implicit financial incentives (salary, capitation, and fee for service) and explicit financial incentives (bonuses and withholdings) on provider behaviors. The recent development of "pay-for-performance" methods represents the lat-

5. Beth R. Crisp, Hal Swerissen, and Stephen J. Duckett, "Four Approaches to Capacity Building in Health: Consequences for Measurement and Accountability," *Health Promotion International* 15, no. 2 (2000): 99–107.

6. Phyllida Travis et al., "Overcoming Health-Systems Constraints to Achieve the Millennium Development Goals," *The Lancet*, September 4, 2004, 900–906; <http://download.thelancet.com/pdfs/journals/lancet/PIIS0140673604169870.pdf>.

est phase in the evolution of payment systems that seek to align incentives of different stakeholders in a health system. Furthermore, financial incentives have also proven effective in affecting consumer health behavior, either by paying patients to kick bad habits or through “conditional cash transfers” to encourage the utilization of community health services.⁷

Accountability

Accountability in health care is characterized by some scholars as “the procedure and process by which one party provides a justification and is held responsible for its actions by another party who has an interest in the action.”⁸ Others have pointed out that accountability mechanisms require three things: the identification of responsibility, the provision of information, and the availability of sanctions.⁹

An Analysis of China’s Public Health System

This section applies the structural model and performance model of health systems to analyze China’s public health system, which can be considered as a subsystem of the whole health system.

The Organization of Public Health Services

The public health infrastructure in China was established in the 1950s and originally modeled after that of the Soviet Union. In 1954, the Chinese Ministry of Health (MOH) issued a code for an epidemic prevention station system, whose responsibilities were defined as including the prevention, monitoring, and control of infectious diseases. By the mid-1960s, all 29 provinces had established epidemic prevention stations, which served as technical centers for disease control. At the same time, due to national security concerns, including concerns for biological warfare and a strong military, a new organization called the Patriotic Health Campaign Committee was set up to mobilize political and social resources to launch various campaigns targeted at controlling populations of mice, flies, mosquitoes, insects, and other vectors to reduce vector-borne diseases such as malaria, dengue fever, and Japanese encephalitis B. Though the Patriotic Health Campaign Committee remains to this day, its role has become less significant.

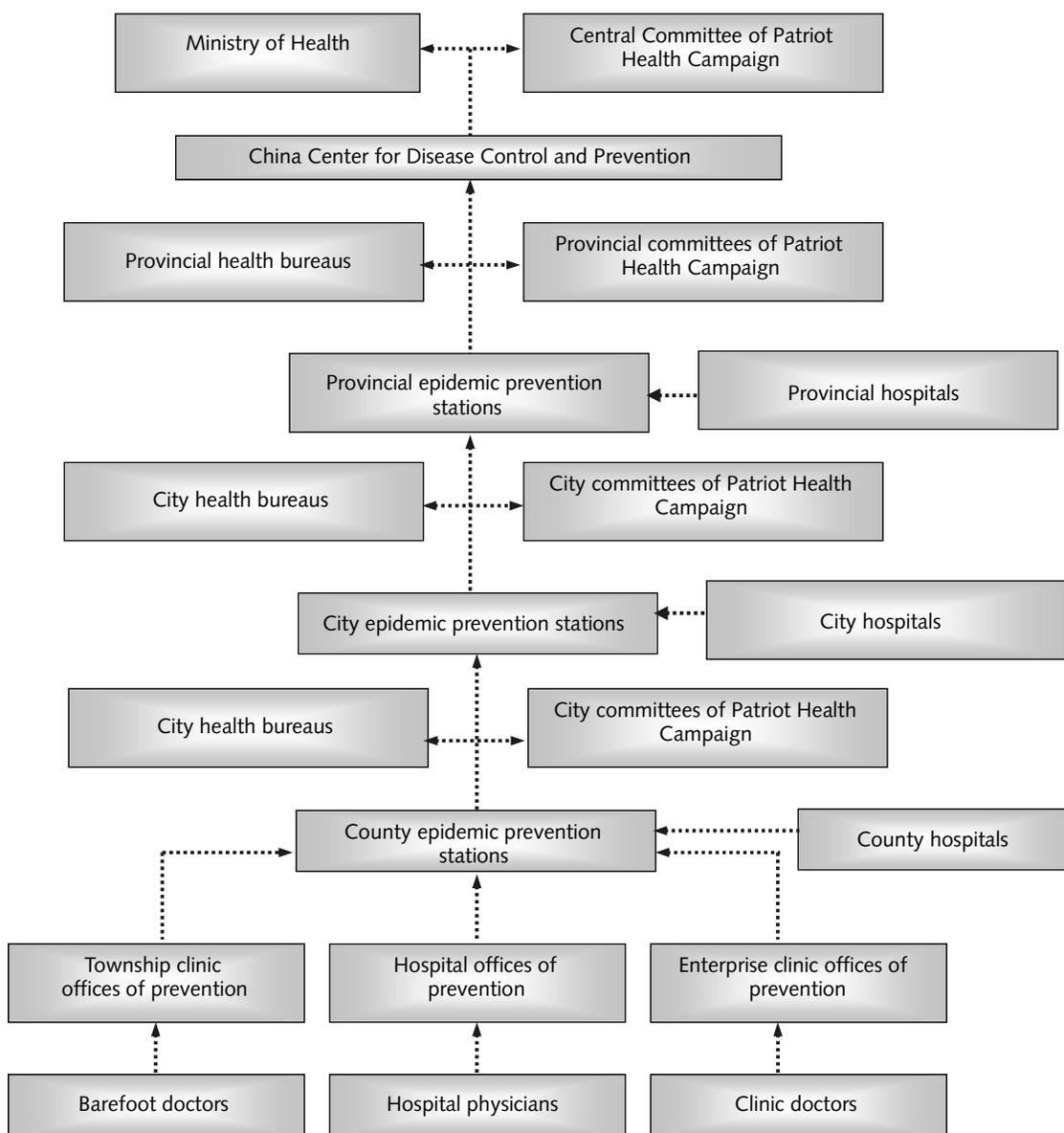
As indicated by figure 4.2, China’s public health system in terms of services delivery, since 2002, has mainly consisted of the Centers for Disease Control and Prevention (CDCs) at different administrative levels. The national CDC is supervised by the Bureau of Disease Control in the MOH, which is the highest-level government agency that controls infectious diseases by developing regulations and strategies. As a technical and professional agency, the CDC is responsible for carrying out public health regulations and strategies. A similar, albeit scaled-down, structure exists at CDCs of lower levels.

7. Brian S. Armour et al., “The Effect of Explicit Financial Incentives on Physician Behavior,” *Archives of Internal Medicine* 161 (2001): 1261–1266; R. Adams Dudley, Robert H. Miller, Tamir Y. Korenbrot, and Harold S. Luft, “The Impact of Financial Incentives on Quality of Health Care,” *Milbank Quarterly* 76, no. 4 (1998): 649–686.

8. Ezekiel J. Emanuel and Linda L. Emanuel, “What Is Accountability in Health Care?” *Annals of Internal Medicine* 124 (1996): 229–239.

9. Carolyn Hughes Tuohy, “Agency, Contract, and Governance: Shifting Shapes of Accountability in the Health Care Arena,” *Journal of Health Politics, Policy and Law* 28, nos. 2–3 (April–June 2003): 195–215.

Figure 4.2. The Administrative Structure of China's Public Health System



Source: Developed by the author based on a similar figure in Y. Liu, "China's Public Health-care System: Facing the Challenges," *Bulletin of the World Health Organization* 82, no. 7 (2004): 532–537.

Ever since the fiscal system decentralization in the 1980s, public funding for public health and medical care has mainly come from the provincial and local governments. This means that CDCs at different levels belong to different bureaus of disease control within the health bureaus of provincial, prefecture/city, and county governments. As a result, inequalities in access to public health services have increased because both funding levels and organizational performance vary from region to region. Besides conducting health surveillance at the same level, including collecting information on infectious diseases from hospitals under the same level of government, each CDC at a lower level is also supposed to report to the upper-level CDC and receive technical guidance from the upper-level CDC. In reality, however, influence and control from the upper-level CDCs

are very weak. The CDC primarily reports to the government health bureau at the same administrative level, rather than to the upper-level CDC, and thus to the MOH. With limited financial resources and very few national administrative mandates, the role of the MOH in initiating and sustaining public health programs has diminished.

The Supply of Human Resources

In the 1950s, China integrated modern and traditional health practitioners and systems, and trained paraprofessional workers to extend basic health services. During the Cultural Revolution in 1966–1976, China mobilized “barefoot doctors” (primary health care workers) to serve rural villages throughout the country. Since the economic reforms in 1979, China has expanded its tertiary education system. Expansion of “comprehensive universities” has led to a rapid growth of medical, nursing, and public health education.

In 2005, China had 5.4 million health workers—4.4 million professional workers (licensed doctors, nurses, and other health professionals) and 1.0 million nonprofessional workers (in management, logistical, and other work). About 917,000 “village health workers”—mostly former barefoot doctors, village workers, and traditional practitioners—were not included in these official counts. Among professionals, there were 1.9 million doctors, 1.3 million nurses, and 1.2 million other health professionals.¹⁰

About 33 percent of China’s doctors have been educated to the college level and above. The proportion of nurses educated at the college level and above is very small, only 2 to 3 percent. Unlike most other countries, China had more doctors than nurses, with the ratio of doctors to nurses at 1.7—a ratio of 2.1 in urban areas and 1.1 in rural areas. A strong urban bias also exists in the distribution of medical professionals, with doctor density in urban areas being more than twice that in rural areas and nursing density having more than a threefold difference with rural areas.

In 2006, China’s 322 health sciences colleges and universities offered programs of four types: eight-year, seven-year, five-year, and three-year. Only a small proportion of programs (5 percent) provided an eight-year course. Most programs (86 percent) follow a Western medical school curriculum, while a few (14 percent) teach traditional Chinese medicine. As of 2006, 67 universities and colleges offered training programs in public health, with annual admissions of about 6,000 students. But unlike the graduate professional education programs in the United States and other industrial countries, most of the Chinese students majoring in public health education are undergraduates who receive a bachelor of preventive medicine degree at the end of the five-year program. Since most of the five-year program is devoted to clinical medicine, public health professionals who have graduated from these programs typically lack knowledge and skills in population, social, and policy sciences.

Financing and Payment

China spent about \$800 billion on health care in 2006.¹¹ But the government budgetary allocation only accounts for about 17 percent of the total health care expenditure. In other words, health care services in China are largely financed by private, out-of-pocket payments. This system of private

10. China Ministry of Health, *China’s Health Statistics Yearbook 2007* (Beijing: China Union Medical University Press, 2007).

11. *Ibid.*

financing and fee-for-service payment has resulted in two major problems: a lack of financial access on the demand side, and distorted incentives on the supply side.

Out-of-pocket payments have soared more than tenfold since 1990, and rose, as a proportion of total health care expenditures, from 20 percent in 1980 to 59 percent in 2000. Basically, access to health care in China now is dictated by ability to pay. A recent study found that 13.8 percent of urban and 15.8 percent of rural households incurred catastrophic medical spending in 2003. Furthermore, 15.1 percent of urban residents and 21.6 percent of rural residents did not seek health care when ill, due to inability to pay.¹² I recently analyzed data from the 2003 China National Health Services Survey and found that household direct nonmedical costs associated with health care utilization (e.g., transportation costs) represent a significant financial burden. My findings indicate that the incidence and intensity of catastrophic spending and impoverishment increase with inclusion of direct nonmedical costs by 1 to 2 percentage points, a problem especially pronounced for rural households.

It needs to be pointed out that government insurance programs have been expanded in recent years. In rural areas, the Rural Cooperative Medical Scheme (RCMS) has been reestablished, helped by central and local government subsidies. The subsidies account for more than two-thirds of the total premiums, with participating households contributing the rest. Starting with an initial pilot phase beginning in 2003, the reconstituted RCMS reached over 80 percent coverage by the end of 2007. In urban areas, the employment-based Basic Medical Insurance covers about half the population in cities. For the other half, the Ministry of Labor and Social Security began piloting an Urban Resident Basic Medical Insurance Scheme in 2007, which is now being scaled up. Furthermore, the central and provincial governments, working through the Civil Affairs Administration, are jointly funding a Medical Assistance Program for the poor. Every citizen of China is supposed to be covered by one of these four schemes by no later than 2010 (some would say by the end of 2008), under current policy.

However, the coverage provided through these programs remains very minimal, in terms of both the service benefit package and the financial protection provided. Outpatient services are not covered, or only very inadequately. Inpatient services, where covered, leave patients with significant costs to bear—in copayments, deductibles, or additional fees. The RCMS reimburses only around 30 percent of inpatient expenditures, on average. The Medical Assistance Program in many places simply helps the poor enroll in the RCMS. As a result, access to primary care for the poor has not really improved, and financial protection against high health care expenses remains very limited. In addition to the well-known urban/rural disparities, another major vulnerable population group is migrant workers and their families, whose number is estimated to be 100 million to 200 million, most of whom do not have any health insurance.¹³ If patients with infectious diseases do not visit health care facilities, how can the public health system detect any early signs of an outbreak?

The rapid escalation in the costs of services has been strongly influenced by supply-side behaviors. Under the current distorted medical pricing system—which underprices medical services and allows doctors and hospitals to charge a 15 to 20 percent markup on drug sales—providers have a strong financial incentive to overprescribe, with willing collaboration from the 6,000 manu-

12. Liu, Wu, and Gakidou, “China’s Health System Performance.”

13. M. Wu, *Factors Affecting Health Care Access of Rural Floating Laborers in Beijing* (Beijing: Peking University School of Public Health, 2005).

facturers and 16,000 wholesalers of pharmaceutical products, through rebates and kickbacks. Drug expenditures account for as much as 52 percent of total health care expenditures in China, one of the countries in the world that spends the highest percentage of its health care funds on drugs. Overprescription, especially the misuse of antibiotics, has caused serious concerns not just about medical cost escalation but also about patient safety and drug-resistance problems.¹⁴

According to Gong, although the government health budget increased in absolute terms, the relative share of public health actually declined from 1980 to 2000.¹⁵ Relative reduction of government spending on health care in general and in public health in particular took place at a time when China's public health problems are becoming more complicated due to industrial pollution and the population's increasing mobility. Therefore, government disinvestments in health care may have helped undermine the provision of public goods such as health surveillance and prevention services. Severe acute respiratory syndrome (SARS) served as a wake-up call, and the government has been trying to halt this trend by significantly increasing spending to strengthen the public health infrastructure and provide free treatment for some infectious diseases such as TB and HIV/AIDS. However, it remains to be seen how the government will address interregional disparities in public health infrastructure, a problem brought about by China's decentralized fiscal system and lack of equalizing mechanisms on the part of the central government.

Regulation

Examining the health regulation system involves inquiry into both the legislation and enforcement processes. The health sector in China is managed by many ministries and agencies, which makes health care organizations and regulation fragmented and complex. The National People's Congress is the nation's highest legislative entity, with the State Council as its chief executive body. Below the State Council, the line ministries and agencies involved in health care regulation include the MOH, National Development and Reform Commission, State Food and Drug Administration, General Administration of Quality Supervision and Quarantine, Ministry of Finance, National Population and Family Planning Committee, Ministry of Personnel, and other ministries. The administration of these regulatory entities is carried out vertically at the central, provincial, prefecture/city, county, and township levels.

With respect to the laws and regulations on health care providers, about 8 laws have been enacted by the National People's Congress and signed by the presidents, more than 20 laws have been promulgated by the State Council, and several hundred regulations have been issued by the MOH alone. The State Food and Drug Administration, General Administration of Quality Supervision and Quarantine, and other ministries also have their administrative regulations. One of the most important regulations on infectious disease control is the one on "Reportable Infectious Diseases" (termed class A and B diseases), which increased from 15 in the 1950s to 25 in 1975 and then to 27 in 1996. However, improved reporting of known infectious diseases will not necessarily lead to the earlier detection of and rapid responses to a new disease.

In recent years, the Chinese government has realized the importance of its role as a regulator of public health and the health market, the failure of which has become more prevalent with

14. S. K. Zhan, S. L. Tang, Y. D. Guo, and G. Bloom, "Drug Prescribing in Rural Health Facilities in China: Implications for Service Quality and Cost," *Tropical Doctor* 28, no. 1 (1998): 42–48.

15. X. Gong, *The Evaluation of the Policy of Regional Health Planning in China* (Shanghai: Fudan University Press, 2004).

rapid industrialization. A significant number of health laws and regulations have been formulated and enacted in the past two decades. The Environmental Protection Agency was recently elevated to the rank of a ministry, the Ministry of Environmental Protection. The Department of Health Policy and Legislation was established in 2004 in the MOH to strengthen the establishment of laws and regulation. Traditionally, the CDC system has served as a main public health law enforcement agency, responsible for conducting regular public health inspections. In 2002 the Chinese government established a new system, the Center for Health Inspection and Supervision, to help further strengthen law enforcement. Table 4.1 summarizes the major functions of these two subsystems of China's public health system.

Table 4.1. China's Core Public Health Services as Defined by the State Council

Subsystem	Core Functions	Responsible Organizations
Disease control and prevention	<ol style="list-style-type: none"> 1. Disease prevention and control 2. Public health emergency preparedness and response 3. Pandemic report and health information management 4. Health risk factor surveillance and disease intervention 5. Laboratory analysis and evaluation 6. Health education and promotions 7. Technology management and applied research guidance 	<ol style="list-style-type: none"> 1. National-, provincial-, city-, or county-level disease prevention and control centers 2. Seaport, airport, railroad disease prevention, and control institutions 3. Medical and health services institutions at all levels
Inspection and assessment	<ol style="list-style-type: none"> 1. Safety inspections of food, cosmetics, drinking water, and other products 2. Inspections of public place hygiene, occupational health, radiation protection, school hygiene, etc. 3. Inspection of infectious disease prevention and control facilities 4. Inspection of medical institutions, blood-supply organizations, and their professional activities; regulation of medical service markets and cracking down on illegal practices with respect to medicine and blood supply 5. Fulfilling other duties according to rules and laws to ensure health and safety 	<ol style="list-style-type: none"> 1. Bureaus of health inspection and assessment within central-, provincial-, city-, and county-level governments 2. Health inspection and assessment institutions at all levels 3. Personnel from county-level health supervision institutions stationed in townships

This progress notwithstanding, a remarkable problem associated with China's regulatory process is that many of the laws and regulations are formulated without a sound empirical basis. In addition, they are rather general and do not provide enough details or instructions on how they should be implemented, monitored, and evaluated. This has made enforcement difficult and weak. Besides regulations being oversimplified, the reasons for poor regulation enforcement include the weak capacity and accountability of law enforcement agencies and a lack of incentives to guarantee the enforcement of regulations.

The Overall Performance of China's Public Health System

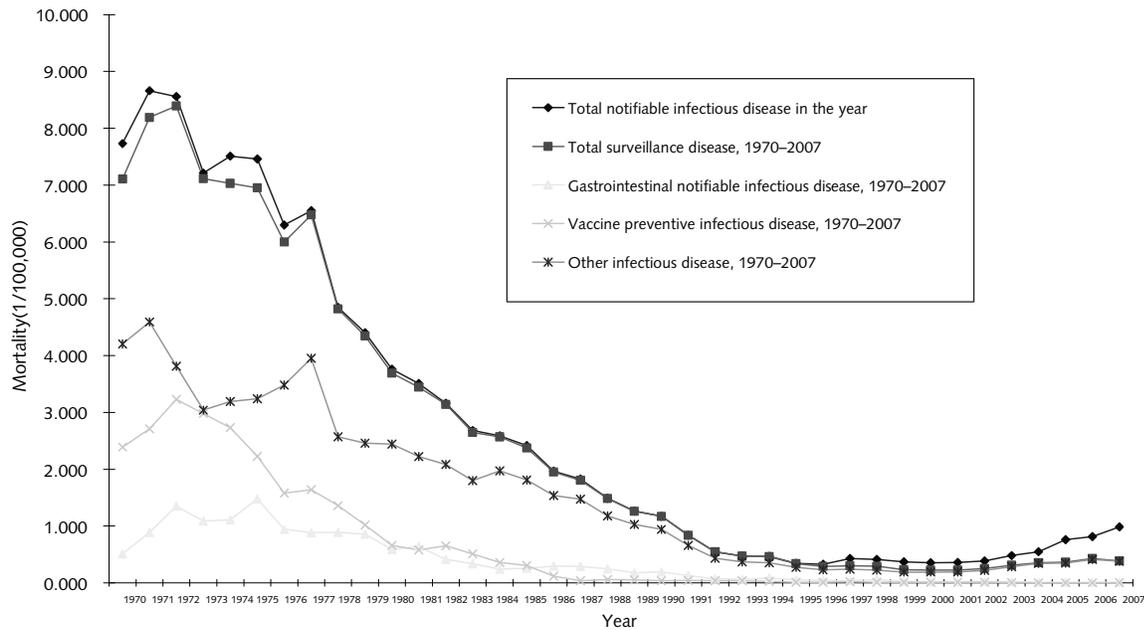
China's health sector development in the past 60 years might be roughly divided into two distinctive eras: the era of public health triumph, 1950–1980, a period of rapid reduction of mortality rates and increasing life expectancy; and the era of public health stagnation, 1980–2008, a period of slowing down in health care improvements.

Infectious diseases topped the list of causes of mortality in the 1950s, but their contribution to the total disease burden has been declining. By the 1990s, noncommunicable diseases had surpassed infectious diseases as the leading cause of mortality. Among 19 major categories of causes of death, the rank of infectious diseases moved from number 7 in 1990 to number 11 in 2000. Improved housing, nutrition, and health care services have contributed to this change. Improvements in sanitation and water quality have led to a decline in diarrheal illnesses. And intensified immunization programs have led to a decline in the incidence of vaccine-preventable diseases. For the 18 consistently reported notifiable diseases, mortality dropped from an annual rate of 8 to 9 deaths per 100,000 population in 1970–1973 to less than 1 death per 100,000 population in 1991–2007 (see figure 4.3).

In 2003, the SARS crisis served as a wake-up call regarding China's deficient public health system, especially its ineffective surveillance system. In 2004, the government built the world's largest Internet-based disease reporting system, called the China Information System for Disease Control and Prevention. With this new system, disease reporting is now done in real time and also takes the form of case-based reporting instead of aggregate reporting. With case-based information, health officials can immediately identify the nature and location of a particular disease outbreak; the characteristics of clusters of cases (e.g., age, sex, occupation); and (using geographic information system technology) the precise geographical location of the outbreak, down to specific villages and households. The use of this system has increased the completeness of reported data. In 2006, there was a 33 percent increase in the number complete reports of class A and B infectious diseases (i.e., those requiring reporting within 24 hours).¹⁶

16. L. Wang, Y. Wang, S. Jin, Z. Wu, D. Chin, J. Koplan, and M. Wilson, "Emergence and Control of Infectious Diseases in China," *The Lancet*, November 1, 2008, 1598–1605; <http://download.thelancet.com/pdfs/journals/lancet/PIIS0140673608613653.pdf>.

Figure 4.3. Trends in Annual Death Rates for 18 Notifiable Infectious Diseases (Class A and B only) in China, 1970–2007 (deaths per 100,000 population)



Source: Reprinted from L. Wang, Y. Wang, S. Jin, Z. Wu, D. P. Chin, J. P. Koplan, and M. E. Wilson, "Emergence and Control of Infectious Diseases in China," *Lancet* 372, issue 9649 (2008): 1602, figure 3, with permission from Elsevier.

Major Factors Affecting China’s Public Health Performance

China’s success in dealing with SARS, the Szechuan earthquake, and other crises made people around the world confident about its capability to respond to a public health crisis. But there are still huge gaps in prevention. For example, in recent years some infectious diseases—particularly sexually transmitted ones—have made a dramatic comeback. Sexually transmitted diseases were nearly eliminated in the 1970s after a 20-year effort, but since the start of economic reforms in 1978, these diseases have been increasing. Gonorrhea and syphilis are now among the top five most common notifiable infectious diseases. There has also been an increase in the annual incidence of measles in recent years; half of these cases occur among migrant workers, who have lower immunization coverage and lower antibody levels among immunized individuals. What are the major factors undermining the performance of China’s public health system? Applying the simple model of health system performance, let us briefly examine the major problems related to capacity, incentives to perform well, and accountability.

Problems Related to Capacity

Funding is the first problematic aspect of capacity. Despite a recent increase in the government’s funding of health care programs, public health remains an underfunded area. This is especially true with regard to health education and public health programs in rural areas. For example, any visitor to China today cannot fail to notice that while commercial advertisements (including commercials on pharmaceuticals) tend to flood streets bulletin boards and government-run TV stations, public health messages sponsored by government public health agencies are conspicuously absent. Many experts have predicted that the inevitable future outbreak of another emerging

infectious disease will likely originate in China's rural areas, where expanded and intensified livestock farming (particularly backyard raising of chicken and ducks) presents a primary risk of emergent zoonotic diseases. A major reason underlying the recent streptococcus outbreak that infected 214 people and caused 39 deaths within a couple of months is that farmers, without adequate knowledge, processed dead pigs for their own consumption, instead of disposing of them with specific procedures to prevent the spread of disease.¹⁷

Human resources are the second problematic aspect of capacity. The public health workforce in many areas remains poorly trained. It will take considerable time to train a workforce capable of further controlling endemic diseases and tackling new infectious diseases. This problem is especially serious in poorer parts of China, where the burden of infectious disease is the greatest. Hospital staff are better motivated, but they have insufficient understanding of the role they should play in disease control. They need to be better trained and motivated to participate in the proper diagnosis, reporting, and management of infectious diseases. Hospitals should become part of the network to control and prevent infectious diseases. It will take time and creative continuing education programs to change the current treatment-focused mindset of hospital personnel. Moreover, China needs to gain a critical mass of open-minded, well-informed, and highly effective leaders in the health sector.¹⁸

Coordination is the third problematic aspect of capacity. As in many countries, in China responsibilities for public health issues are separated into several different ministries. It is clear that the response plan for pandemic influenza and similar threats will require coordination across many sectors, so it is essential for ministries to collaborate in addressing these problems. For instance, the control of avian influenza requires coordination between human health agencies, veterinary health agencies, and the agricultural sector.

Another challenge is to effectively integrate the activities of the various levels of government (and the various levels of the CDC system). Given the problems with the current fragmented public health system that lacks important aspects of vertical integration, some recentralization of funding and administrative power might be needed to improve standardization and efficiency. Moreover, a State Council Public Health Commission in charge of intersector collaboration in public health might be an effective mechanism, as is shown in the impact of the State Council Coordinating Committee on HIV/AIDS and State Council Leadership Coordinating Group on Health System.

Problems Related to Incentives for Reform—for Public Health Professionals, Policymakers, and Consumers

There are several problems related to incentives for reform with respect to public health professionals. Though a majority of public resources have gone to urban tertiary hospitals and government investment in public health infrastructure and services has not kept up with increasing need and demand, public health organizations have turned their attention to revenue-generating services. As long as the fee-for-service system is still pervasive and public health professionals are significantly underpaid for their work (compared with clinical doctors or nurses), their morale will

17. World Health Organization, "Outbreak Associated with Streptococcus Suis in Pigs in China," August 3, 2005, http://www.who.int/csr/don/2005_08_03/en/index.html.

18. Educational Programs of the HSPH China Initiative, <http://www.hsph.harvard.edu/china-initiative/>.

remain low. New investments from the government should not only be used to establish the necessary hardware (e.g., new CDC buildings) but also to make sure that prevention pays by adequately compensating and rewarding well-performing public health professionals (including clinical doctors who report infectious diseases promptly), especially those working in underserved areas.

With respect to problems related to reform incentives for policymakers, Huang and Khanna compared economic performance in India and China and found that one of the major reasons for China's superior economic performance lies in the strong incentives for the Chinese government officials to promote economic growth, because the Chinese Communist Party decides on political appointments and the economic growth of local economies is one of the major criteria for selecting and promoting high-ranking government officials in China.¹⁹ This focus on economic growth also points to the major underlying reason that local government officials cover up public health problems and crises: the fear of negatively affecting the local economies over which they preside. Therefore, if public health can be made part of the performance criteria, government officials at all levels will have a strong incentive to promote public health.

With respect to problems related to reform incentives for consumers, the success of many public health programs depends on consumer participation and compliance. The Directly Observed Therapy, Short Course, for TB is a good example. In China, the overall proportion of confirmed TB patients who received some treatment was 90 percent for urban patients and 97 percent for rural patients in 2003. However, only 59 percent of the rural patients and 49 percent of the urban patients completed the whole treatment course.²⁰ This obviously has serious implications for multi-drug-resistance problems. Why is China's TB patient compliance rate of "free treatment" so low? Some studies found that although anti-TB drugs are free in China, TB patients still had to pay for other related medicines and diagnostic tests during the course of their treatment, which may also help explain why many TB patients failed to complete the appropriate treatment.²¹ In another example, farmers have incentives not to report disease outbreaks because local governments do not fully reimburse them for culled poultry or other livestock, especially in poor rural areas.

Problems Related to Accountability

China does not yet have a full-fledged democracy, and political accountability is enforced either through the rule of law or through the Communist Party's hiring and firing process for government officials. As indicated by the recent poisoned milk products fiasco, the Chinese government has increasingly put government officials' jobs on the line when they are found negligent in failing to take necessary measures in preventing, detecting, and responding to public health emergencies. This will undoubtedly help exert political pressure on many government officials to carry out major public health initiatives.

With respect to problems related to professional accountability, it is widely believed that China lacks professional ethics, especially in the health sector. In an increasingly materialistic society that lacks clear and strong social values learned through religious cultivation or other similar means,

19. Y. Huang and T. Khanna, "Can India Overtake China?" *Foreign Policy*, July–August 2003, <http://www.foreignpolicy.com/story/story.php?storyID=13774>.

20. Liu, Wu, and Gakidou, "China's Health System Performance."

21. S. Tang and S. B. Squire, "What Lessons Can Be Drawn from Tuberculosis (TB) Control in China in the 1990s? An Analysis from a Health System Perspective," *Health Policy* 72, no. 1 (2005): 93–104.

China's is struggling with a crisis of social mistrust. There is a widespread belief among the people in China that health care providers are profit-maximizers, rather than serving patients' best interests. Mistrust is also the major reason for the worsening relationship between patient and doctors. China Daily reported on January 27, 2007, that "the policemen will train the hospital guards to quell violence, according to the agreement, which Shanghai Minhang District Central Hospital is to sign with Xinzhuang police station today. The move has been necessitated because of the rising number of violent incidents between hospital staff and patients, relatives, and friends."

With respect to problems related to social accountability, perhaps the least tapped power in China's accountability system is the power of people. Increasing people's participation in holding the major players in a public health system (e.g., producers of unsafe foods and drugs, corrupted or incompetent public health professionals and government officials, and misbehaving consumers themselves) accountable for their actions is both necessary and effective. It is necessary because in a large country like China, due to complexity of its problems and resource constraints, public health professionals and the various levels of government simply cannot do it alone. It is interesting to note that without exception, all the recent public health emergencies in China (SARS, poisoned milk products, etc.) were first reported by the media. Given that China now has more than 300 million Internet users and more than 500 million cellphone users, the potential for mobilizing and empowering people to more actively participate in public health advancement is enormous.

Conclusion

In this chapter, I have tried to introduce and apply an analytical framework for health care to China's public health system in general, and to its efforts to control infectious diseases in particular. The need to further improve this framework notwithstanding, there are two major advantages of using this framework. First, the framework helps analysts and policymakers develop a more comprehensive understanding of a health system's structure in terms of its functional subsystems. Second, this framework helps identify some of the most important conditions (the CIA Model), which can be divided into necessary conditions (capacity) and sufficient conditions (incentives and accountability), for a health system to perform well.

Having applied this framework to analyze China's public health system, the outline of a comprehensive package of policy recommendations for improving China's performance becomes clear. Even though their concrete operational models would have to be subjected to further studies (especially intervention studies), two major guiding principles for health system design should prove to be useful for policy analysts and policymakers in China and other countries.

The first major guiding principle is *capacity building*. To ensure adequate capacity for public health, China needs to significantly increase government funding of public health efforts and particularly use the increased funding to strengthen human resources development in public health and enhance public health education.

The second major guiding principle is *mechanism design for incentives and accountability*. To mobilize wide participation in public health and enhance system performance, China needs to better understand and align the interests and incentives of the major stakeholders in the public health system (e.g., consumers, providers, government officials) and to develop effective mechanisms for providing tangible benefits to reward good behavior and hold bad behavior accountable.



PART III
CHINA'S EFFORTS TO REFORM
ITS HEALTH CARE SYSTEM

5

BEIJING'S PERSPECTIVE THE INTERNAL DEBATE ON HEALTH CARE REFORM

Gordon G. Liu

While remaining strong in economic growth, China is increasingly faced with new challenges in building a harmonious society, a central goal set as a guiding principle for its development. In the past two years, health reform has been one of the hottest topics nationwide, with major issues concerning health care costs, insurance coverage, and limited supply drawing the most public attention. Health care costs have become extremely high relative to China's average income. In 2006, for example, an average tertiary hospital admission cost RMB 12,650, which is nearly 90 percent of the per capita gross domestic product. Furthermore, more than 600 million people—nearly half the country's total population—had no insurance coverage and were thus fully exposed to catastrophic health and financial risks.

In response, the State Council called for national health reform in the summer of 2006, leading to a sixteen-ministry joint task force cochaired by Ma Kai (then commissioner of the State Development and Reform Commission) and Gao Qiang (then minister of health). This was followed by a number of major policy initiatives—including inviting submissions of independent reform proposals in the spring of 2007 from eight institutions (Peking University, Fudan University, Beijing Normal University, Remin University, State Council Development and Research Center, the World Bank, World Health Organization, and McKinsey & Company; see chapter 6 in this volume for more on these proposals); launching the pilot project for Urban Resident Basic Medical Insurance in the summer of 2007; and recently posting the reform proposal draft online for suggestions in a one-month public hearing from October 14 to November 14, 2008. While the reform continues, we take pause for thought. Where has progress been made, and what is the consensus? What are the current policy implications and remaining issues? This chapter provides an update on these questions, with comments by the author.

The Growing Demand for Health Care

An increasing demand for health care is clearly a global phenomenon around the world. What is unclear, however, is the complex implications of this phenomenon for economic costs and human welfare. China is no exception to this trend, where the demand for health care has increased by many times over the years despite a poor health safety net. Indeed, the demand for health care has increased at a much faster pace than economic growth. According to the Ministry of Health's (MOH's) official statistics for 1980 to 2005, the nominal GDP per capita increased 27-fold, while health expenditures per capita increased 40-fold. More important, of these increased health expenditures, individual out-of-pocket expenses have dramatically increased 102-fold.

One of the key drivers of the growing demand for health care in China is technology. On the basis of available elementary statistics, and concerns voiced by state officials, medical technology seems to have diffused at an even faster rate than before, especially in many of China's modern

cities, partly due to the processes of increased globalization, entry into the World Trade Organization, income growth, and disease transition. It is worth noting that although infectious diseases still remain a major threat to many people due to poor public health conditions, an epidemiological transition to noncommunicable diseases has resulted in chronic diseases, in both urban and rural populations, becoming the leading cause of illness. According to recent MOH statistics, cancer, strokes, and heart disease are the three leading causes of death in China. Clearly, the coexistence of communicable and noncommunicable diseases, or the so-called double disease burden, serves as another key determinant of the growing demand for health care in China.¹

Meeting the Demand: Policy Reforms and Responses

In recent years, much of the cost of the increased demand for health care in China has been met by individuals, resulting in higher health risks and greater financial burdens for many people. According to the National Health Survey conducted by the MOH, government financing contributed only 17 percent of total health expenditures in 2003; employment-based social insurance, 27 percent; and individual out-of-pocket payment, over 56 percent. Compared with most other countries, China ranks among the lowest in terms of public financing for health care, pointing to a major government failure. But such a government failure was not well scrutinized until the 2003 outbreak of severe acute respiratory syndrome (SARS), which was a critical wakeup call for the public about the importance of public health and the role of the state in ensuring health care for citizens. Since then, health care issues have gained significant prominence in public discussion and debate. Both academic publications and online surveys consistently reveal that the public's top concerns are persistently related to problems in health care. This overwhelming public concern may be best described with the very popular slogan *kan bing nan, kan bing gui* (seeking care is difficult and expensive), which often appears in the headlines of major Chinese news media.

During China's socioeconomic transitions, the public's reaction to health care problems has been instrumental in shaping the government's policy response. This has culminated in two recent landmark policy efforts. The first is the establishment of the New Rural Cooperative Medical Insurance beginning in 2003 for the rural population; and the second is that the State Council led a fourteen-ministry joint task force on national health reform initiated in the fall of 2006. As has been experienced in the process of reform in other sectors of the nation's transitional economy, health sector reform has also confronted great challenges and disputes, particularly regarding the role of government and markets in service financing and delivery. On the basis of the well-documented decreasing share of health care paid by public finance, a universal consensus has been reached on the need to increase the role of public financing.

However, critical disputes still remain as to how the public finance "check" should be allocated to the health care sector. Two major schools of thought lead the debate. The first is the "school of supply subsidy," arguing for allocating public funds through a budgetary process direct to public providers, which in turn can provide free or subsidized "basic care" for all through community facilities. This approach would have two implications: (1) Individuals would bear full responsibil-

1. S. Hu et al., "Reform of How Health Care Is Paid for in China: Challenges and Opportunities," *The Lancet*, November 22, 2008, 1846–1853; <http://download.thelancet.com/pdfs/journals/lancet/PIIS0140673608613689.pdf>.

ity for any non-“basic care,” obtained mostly at tertiary facilities; and (2) private suppliers would be excluded due to the lack of mechanisms for public financing. Essentially this approach is aimed at ensuring the goal of public access to basic health care by strengthening the public budget for supplying and regulating public providers.

In contrast, the “school of demand subsidy” advocates an approach of empowering people through a universal social insurance program where public funds serve as the major contribution, coupled with individual contributions (with exemptions for the poor). This approach would largely eliminate the opportunity public officials may have to abuse the public funds via “soft budgets,” whereby allocations are made to preferred providers based on personal relationships. It would allow everyone to be insured and to enjoy the benefit of both basic care and nonbasic care, conditional on some cost containment measures. Also, this approach would offer equal opportunity for all providers, regardless of ownership, to join the supply of services on an openly competitive basis for contracting and reimbursement policies. In comparison, this approach is intended to accomplish the goal of public access to care by publicly financing insurance while maximizing market supply capacity through deregulation and service competition.

Health Care Financing for the Rural Population

Before 2003, most of the rural population had no policy protections against health hazards. In 2003, the State Council issued State Policy Document 2003 No.3: Directives on the Establishment of New Rural Cooperative Medical Insurance (NRCMI). The NRCMI policy specifications include (1) a government subsidy consisting of an RMB 40 premium contribution conditional on an individual contribution of RMB 10 to each employee on annual basis; (2) insurance coverage and health benefits for major illnesses, with the objective of preventing poverty caused by substantial health care costs; (3) voluntary enrollment on a family basis, stressing democratic supervision, openness, and transparency; and (4) risk pooling and insurance administration at the county level under the direction of local bureaus of health. Moreover, in his State Report to the 2008 People’s Congress, Premier Wen Jiabao announced a doubling of the government’s contribution from RMB 40 to RMB 80 per enrollee, further strengthening the government’s commitment to NRCMI.

In following the government’s initiative with increased investment in building infrastructure and training rural health professionals, NRCMI has grown very rapidly within a few years. According to MOH statistics, by the end of 2007, a total of 2,451 counties, or 86 percent of the country’s total number, had enrolled in NRCMI, covering over 730 million rural residents. It is anticipated that NRCMI’s coverage will be expanded to the entire country by the end of 2008, which is ahead of the government’s original plan for universal coverage of the rural population by 2010.

NRCMI has made significant progress in providing benefits to the rural population. First, national statistics show an increase of 15.9 percent for total health costs and 45.3 percent for insurance expenses per rural enrollee, respectively, between 2003 and 2005, suggesting that an increasing share of the cost burden is being borne within the insurance program. Second, NRCMI coverage is provided primarily for inpatient care, with varied deductibles and caps, depending on area-specific policy settings. Some area-specific NRCMI policies also cover outpatient services, with a family medical savings account set up to pay for common diseases and minor illnesses. Some pilot NRCMI schemes also cover an annual physical examination and a fixed assistance level for labor and delivery.

Health Care Financing for the Urban Employed

During the era of the planned economy, there were two public insurance programs in China: Government Medical Insurance (GMI) for state officials, and Labor Medical Insurance (LMI) for urban employees, mostly in state-owned enterprises. GMI was financed by the government, whereas state-owned and collectively owned enterprises provided funding to LMI from their operating profits. When China began to make its transition from a centrally planned to a market-driven economy, with much decentralized responsibility for welfare programs at the firm level, urban health programs became largely dysfunctional in meeting the changed demand for health care.

In April 1994, the State Council issued a policy document calling for pilot experiments to reform the urban health system, with the Urban Employee Medical Insurance System (UEBMI), governed by the former Ministry of Labor and Social Security. The pilot was launched in the cities of Zhen-jiang in Jiangsu Province and Jiu-jiang in Jiangxi Province, known as the “Dual-Jiang Model.”² Following the pilot’s quite successful outcomes in improved access, utilization, and cost measures,³ the State Council issued its 1998 No. 44 Policy Document requesting that UEBMI be nationally implemented, officially marking its launch throughout China.

UEBMI has two major models for different target populations—an integrated model with a social pooling account and individual medical savings accounts, and a solitary social pooling account. The former is for the formally employed; the latter is for the informally employed and migrant workers. The integrated model provides insurance coverage and health benefits for retirees and workers with full-time formal employment. Both employers and employees jointly contribute premiums at an average rate of, respectively, 6 and 2 percent of the employee’s wages, and enrollment is mandatory, with risk pooling at the city level. The solitary social pooling account is provided to serve retirees, employees of ailing enterprises, and workers with partial or flexible employment. Accordingly, the insured only have to pay the premium for the social pooling account, and their contribution is based on the average salary of the administrative region. Although enrollment is mandatory, enforcement for this policy is more difficult because it is based on the self-identification of enterprises and the track record of employees. Another difficulty is the high mobility of the target population, which also leaves many uninsured. By the end of 2007, there were more than 180 million UEBMI enrollees, making up 53.3 percent of the target population of 340 million.

Health Care Financing for Urban Residents

As explained above, there were only two formal insurance program arrangements before 2007, UEBMI and NRCMI. It is also worth noting that UEBMI and NRCMI are under different administrative organizations, with the former governed by the Ministry of Human Resources and Social Security and the latter by the MOH. From an institutional perspective, however, the state health safety net totally left out a third population group—urban unemployed residents, mostly the elderly, children, and migrants. Under the strong leadership of Wu Yi, then the State Council deputy minister in charge of health affairs, State Council Policy Document No. 20 was issued on July 10,

2. G. G. Liu, B. Nolan, and C. Wen, “Urban Health Insurance and Financing in China,” commissioned study report to the World Bank, 2004.

3. G. G. Liu et al., “Equity in Health Care Access: Assessing the Urban Health Insurance Reform in China,” *Social Science & Medicine* 55, no. 10 (2002): 1779–1794.

2007, calling for a major initiative to pilot an insurance program for uninsured urban residents, which gave birth to the Urban Resident Basic Medical Insurance (URBMI). Immediately following this policy initiative, 79 cities were selected as the first official sites for the experiment, beginning in the summer of 2007. The State Council policy document also set a timetable for the pilot model to be expanded to more than 50 percent of all the cities in China by 2008, 80 percent by 2009, and 100 percent by 2010. This policy goal was reinforced by Premier Wen Jiabao in his State Report to the 2008 People's Congress.

The main characteristics of URBMI are similar to NRCMI: a government contribution of an RMB 80 premium per enrollee starting in 2008, voluntary participation, insurance coverage mainly against major illnesses treated at inpatient settings, and a low level of reimbursement due to low premiums and limited pooling capacity compared with UEBMI. Though offering only a limited benefit level, URBMI seems to have been well received so far by the target population. On the basis of a representative household survey in nine sample cities, an evaluation study for the policy effort was conducted by Lin, Liu, and Chen.⁴ This study found that the poor and those with previous use of inpatient services are more likely to enroll in URBMI. These two disadvantaged groups also gain more relative to others in terms of access to care and a reduction of their financial burden. In addition, the disadvantaged groups also tend to be more satisfied with URBMI policies.

URBMI yields two strong policy implications. First, the State Council is committed to increasing public financing for health care, and the main approach is to allocate public funds to the development of programs based on social insurance as a major part of health care reform. Second, the recently initiated URBMI—together with UEBMI, with 190 million urban employees, and NRCMI, with 750 million rural residents—serve as milestone steps toward financing toward universal health insurance coverage for all people in China by 2010.⁵

Supply-Side Reform: A Greater Challenge

As noted above, the health care crisis in China has been characterized by the dual problems of seeking care that is too expensive and too difficult. To a great extent, “too expensive” care is largely a financing issue, which can be expected to improve with the further development of the state-led UEBMI, NRCMI, and URBMI universal insurance programs. Conversely, obtaining care that is “too difficult” is a delivery capacity issue, which implies that there is a supply shortage in meeting demand. In this regard, the health care industry is still highly dominated by state-owned providers largely derived from the planned economy era. For instance, of the nearly 18,000 hospitals nationwide, more than 90 percent are state hospitals. As a result, there is widespread government intervention at both the regulatory and management levels, including hospital financing and personnel controls under the MOH system through its local agencies.

In the past two years, major discussions and debates have focused on three key issues. First, to what extent should the market play a role in service supply? One school of thought in favor of government control stresses the adverse effect that markets can have in combination with profit-driven motivation and competition, through arguing that there is a tendency for private enti-

4. W. Lin, G. G. Liu, and G. Chen, “The Urban Resident Basic Medical Insurance: A Landmark Reform towards Universal Coverage in China,” paper under review with *Health Economics*, 2008.

5. G. G. Liu, “Urban Medical Insurance and Financing in China,” country study report commissioned by the World Bank, 2008.

ties to engage in undesirable practices, such as inducing demand, leading to solutions favoring a government-led service supply model. In contrast, the opposing school of thought contends that the government's role should indeed be concentrated on health care financing through universal insurance, but on the service supply side, however, the market should be given priority to help mobilize societal resources for greater and more efficient supply capacity to better meet the increasing demand. Otherwise, with increased financing, the issue of "too difficult to find care" may become worse; or, to put it in economic terms, the current supply shortage may in fact deepen as demand for health care increases.

Although empirical work is very scant on this issue in China, a few recent studies do highlight some important insights. Using data from the five-city patient survey conducted by the World Bank, Liu and Wang find evidence (after controlling for both individual and institutional conditions) that private providers actually charged less than state providers for similar services.⁶ Moreover, they also find cost reductions associated with a large private market, suggesting that an increased market role and encouragement of competition would help reduce, rather than inflate, health care costs. Similar findings were reported in an aggregate study by Li and Liu based on official state statistics.⁷ They find that due to increased market competition, the area-specific average cost of health services actually decreased with the market share of private hospital providers, after controlling for regional and population characteristics.

The second issue that has been hotly debated is the role of doctors. In China, medical doctors working in public institutions are officially defined as public servants and are thus subject to government administrative controls on employment unit, salary, and welfare. Unlike in other countries, where doctors have the freedom to maintain private clinics in addition to their primary public employment, doctors in China do not have such a right, therefore making it illegal to see patients outside their employment unit except if on official assignment to support one another. In the meantime, doctors' salaries must be set at a level generally comparable with that of other public servants. It has been well recognized that such a compensation policy is not appropriate or attractive for medical professionals, considering the higher levels of risk and uncertainty they face and the much longer educational investment required in medicine. As a result, doctors as a whole face an increasing dilemma: Either leave the profession to find higher-paid work, or remain but raise needed additional income by providing "illegal" or unethical private services. For this reason, the Chinese medical labor force as a whole is declining substantially in both quality and quantity, an alarming sign of the diminishing prospects for recruiting the best of China's future generations to join it.

As to the cause of this crisis, it is evident that the public system of employment inherited from the planned economy era has contributed to the negative developments in the professional setting briefly described above. Despite this, it is still argued by some that because health care is a public or semipublic good, it should be provided primarily by public servants who do not have a profit-driven motivation. In response to the shrinking size of the labor force, the remedy of those in this school of thought is to increase doctors' salary base by making them a special classification of public official. It is unclear, however, how such a policy arguing for significant salary increases for doctors would be financially and politically feasible without redefining their identity as public officials.

6. G. G. Liu and W. Wang, "Medical Charges and Provider Ownership in Urban China: An Empirical Analysis," manuscript under review, 2008.

7. L. Li and G. G. Liu, "The Development of Private Hospitals and Its Impact on Medical Expenditures in China: Empirical Evidence from Provincial-Level Data," *Management World* 10 (2008): 53–63.

On the contrary, the other school of thought argues for an opposite approach: to release the employment unit constraint and offer medical doctors the freedom to provide medical services across units. This approach could lead to fundamental improvements in both the incomes and professional status of the medical profession by allowing increased opportunities for career development, without the need to increase pressure on public finance, while also ameliorating confrontational political challenges from nonmedical officials who may create discontent otherwise when facing wage differentials. In short, the idea is to minimize government intervention in the micro-management of service delivery for productive efficiency to allow greater government capacity for macroeconomic policy and regulatory responsibilities.

A third issue is medical pricing control. Currently, the central government tightly regulates the prices of medical services. However, many medical service unit prices still remain at the levels set decades ago when most nonmedical goods were extremely inexpensive. As a result, few state hospitals can financially sustain themselves without substantial government subsidies or “soft budgets,” which are often uncertain and heavily reliant upon personal relationships with the financing agencies. Though medical services are subject to unit pricing control under the State Development and Reform Commission (SDRC), there are still two major policy caveats. First, medical services are almost all paid on a fee-for-service basis by the Ministry of Human Resources and Social Security, leading to a strong incentive for providers to oversupply services with higher profit margins, such as higher-priced diagnostic tests using newer technologies. Second, prescription drugs serve another major source of revenues as more and more new drugs have been introduced into the Chinese market during economic reform and development. In particular, the SDRC’s policy allows hospitals to add a 15 percent markup on top of the buying price, creating perhaps the largest and worst incentive for overprescribing and inappropriate drug use in China. This factor may well explain why prescriptions in China account for 45 to 50 percent of total health expenditures.

The policy debates on this third issue of medical pricing control also fall into two separate camps. The first camp suggests a policy of “dual tracks for revenues and expenses,” meaning that service expenses are fully funded through the government’s budget, while service revenues must be fully tracked back to the government. This proposal may eliminate the opportunity for providers to seek profit, but it may also eliminate incentives for providers to seek productive efficiency. As to the prescribing issue, this proposal recommends that drug dispensing be carved out from prescriptions, aiming to prevent doctors from benefiting from overprescribing.

In contrast, the second camp argues for a more fundamental change in pricing policy on the grounds that the pricing control policy itself leads to the distorted behaviors observed—and thus it would not ultimately solve the problems if the dual-track or carving-out policies were simply applied, because the providers would still face fundamental problems with service supply under pricing controls and an insufficient public budget. This would lead to incompatible incentives and thus undesirable behavior. In response, an alternative proposal is to reduce government pricing controls at the service unit level and to leave more room for market demand and supply to determine equilibrium pricing. The third-party purchaser, or government, could then play a more transparent and productive role by negotiating service contracts for group purchase on the basis of capitation or population health measures. With the further development of universal insurance programs, this approach should presumably be promising, but empirical work is surely needed to help better answer these questions.

Conclusions

China is not alone in facing tough challenges and disputes while reforming its health care system. As was noted by the Nobel Prize laureate Kenneth Arrow, health care markets are more complicated than many other markets given their unique characteristics of uncertainty, heterogeneity, asymmetric information, and levels of government intervention.⁸ These complications seem to be compounded in China, where rapid transitions are also taking place in the economy, demography, epidemiology, and health financing.

Given these conditions, the necessity of government intervention is commonly shared, but vast disputes still remain as to where and how the government should appropriately intervene. Nevertheless, during the past two years of reform efforts, government intervention has been primarily focused on financing, leading to the establishment of the URBMI program as a key step in paving the way toward China's goal of universal health insurance coverage by 2010. Though there have been great accomplishments so far, further reform tasks are likely to be more challenging, especially when the time comes for China to shift gears to the service supply side, where the core issues of transferring hospital ownership, changing organizational management, and reducing market monopolies and price controls will reshape the redistribution and allocation of resources and responsibilities—and thus economic and political power.⁹

8. Kenneth Arrow, "Uncertainty and the Welfare Economics of Health Care," *American Economic Review* 53, no. 5 (1963): 941–973.

9. W. Hsiao, "The Political Economy of Chinese Health Reform," *Health Economics, Policy and Law* 2, no. 3 (2007): 241–249.

6

CHINA'S HEALTH CARE
REFORM REDUX

Drew Thompson

Since the disassembly of its comprehensive pre-1979 health care system, China has sought to shape and reshape its national health care system to keep pace with rapid social and economic reforms. And though these reforms have been ongoing for almost 30 years, a new overhaul of this system appears to be in the works with a vibrant public debate revealing an inclusive, collaborative policymaking process that will ultimately produce a new health care framework. Repairing the health care system and reinstating a social safety net is a national imperative with profound economic and social ramifications. This chapter reviews the formation and membership of the leading small group that is spearheading the most recent health care reform process, speculates about the contents of the 10 confidential health care framework proposals that were submitted to this group, considers key gaps that might exist between design and implementation, and considers the implications of these developments for infectious disease control and U.S. interests.*

During the pre-1979 planned economy period, China's government regularly invested 3 percent of its gross domestic product in health care. Despite China's relative poverty at the time, this amount was sufficient to provide universal health care to both peasants (through a network of production brigade clinics and "barefoot doctor" medics in rural areas) and workers in state-owned enterprises (through a network of clinics and hospitals).¹ However, as China's economy has grown rapidly in subsequent years, health care spending has not kept pace with the country's economic growth and dramatic reforms.

Today, total health care spending in China, including government and private spending, is about 5 percent of GDP.² Although this is a higher percentage than in the pre-1979 era, the government's share of expenditures has fallen while individuals have taken on a greater burden, shouldering more than half the total. Most disturbingly, the commercialization of health care services and government inattention have resulted in an inadequate, inequitable health care system that hit a low point when it was ranked third from last in "fairness in financial contribution" and 144th among 191 nations surveyed in a 2000 report by the World Health Organization (WHO).³

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The NDRC released a proposed health reform framework in October 2008 for public comment, garnering over 20,000 published responses from the public, many of which were highly critical of the document. Senior officials have subsequently announced that a framework and associated action plans are forthcoming and are expected to be released in early 2009.

1. See Ministry of Health (MOH), *Report on China's Healthcare System and Reform*, August 2005, http://casy.org/Chindoc/MOH_report_0805.htm.

2. Yuanli Liu, "A Healthier China?" *China Business Review*, May–June 2008. As of 2005, the Chinese government's expenditure on medical services was 2.7 percent of GDP.

3. World Health Organization, *The World Health Report 2000: Health Systems: Improving Performance* (Geneva: World Health Organization, 2000).

As the government's financial support for the medical system has declined in relative terms, health care providers have been forced to generate revenues through fees. At the same time, a majority of the population has lost access to medical insurance and to the free health care provided by state-owned companies and rural production brigades. The decline of state-supported health care and the inadequate funding of the surviving system have created distortive economic effects, including forcing China's poor to save a large share of their income to pay for out-of-pocket medical expenses.⁴ High savings rates have undermined the government's objective of increasing domestic consumption and reducing the economy's overreliance on exports. Furthermore, the poor quality and expensiveness of health care services are a significant cause of dissatisfaction among the population, potentially threatening to upset social stability.

Protests regularly occur outside major hospitals and the offices of the Ministry of Health (MOH) and local health bureaus. A news report cited MOH statistics as an indication of the level of dissatisfaction and its potential to undermine social harmony: "Some 9,831 attacks stemming from disputes caused more than 200 million yuan (\$26 million) worth of damage to hospital property and injured more than 5,500 medical workers."⁵ And a survey indicated that 61.2 percent of hospital inpatients are dissatisfied with the services they received.⁶ Most important, this level of dissatisfaction, combined with income disparities and an inability to deliver public services, stokes discontent to the point that it might threaten the government's legitimacy.

Fixing a System That Is "Basically Unsuccessful"

The challenges confronting China's health care system stem from marketization and decentralization, beginning with the dismantling of the rural collectives and state-owned enterprises as part of the "reform and opening" process. These reforms and the shift to a market-driven health system have led to an overall decline in the quality of care and a scramble for new sources of revenue that undermines the provision of good-quality services. The financial delinking of government from local health units led to the decline of the central government's oversight and rigorous enforcement of standards. By 2003, the failure of the health care system could no longer be ignored.

The outbreak of severe acute respiratory syndrome (SARS) in 2003 was a turning point that exposed major vulnerabilities in the public health and medical system. In response, the State Council's Development Research Center collaborated with WHO to compile a report on the progress of China's medical and health system reforms, ultimately concluding in 2005 that China's medical reforms were "basically unsuccessful."⁷ Recognizing that the cost of care was skyrocketing and that the majority of the population was unable to access the system, former minister of health Gao Qiang publicly apologized for the failures of the system, admitting that "getting health care is hard, seeing a doctor is expensive" (*kan bing nan, kan bing gui*).⁸

4. Many of China's poor are driven into debt to pay for medical expenses. Many Chinese also maintain significant bank balances in case of future health problems. Winnie Yip and William C. Hsiao, "The Chinese Health System At A Crossroads," *Health Affairs* 27, no. 2 (March–April 2008).

5. "China Says Hospitals Need Police to Protect Staff," Reuters, May 11, 2008.

6. Liu, "Healthier China?"

7. State Council of the People's Republic of China, "An Evaluation of and Recommendations on the Reforms of the Health System in China," *China Development Review* 7, no. 1 (March 2005). See also MOH, *Report on China's Healthcare System and Reform*.

8. "Yigai Liu Nian Hui Dao Yuandian," *Nanfang Zhoumo*, September 22, 2006.

China's health care reform process has been evolving since the early 1990s. In 1994, the State Council piloted a pooled urban medical insurance system in Jiangsu and Jiangxi provinces, ultimately scaling up the "basic medical insurance system" for urban employees in 1998. A rural cooperative medical system was rapidly expanded between 2002 and 2008 to increase medical coverage for farmers, spurred by findings that only 10 percent of peasants had health insurance in the late 1990s.⁹ However, following the SARS outbreak, a newly invigorated dialogue ensued within the government and academic community about how to reform the broken system. It was widely recognized that there would need to be a redistribution of responsibilities and administrative roles among government agencies, as well as massive infusions of resources. However, with almost 20 government ministries having some degree of responsibility for the sector, and no consensus on how to reform the system or what a future system might look like, it became apparent that a concerted effort involving broad consultation and interdepartmental coordination would be required.

In September 2006, various newspapers reported that the State Council had formed a Health Care System Reform Coordinating Small Group (*Yiliao Tizhi Gaige Xietiao Xiaozu*) under the leadership of the MOH and the National Development and Reform Commission (NDRC), tasking it with developing a new health care system to equitably serve both urban and rural Chinese citizens.¹⁰ The group was originally led by cochairs Minister Ma Kai of the NDRC and Minister Gao Qiang of the MOH.¹¹ Various media sources have mentioned key members of the small group, though its complete membership has not been officially confirmed. The number of members representing the government departments on the committee has also apparently evolved, with some media sources placing it at 11 departments and others at 14.

Although this group was not the first committee formed to address health care reform, it appears to possess the broadest mandate to establish the framework that will define the shape and direction of China's future health care reforms. As announced by Minister of Health Chen Zhu in March 2008, two of the framework's immediate goals are, first, full medical coverage of rural residents through the New Rural Cooperative Medical System; and, second, full coverage of all urban employees under Urban Employee Basic Medical Insurance.¹² The committee was tasked with developing a new framework to guide the reform of the Chinese health care system. When interagency differences resulted in deadlock and the inability to craft a framework, 10 outside organizations were solicited to submit proposals to the group to inform their decisionmaking in establishing a new health care framework.

The "small group" mechanism—often referred to as "leading small groups" to indicate senior-leadership participation—entails an ad hoc committee formed by the government to build a consensus on complicated issues affecting multiple government stakeholders. Such a committee is often called into use when there are conflicts of interest among government agencies, or when a clear division of authority is lacking and a consensus cannot be established through regular

9. Yuanli Liu, "Development of the Rural Health Insurance System in China," *Health Policy and Planning* 19, no. 3 (2004): 159–165.

10. The MOH spokesperson has publicly referred to the small group as a "working small group," although media reports have not used this term.

11. Chen Zhu was appointed minister of health in June 2007. Gao Qiang became secretary of the Party Committee of the MOH and executive vice minister of health. Though Chen Zhu is not a Communist Party member, there is no indication that his appointment in itself signals a shift in government policy regarding health care.

12. "Chen Zhu: Yigai Fang'an Fei Quanguo Yidaoqie Jingfei Dabufen Buzhu Huanzhe," *Xinhua*, March 23, 2008.

channels. Small groups most often set broad recommendations and “guiding principles” to which individual agencies adhere when developing more detailed work plans. It is instructive to review which agencies are reportedly members of the health care reform small group, given the consequences that their membership might have for the composition and character of China’s future health care system.

Key Departments That Reportedly Are Members of the Health Care Reform Small Group

Interviews with sources in Beijing suggest that as of June 2007 there were at least 16 members of the health care reform small group.¹³ It is important to bear in mind that an official list of members has not been published and that various sources have reported slightly different membership rosters. Media reports initially stated that 11 departments were involved, but later reports place the number at 14, indicating that several organizations had likely joined the group after its inception, undoubtedly hoping to influence the outcome of the health care debate. Additionally, the reform of the State Council in March 2008 affected the committee. The State Food and Drug Administration was absorbed into the MOH, and the Ministry of Labor and Social Security joined with the Ministry of Personnel to form the Ministry of Human Resources and Social Security.

The following 16 agencies reflect the group’s membership in mid-2007, when 9 of the 10 health care reform proposals were submitted. The reorganization of the State Council in March 2008 did not significantly change the landscape of key decisionmakers in the health care reform process.

National Development and Reform Commission (Cochair)

The NDRC (*Guojia Fazhan Gaige Weiyuanhui*) is the “superministry” that determines economic and social policies and generates the guiding five-year plan and associated budgets. In the health care reform development process, it functions as an “honest broker,” able to make difficult decisions (including the most contentious choices about where to allocate resources and where to reduce funding and authority). It is not an implementing agency; nor does it depend upon other organs of the State Council for its authority. For these reasons, it can pursue the project’s goals without concern for its own status and budget. Having no “turf” to protect, it can ride herd on agencies that are more interested in protecting their own interests than establishing a functioning health care system. And it also plays a central role in price setting, including for medical devices and pharmaceuticals. However, the NDRC is not powerful enough to force ministries to accept specific outcomes, particularly if more than one ministry opposes a particular proposition.

Ministry of Health (Cochair)

The MOH (*Weisheng Bu*), which has been at the center of China’s health care system since it was founded in 1949, is tasked with managing a health care system that aims to provide universal access to basic health services and ensure that public health is maintained through preventative

13. Requests were sent to government officials, academics, and technical experts in Beijing to provide the complete small group roster. Three lists purporting to be the membership roster were provided to the author, with slight variations between them. Exhaustive search of the NDRC, MOH, and State Council Web sites did not reveal an official document listing the membership of this small group. Media articles listed only 8 out of 11 members.

health programs and antiepidemic networks. Regarding health management and service operations, the MOH oversees hospitals and clinics that form the core of the system.

However, the MOH is lightly staffed, and it has faced challenges in establishing effective oversight of a freewheeling market system plagued by corruption and counterfeit products. It has also had an uneasy relationship with other government bureaus that have overlapping jurisdiction in regulatory areas, such as with the State Food and Drug Administration. One of the MOH's key functions is to ensure that hospitals and clinics are adequately funded, either from user fees or government grants.

Ministry of Finance

The Ministry of Finance (MOF, *Caiwu Bu*) is responsible for producing annual budgets and monitoring financial management performance in accordance with the five-year plan. The MOF determines the budgets of government departments and controls the finances of state-owned enterprises.

Ministry of Labor and Social Security

The Ministry of Labor and Social Security (MOLSS, *Laodong Baozhang Bu*) is responsible for the management of state medical insurance systems. The MOLSS plays an important role in public insurance schemes that serve the unemployed and laborers who are not covered by private or other insurance programs. The MOLSS also establishes the prices and list of essential medicines that qualify for insurance reimbursement. The MOLSS will undoubtedly seek to contain costs and minimize the “profits” earned by service providers. It does not manage the New Cooperative Medical System in rural areas, which is implemented by the MOH. The MOLSS combined with the Ministry of Personnel in 2008 to form the Ministry of Human Resources and Social Security.

State Commission Office for Public Sector Reform

This office (whose name in Chinese is *Zhongyang Jigou Bianzhi Weiyuanhui Bangongshi*) is responsible for overseeing the administrative management system and supervising institutional reforms at the national and provincial levels.¹⁴ It has oversight responsibilities for government departments at the national and local levels and establishes the division of labor between state council-level ministries and provincial bureaus. It performs audits of other government departments and, most important, sets staff limits for government offices, making it very influential in any reform process.

Ministry of Education

The Ministry of Education (*Jiaoyu Bu*) oversees medical schools, many of which play an important policy advisory role in China's health care reform process. Some schools also provide medical services in university-run hospitals and regulate the licensing of medical professionals.

14. *Zhongyang Bianban Jianjie* (Brief Introduction to the State Commission Office for Public Sector Reform), June 6, 2007, http://www.chinaorg.cn/idx/top/2007-06/06/content_5026988.htm.

Ministry of Civil Affairs

The Ministry of Civil Affairs (*Minzheng Bu*) is responsible for maintaining a social safety net for the poor, which includes ensuring access to health care in rural areas. Though social security funding is spotty outside urban areas, any attempt to increase health care access for peasants, the unemployed, and the poor through a Chinese-style medicaid program would be the purview of the Ministry of Civil Affairs. It is currently unclear how rural programs run by the civil affairs bureaus might be integrated with health systems or what role the Ministry of Civil Affairs might play in any expansion or reform of the Rural Cooperative Medical Scheme currently implemented by the MOH.

Ministry of Personnel

The Ministry of Personnel (*Renshi Bu*) manages the recruitment and careers of civil servants and workers with advanced educational degrees, including those in the health care sector. The Ministry of Personnel plays a leading role in reform exercises in all sectors, particularly where a downsizing or reorganization of the bureaucracy results in significant shifts in personnel. This ministry has now been joined with the MOLSS.

State Population and Family Planning Commission

The State Population and Family Planning Commission (SPFPC, *Guojia Renkou Jihua Shengyu Weiyuanhui*) is responsible for the reproductive health of women, including the oversight of birth control medications. The SPFPC also oversees local clinics within its system. Due to its robust network of service providers, reaching all the way to the village level, the SPFPC regularly advocates that it should play a greater role in the health care system, particularly as a provider of preventative health services at the community level.

Legislative Affairs Office of the State Council

The Legislative Affairs Office (*Guowuyuan Fazhi Bangongshi*) will be responsible for drafting the rules established by the health care reform small group. This office is primarily responsible for coordinating the activities of the various ministries and departments and for “narrowing discrepancies and disputes.”¹⁵ Senior officials in this office also take stands on certain policy issues, such as voicing expectations about limiting foreign ownership of health care facilities and ensuring that hospitals remain under state control.

State Council Development Research Center

The State Council’s Development Research Center (DRC, *Guowuyuan Fazhan Yanjiu Zhongxin*) authored the seminal 2005 report that declared health care reform to be “basically unsuccessful.” The DRC is the government’s top policy “think tank” that studies strategic and long-term issues concerning economic and social development and makes recommendations to the premier and the State Council. It is staffed by experts from various social and economic disciplines.

15. “The Legislative Affairs Office of the State Council, The People’s Republic of China,” <http://www.chinalaw.gov.cn/jsp/contentpub/browser/contentproe.jsp?contentid=co1865792191>.

China Insurance Regulatory Commission

Established in 1998, the China Insurance Regulatory Commission (*Baoxian Jiandu Guanli Weiyuanhui*) is a ministerial-level body that operates directly under the State Council, supervising and managing the insurance market. Private health insurance is a relatively recent phenomenon in China—the first pilot policies were introduced in 2004. To date, private health insurance coverage is very limited and has reportedly met with serious challenges, with claims often outstripping premiums. The commission is tasked with promoting and integrating private insurance with government-led medical insurance programs.

State Food and Drug Administration

The State Food and Drug Administration (*Guojia Shipin Yaopin Jianguan Ju*), which has recently been rocked by scandal with the conviction and subsequent execution of its founding director, has struggled to define its role in the health care sector, particularly in the shadow of more powerful bureaus, such as the MOH, which has overlapping jurisdiction over many issues. In 2008, it was incorporated into the MOH.

State Traditional Chinese Medicine Administration

With more than 2,500 traditional Chinese medicine (TCM) hospitals, any reforms will have to incorporate this extensive branch of the medical system supervised by the State Traditional Chinese Medicine Administration (*Guojia Zhongyiyao Guanli Ju*). This administration is tasked with overseeing TCM practitioners and TCM research and development activities and with promoting this facet of Chinese heritage. The administration's role in the health care reform small group is undoubtedly to ensure that TCM continues to be an integral part of any reformed health system and that TCM compounds and practices are recognized on insurance reimbursement lists. The administration is under the authority of the MOH, but it operates independently. Traditionally, the director of this administration concurrently holds the post of MOH vice minister.

State-Owned Assets Supervision and Administration Commission of the State Council

The State-Owned Assets Supervision and Administration Commission of the State Council (SASAC, *Guowuyuan Guoyou Zichan Jiandu Guanli Weiyuanhui*) is the “owner” of public companies in China, tasked with overseeing and strengthening the management, reform, and value of state-owned enterprises. Ostensibly, the SASAC seeks to ensure that the interests of state-owned hospitals and of state-owned pharmaceutical, insurance, and medical device companies benefit from any future systems. The SASAC can be presumed to weigh in heavily on any decisions regarding privatization or public-private partnerships. They are also likely to play a role in strengthening corporate management practices, including the transparency and accountability of the government-owned companies involved in the health care system.

All-China Federation of Trade Unions

The All-China Federation of Trade Unions (*Zhonghua Quanguo Zonggonghui*) plays a key role in the health care reform debate, representing the overall workforce, including workers and their

employers that contribute to health insurance programs. The federation also represents the interests of health care workers and suppliers to the industry, which will undoubtedly be affected by reforms.

Parties Not Represented in the Health Care Reform Small Group

Several organizations have a stake in the health care system and are reportedly not associated with the small group responsible for reviewing health care reform proposals. Their apparent lack of representation on this committee is not necessarily surprising and potentially points to efforts to streamline debate and focus on government-led service delivery over other concerns. It does not mean, however, that they do not play a role in the health care system. Nor does it suggest that they will not have other means to ensure that their interests are considered.

For example, the Ministry of Commerce (MOC) is not consistently mentioned as a key participant. This might indicate that foreign companies will likely have a limited role in health care financing or service provision, because the MOC is largely concerned with foreign commerce, including international trade in equipment and pharmaceuticals. The Ministry of Science and Technology is responsible for state-owned laboratories and for funding new pharmaceutical product development, so it is unclear why it is not featured more prominently in the debate. The Chinese Centers for Disease Control operate clinics throughout the country and provide preventative medical and anti-epidemic services, though it is likely that their role is represented in the health care reform small group by the MOH.

Although the government has stated its expectation that “the market” and private-sector funding will play an important role in a reformed health care sector, its representatives do not have a formal place in the small group. Key domestic industry associations—such as the Research-and-Development-based Pharmaceutical Association in China, China Over-the-Counter Association, China Insurance Association, China Pharmaceutical Commerce Association, and Chinese Hospital Association—only play a consultative role in the process. The General Logistics Department of the People’s Liberation Army is also not openly involved in the health care debate, indicating that the military hospital system will likely continue to operate outside the direct oversight of civilian authorities, despite the fact that military hospitals are highly commercialized and serve civilian patients. In addition, many government bureaus operate hospitals for their employees and the employees’ dependents, including the public security, railway, power, land reclamation, and mining bureaus. These hospitals, like most military hospitals, also provide services to civilian customers and will be affected by a restructured health care system.

The Health Care Reform Process, Concepts, and Proposals

In comparison with other policy debates in China, the national dialogue about health care reform has been particularly open and transparent. This likely stems from the complexity of the issue as well as the universal nature of health care. The quality and cost of medical care affect every household in the country, from peasants to party members. Though the process has been government led, there has been extensive consultation with the private sector, the academic community, and,

interestingly, the international community. Various actors have deftly used diverse outlets to further their ideas and agendas throughout the process. Prominent Chinese academics in particular have been very vocal, appearing regularly on television and being quoted often in news articles. Analytical articles have been written by government economists, policymakers, and nongovernmental academics. Health bureau officials have been particularly vocal, indicated by frequent media interviews, press conferences, and policy speeches at conferences. Official commentary also has contributed to the public debate through prominent articles, such as one coauthored by Minister of Health Chen Zhu and the secretary of the ministry's Communist Party committee, the former health minister Gao Qiang, in the leading party journal *Qiushi*.¹⁶

The public nature of the health care reform debate's reflective and critical review process would have been unthinkable in China's recent past and in many other policy sectors. Adding to the uniqueness of this reform process has been the diversity of inputs and opinions aired publicly, including on the role of international organizations and experts.¹⁷ Along with seven Chinese institutions, three foreign organizations were asked to submit their proposals to the committee. Likewise, foreign corporations and experts have been actively participating in an ongoing consultative process with various government bureaus, while Chinese policymakers and experts have traveled abroad and extensively studied various national health care models.¹⁸ Though China's top leaders have increasingly sought outside opinions in various policy sectors, the current health care debate has been particularly open, inclusive, and visible in the media.¹⁹

One of Ten, or Ten into One? Envisioning a Future Health Care System

A few months after the health care reform small group was formed, it began soliciting reform plans from outside organizations. As of this writing, 10 plans have been solicited by the group. There is a great deal of information from media reports outlining these 10 proposals. However, transparency has its limits, and none of the proposals has been released publicly, making it impossible to conclusively establish either the content of each report or the group's reaction to each. Nonetheless, informed opinions and information are widely available. The degree of openness surrounding the debate indicates a positive trend toward inclusiveness in Chinese policymaking.

In March 2007, six organizations were solicited to submit proposals for the future health care framework, including Peking University, Fudan University, the State Council's DRC, WHO, the World Bank, and the consulting firm McKinsey & Company.²⁰ Shortly afterward, in early May

16. Chen Zhu and Gao Qiang, "Zou Zhongguo Tese Weisheng Gaige Fazhan Daolu Shi Renren Xiangyou Jiben Yiliao Weisheng Fuwu," *Qiushi*, January 1, 2008.

17. Though the public debate surrounding health care reform is unique, similar consultative processes have taken place recently in other domestic social policy issue areas, such as reform of the education and pension systems.

18. This is from the author's interviews with experts. See also "Zhongguo Yigai Moshi: Meiguo Tou Yingguo Shen Deguo Shouzu?" *Huagong Qingbao Shangwu Wang*, September 29, 2006, <http://www.chemintel.net/n/76715.htm>; and "Yigai Zhenglun De 8 Ge Guanjian Dian: Jiejing Naguo, Yiyuan Zou Xiang He Fang," *Xinhua*, December 29, 2007.

19. Melissa Murphy, *Decoding Chinese Politics: Intellectual Debates and Why They Matter*, Report of the CSIS Freeman Chair in China Studies (Washington, D.C.: CSIS, 2008).

20. "Yigai Fang'an Youwang 6 Yue Gongshi," *Huashang Bao*, April 16, 2007, <http://health.sohu.com/20070416/n249474882.shtml>.

2007, Beijing Normal University and Renmin University were also solicited to submit proposals. The first eight proposals were delivered to the government on May 10, 2007, and presentations were reportedly made to the State Council on May 30.²¹ In June, Tsinghua University reportedly also submitted a plan to the group.²² The tenth plan was solicited from Sun Yat-sen University sometime in early 2008, coinciding with statements by senior leaders that a new framework was close at hand.²³ The Sun Yat-sen proposal appeared distinct from the others, specifically providing the perspective of medical personnel, perhaps indicating the involvement of interest groups that were not satisfied with previously submitted plans.²⁴ It is unclear if the staggered submission approach was carefully planned or was an ad hoc process (figure 6.1).

Figure 6.1. Health Care Reform Timeline



Source: Prepared by the author.

Despite high-profile statements by the health authorities that the new framework would be released in March 2008, it was ultimately not released and no direct explanation has been forthcoming. However, in March 2008 on the sidelines of the Chinese People's Political Consultative Conference (CPPCC), Vice Minister of Health Huang Jiefu publicly lamented the "deficiencies" in the proposals, pointing out that they were vague and provided little guidance for implementation at the micro level. At the same time, a member of the CPPCC and former deputy director of the Family Planning Committee, Zhao Bingli, commented that doctors' pay should not be linked to the quantity of pharmaceuticals prescribed, and that their salary should come from the Ministry of Finance.²⁵ This public airing of the debated framework's shortcomings by two officials representing

21. These facts are from the author's interviews. See also Henk Bekedam, "Health System Reform and Developing China's Xiaokang Society," presentation at West Lake Forum, Hangzhou, May 11, 2007.

22. Haiwei Ma, "Xin Yigai Zongti Fangan 'Liang Hui' Tijiao 10 Tao Yi Gai Fang'an Da Pandian," *Jiankang Shibao*, February 29, 2008.

23. "Yigai Fang'an San Yue Shanghui Zhongguo Yigai Jinru Zuihou Chongci," *Caijing Shibao*, January, 5, 2008, http://news.xinhuanet.com/health/2008-01/05/content_7367000.htm.

24. "Yigai Di 10 Tao Fang'an Dijiao Guowuyuan Tichu Jianli Quanmin Yibao Tixi," *Xinhua*, February 26, 2008, http://news.xinhuanet.com/politics/2008-02/26/content_7672616.htm.

25. "Weishengbu Fubuzhang Cheng Xianyou Yigai Fang'an Huo Ling Yuanzhangmen Shiwang," *Guangzhou Ribao*, March 5, 2008.

different organizations on the health care reform group indicates that significant gaps remained unresolved. In September 2008, the official media reported that Premier Wen Jiabao had chaired an executive meeting of the State Council to discuss the health care reform process. Using official language reserved for reporting about high-level meetings, the article indicated that a decision was made to “reopen for comments from society,” indicating that a compromise has not been reached and new inputs will be needed before a framework can be decided upon.²⁶

As part of the health care reform process, academics and government officials alike have carefully studied health systems in other countries to determine for themselves which aspects might hold value for China. Numerous study tours and briefings by economists, insurance companies, experts, and foreign health officials have established in the minds of many Chinese officials how foreign systems work.

At their most basic, health care financing systems break down into three distinct frameworks: direct payment for health care services by the patient; direct payment by the patient with later reimbursement by insurance or government; or direct payment by the insurance program or government agency with possible copayment by the patient.²⁷ In practice, most health care systems are a hybrid of these payment methods, with one method dominant and the national program described as either a state-led or market-led model. Most public discussion in China has focused on three nations’ health care systems, primarily the United Kingdom’s National Health Service (NHS) and the U.S. and German systems.²⁸ Of the three, the NHS has received the most attention, because it is a classic state-led model, where treatment is directly paid for by the government and provided by the government. Early on, the NHS was considered as a possible model for China’s health care reform program, based on its full universal coverage, fairness of service distribution, focus on prevention, and government-led taxpayer financing, with only a minority of the financing coming from user fees.²⁹ In the British system, private hospitals exist as an alternative for better-off patients who insist on special treatment. The U.K. system holds significant appeal for Chinese government regulators seeking to wrest control from freewheeling hospitals in a free-market system, though aspects of the German and U.S. systems have relevance, with government and private insurance playing a supporting role.

In this context, the Chinese government, through the health care reform group, solicited 10 confidential proposals. Despite government requests for secrecy, quite a few news reports have offered outlines of several of these proposals. Furthermore, the institutional perspectives and prior publications of several authors and institutions are available and provide insights as to what each proposal likely offers. However, because of the restrictions on distribution, it is impossible to confirm the details of each proposal. Overall, each proposal draws from elements of the foreign models described above, while pointedly emphasizing the need to create a plan tailored to China’s unique situation. This section will review what has been discussed publicly about each proposal

26. “Guowuyuan changwuhui shengyi ‘guanyu shenhua yiyao weisheng tizhi gaige de yijian,’” Xinhua, September 10, 2008.

27. John C. Langenbrunner and Xingzhu Liu, “How to Pay? Understanding and Using Incentives,” Health, Nutrition, and Population Discussion Paper, World Bank, September 2004, <http://siteresources.worldbank.org/healthnutritionandpopulation/Resources/281627-1095698140167/LangenbrunnerCh5HowtoPayFinal.pdf>.

28. “Yigai Zhenglun De 8 Ge Guandian: Jiejin Na Guo, Yiyuan Zou Xiang He Fang.”

29. “Yigai Xietiao Xiaozu Chengli: Yigai Zheng Ni Fugai Quanmin Jiben Yibao,” *Xinjing Bao*, September 20, 2006, http://news.xinhuanet.com/fortune/2006-09/20/content_5115122.htm.

and how each might contribute to the final health care framework. It is important to note that former minister of health and current secretary of the MOH's Communist Party committee Gao Qiang has unequivocally stated that the final health care reform plan would not be developed based on one proposal, but will instead be based on suggestions from a variety of sources, potentially indicating that each proposal might have something to contribute to the final framework.³⁰

Beijing University

Beijing University's proposal was reportedly drafted by Li Ling, the deputy director of the university's Economic Research Center. Li is prolific, quoted often in the Chinese media, and a regular presenter at academic conferences. Much of what we can deduce about the Beijing University's plan comes from her interviews.

The proposal is believed to advocate a state-led model in the style of the United Kingdom's NHS, with a universal health care and insurance system that would keep health care costs within 6 percent of GDP.³¹ Essential to the plan's endorsement of a state-lead system is the recommendation to roughly double the size of the government's health care investment, to about RMB 350–400 billion, by injecting RMB 200 billion into the program.³² This investment is meant to replace other funding sources, such as patient fees, which are seen as a source of many of the system's problems resulting in inequity and corruption.³³ The plan includes a universal insurance program whose premiums would gradually be borne by the government.

Li also envisions a National Health Committee charged with coordinating all government health functions to ensure that government ministries' responsibilities are well defined and do not conflict with each other. It is unclear from her comments whether this would be an organization subordinate to or separate from the MOH or another government organ. She has publicly made comments praising the United States' health maintenance organization system, whereby providers and insurers are closely linked, but with checks and balances built into the system.

The prospect of independent organs adjudicating at key points in the system would be novel in the context of the current Chinese political dynamic, making it extremely unlikely that Beijing University's proposal advocates for the formation of independent organizations outside the control of the Communist Party or government. However, suggestions that new organizations under the party leadership, but free from conflicts of interest (such as regulators having concurrent ownership of service providers), is theoretically consistent with statements made by President Hu Jintao and other top leaders calling for greater "internal accountability" and improved governance.³⁴

30. Josephine Ma, "Health Minister Rejects Experts' Accusations: Gao Qiang Sidesteps Calls for Commission on Medical Affairs," *South China Morning Post*, March 16, 2007.

31. Current total health care expenditures in China are approximately 5.5 percent of GDP, compared with an average of 9 percent among countries belonging to the Organization for Economic Cooperation and Development, and compared with 16 percent of GDP in 2007. See Liu, "Healthier China?" See also J. A. Poisal et al., "Health Spending Projections through 2016: Modest Changes Obscure Part D's Impact," *Health Affairs*, February 21, 2007, W242–W253.

32. Ren Shanshan et al., "Weisheng Fubuzhang Cheng Xianyou Yigai Fang'an Huoling Yuanzhangmen Shiwang," *Guangzhou Ribao*, March 5, 2008, <http://www.chinanews.com.cn/jk/ylgg/news/2008/03-05/1182018.shtml>.

33. Liu, "Healthier China?"

34. See Hu Jintao's Report to the 17th National Congress of the Communist Party of China, Beijing, October 15, 2007, <http://english.peopledaily.com.cn/90001/90776/90785/6290120.html>. During the speech,

Fudan University

Fudan University's plan was reportedly drafted by Cai Jiangnan, a professor in its School of Economics. The university's proposal reportedly emphasizes that government funding will not be able to entirely underwrite medical treatment or social insurance schemes, recommending that program funding come from a mix of government outlays, social medical insurance, and individual contributions. Fudan's proposal advocates parallel development of the nonprofit, state-owned, and private medical service provider systems.³⁵

State Council Development Research Center

The State Council's DRC played a critical role in building government inertia toward addressing the problems in the health care system following the SARS debacle. The DRC's report, issued in 2005, characterized health care reform as "basically unsuccessful," identified key gaps in the current system, and created the consensus that a significant review and reform was necessary.³⁶ The DRC's proposal—the only proposal from an organization directly under the State Council—has not been widely dissected by the media.

The DRC's proposal is assumed to have been developed by the deputy director of its Social Development Research Department, Ge Yanfeng, who wrote the 2005 report.³⁷ Consistent with Beijing University's proposal, the basis of the DRC proposal is understood to advocate the creation of a system that provides basic health services through government-funded providers. A key objective is to reduce the inequality in services between urban and rural areas by providing free basic health services and heavily subsidized medical treatment, including free care for the poor.

WHO

WHO's submission is believed to be a principles-focused framework in line with WHO's overall mission.³⁸ Though WHO's report has not been released, it publicly advocates for a fair, efficient, good-quality system, with a significant focus placed on decreasing the cost of medical treatment by expanding insurance coverage and controlling medical costs. Henk Bekedam, WHO's former country representative in China, has stated that "policymakers urgently need to address this crisis of inequity in health care and the spiraling of health care costs."³⁹ To achieve this, WHO proposes government provision of basic services, including certain pharmaceuticals in an "essential drugs" system, consistent with WHO policies seeking to "satisfy the priority health care needs of the

President Hu repeatedly used the word "democracy" and called for greater "internal accountability." He also stated that "the governance capability of the party falls somewhat short of the need to deal with the new situation and tasks."

35. Haiwei Ma, "Xin Yigai Zongti Fangan 'Liang Hui' Tijiao 10 Tao Yi Gai Fang'an Da Pandian."

36. Junxiu Wang, "Guowuyuan Yanjiu Jigou Cheng Woguo Yigai Gongzuo Jiben Bu Chenggong," *Qingnian Ribao*, July 29, 2005, http://news.xinhuanet.com/newscenter/2005-07/29/content_3281414.htm.

37. Haiwei Ma, "Xin Yigai Zongti Fangan 'Liang Hui' Tijiao 10 Tao Yi Gai Fang'an Da Pandian." See also Ge Yanfeng's profile, <http://www.drc.gov.cn/c/geyanfeng.htm>.

38. "Weishengbu Fubuzhang Cheng Xianyou Yigai Fang'an Huo Ling Yuanzhangmen Shiwang," *Guangzhou Ribao*, March 5, 2008, <http://www.chinanews.com.cn/jk/ylgg/news/2008/03-05/1182018.shtml>.

39. Henk Bekedam, "Perspective: Health Care Has to Be Accessible, Affordable," speech on health care reform, CEO Forum, *China Daily*, August 31, 2005.

population” and ensure access to medicines for the poor and disadvantaged.⁴⁰ WHO is strongly supportive of Hu Jintao’s pledges to increase national funding for health care and ensure universal access for citizens.

Reportedly, the WHO framework proposes a gradual move from the current cash payment system to a reliance on group payments by the government and private insurers. WHO advocates limiting an individual’s payments to only 20 percent of the total payments for medical treatment. The plan’s long-term goals also provide for a switch to mandatory medical insurance for all citizens, including coverage for migrant workers. Recognizing the challenges of rolling out a new program, the plan calls for an implementation scheme that recognizes the different economic and social circumstances among China’s regions and suggests appropriate adaptations to suit local conditions.⁴¹ The WHO proposal looks to finance the health care system through the existing urban payroll tax rather than through general government revenues. However, it is unclear how coverage will be extended to farmers, migrants, and other informal workers.

One expert involved in the process commented that the WHO proposal was very detailed, perhaps more than some others. The proposal included topics beyond health care service provision and financing, incorporating a plan for change management, a personnel plan, and a drug policy. Reportedly, the proposal includes detailed work plans, including step-by-step tasks each year to support implementation and the scaling up of their proposal.

Interestingly, WHO proposes that nongovernmental implementers play a significant role, similar to Beijing University’s proposal, with government moving away from being an “owner” of health and insurance services toward a stronger regulatory role, free from potential conflicts of interests. The private provision of health care and insurance products would theoretically expand the supply of services and increase the system’s efficiency. Reportedly, the NDRC supports this conceptually, but the MOLSS and MOH both have reservations about such an important role being played by nongovernmental actors, making it unlikely that this aspect of the WHO proposal will survive in a final framework. However, it is believed that the WHO proposal will be a significant contributor to the ultimate framework that will be released.

The World Bank

The World Bank has not released any details regarding its health care reform plan. However, several World Bank studies of China’s health care system provide an institutional perspective which provides insights into the views of their experts. The World Bank has previously criticized the general underfinancing of China’s health care system, as well as the reliance on counties and townships to finance health care providers. The Bank’s proposal likely seeks to reverse the disproportionate funding of the urban health care system, particularly when most of the rural population pays out of pocket for care. Likewise, the Bank’s proposal is believed to promote efficiency and cost-effectiveness, the establishment of a functioning social safety net paired with a deemphasis on tertiary care. The Bank’s proposal might also recommend that China’s health care reform framework be made consistent with World Trade Organization rules regarding the national treatment

40. World Health Organization, *Essential Drugs and Medicines Policy* 8, no. 1 (2008), <http://www.wpro.who.int/sites/pha/documents/emp.htm>.

41. “Zhongguo Xin Yigai: Shijie Weisheng Zuzhi Fang’an,” Sohu, February 23, 2008, <http://health.sohu.com/20080223/n255317240.shtml>.

of pharmaceuticals, medical devices, and insurance products, including government procurement processes, because this strategy would increase efficiencies and reduce costs over the long term.⁴²

Reportedly, the World Bank proposal differs from the WHO proposal, in that the Bank advocates government funding as the pillar of the system, rather than payroll taxes that are unevenly collected. Furthermore, the Bank is concerned that funding a health care system through payroll taxes will neglect informal workers, and drive up labor costs, encouraging foreign direct investment to depart for lower-cost nations elsewhere in Asia.

McKinsey & Company

McKinsey & Company—the only for-profit, multinational consulting firm requested to make a submission—has not released any details about its submission to the media or outside experts. McKinsey is believed to have consulted a number of Chinese and international stakeholders in preparing its proposal; it also briefed those contributing sources on its final submission.

Beijing Normal University

Gu Xin, a professor at Beijing Normal University's Center for Social Development and Public Policy, stated that “the group contacted me on May 1 [2007], and hoped that I could finalize a proposal within a month.” He went on to say, “The previous six schemes were mainly concerned with government-led reforms and the group wanted to hear different voices. For the first time, diversity entered the drafting process.”⁴³ The Beijing Normal plan is reportedly also a government-led model, though instead of increased funding provided directly to hospitals, the majority of the financing for medical treatment would come from state funds or a state insurance program, rather than individual accounts. Medical providers would compete for patients, supposedly injecting an element of controlled competition into the system.⁴⁴ Instead of guiding first-line medical care to a specific health care provider, such as local clinics rather than hospitals, Beijing Normal's plan would allow competition for patients, depending on the provider's ability.

Renmin University

Renmin University's proposal is believed to have been drafted by Wang Hufeng, head of the Medical System Reform and Development Research Center at the University's School of Public Administration. Media reports suggest that this plan focuses on four main sectors: public health (including disease control, health education, and family planning), the hospital system, pharmaceutical production and marketing, and medical insurance. In the public health sector, government financing would replace the revenues currently derived from user fees. The hospital system would receive funding from a variety of sources, including government payments to the poor and elderly, employer and individual contributions, and presumably some patient fees. The creation of nonprofit private hospitals would also be promoted to increase transparency and allow effective

42. Elaine Wee-Ling Ooi, “The World Bank's Assistance to China's Health Sector,” Working Paper, Operations Evaluation Department, World Bank, 2005. This paper was prepared as background for the World Bank's China Country Assistance Evaluation, 2002.

43. Xiaohua Li, “Government-Led Medical Reform Expected,” China.org.cn, November 14, 2007.

44. “Weishengbu Fubuzhang Cheng Xianyou Yigai Fang'an Huo Ling Yuanzhangmen Shiwang,” *Guangzhou Ribao*, March 5, 2008, <http://www.chinanews.com.cn/jk/ylgg/news/2008/03-05/1182018.shtml>.

regulation. The pharmaceutical sector would be market driven, with the government limited to regulation and encouraging development of the market. In the medical insurance sector, Wang advocates a mix of employer contributions, individual payments, and government subsidies. Private commercial insurance would also be available.

On the basis of interviews in the media, Wang has stated that the vast scale and expense of an NHS-style system would be too expensive and difficult for China to implement in the near future. He also points out that a U.S.-style health maintenance organization-type system would be premature without a more developed private insurance market. He has spoken highly of the limited role of government in the U.S. system and the German system's management of public hospitals, which utilize both government and private financing.⁴⁵

Tsinghua University

Tsinghua University's proposal was developed by Yuanli Liu, director of the School of Public Policy and Management's Health Care and Development Research Center. Liu also serves as the China programs director for Harvard University's School of Public Health. Similar to other proposals, descriptions of the Tsinghua proposal indicate that it includes a mix of public and private health providers. Health care funding would be derived from a mix of private health insurance, patient fees, social insurance, government insurance, and subsidies. Liu reportedly proposes that government subsidies should be financed through an earmarked tax for public health, including a tax on tobacco.

Another unique aspect of the proposal is the creation of a separate system of central-government-financed health clinics for poor regions of China. The system would expand the present family planning system and reduce pharmaceutical prices and treatment fees. Other specifics of the plan include the creation of a referral system, the establishment of a National Health Committee to coordinate government departments, and an urban and rural emergency medicine system to ensure the provision of basic emergency services.⁴⁶

Sun Yat-sen University

Sun Yat-sen University's Ceng Yixin submitted the latest health care reform proposal in early 2008. Ceng Yixin is a member of the Chinese Academy of Sciences and director of Sun Yat-sen University's Tumor Prevention Center. In media interviews, Ceng emphasizes that his plan, unlike others, is based on extensive interviews and research with medical workers in China, arguing that their input is necessary to develop a plan that is ultimately implementable.

The proposal's most salient aspects include full reimbursement for first visits to primary-level hospitals and clinics, but only 50 percent reimbursement if the patient chooses to first seek treatment at a tertiary-level hospital. The health care needs of China's poor will also be addressed by central government financing for the basic insurance premiums of China's poorest 800 million

45. "Yigai Zhenglun De 8 Ge Guanjian Dian: Jiejin Na Guo, Yiyuan Zou Xiang He Fang," *Zhongjing Wang*, December 29, 2007, http://news.xinhuanet.com/politics/2007-12/29/content_7334061.htm.

46. "Zhongguo Xin Yigai: Qinghua Daxue Fang'an," Sohu, February 23, 2008, <http://health.sohu.com/20080223/n255318061.shtml>.

citizens, and subsidies and bonuses to address wage imbalances and encourage medical workers to work in county-level and lower hospitals.⁴⁷

Sun Yat-sen University's plan was announced shortly before Vice Minister of Health Huang Jiefu's remarks criticizing all the plans' inattention to the details of implementation and the role of medical personnel. The relative focus on health care workers may reflect a response to critiques of other proposals by stakeholders with equity in the hospital system.

A Big Pile of Tea Leaves to Read

Despite discussion in the media of each proposal, authoritative information is lacking, and the final shape of the forthcoming health care framework remains unknown. It is unclear if the current system of separate rural and urban financing systems will continue, or if a centralized system at the provincial or national level will supersede them. Likewise, the public debate does not make clear what role the private sector, including private health providers, might play. Additionally, there has been little public debate about governance, including oversight, transparency, and what checks and balances will moderate the system. An increase in government spending and subsidies increases the opportunities for mismanagement, though there has been little discussion about the means of ensuring transparency and accountability and eliminating corruption. Discussion of the quality of services, the role of independent actors including private insurers, or an independent legal system was noticeably absent. Though it is improbable that any proposal would call for building a cadre of tort lawyers, or a litigation system fueled by malpractice insurance, there was no public debate about the roles that those institutions play in international health care systems and what their absence might imply for China.

Although the transparency of the health care reform process indicates the significance that the government places on the issue, in this case, too much openness could prove embarrassing if implementation is not smooth. Competing interests and unaccounted-for delays in promulgation of the final framework may indicate fractious infighting among the group, or an unexpected barrier to implementation, such as limited government capacity to implement the plan.⁴⁸ Though internal government debate is common, a united front of agreement is most often presented to the public in policymaking, making it unusual for differing opinions to be aired in the media. The delayed release of the framework following announcements that it was "basically agreed to," indicate that divisions between government stakeholders are deep and obstacles have thus far proven intractable.

With the release of the report linked to the March 2008 National People's Congress and Communist Party Central Committee plenary meetings, missing this significant, once-every-five-year event is telling. Most likely, the delays point to the absence of any single, centralized government power capable of forcing a compromise or setting a definitive framework in which some ministries

47. "Yigai Di Shi Tao Fang'an: Chu Zhen Qu Jiceng 100% Baoxiao Yin Ren Guanzhu," *Xinxi Shibao*, February 25, 2008.

48. Early reports suggested that publication was first intended for June, 2007, although an announcement was postponed. See 六机构4月中旬提交报告医改方案有望6月公示, March 26, 2007, <http://sina.njlh.gov.cn/d.asp?l=004&id=6366>. In early 2008, MOH officials announced the plan's publication at the March 2008 meeting of the National People's Congress and Chinese People's Political Consultative Congress. See "Yigai Fang'an San Yue Shanghui Zhongguo Yigai Jinru Zuihou Chongci," *Caijing Shibao*, January, 5, 2008, http://news.xinhuanet.com/health/2008-01/05/content_7367000.htm.

would be clear winners. It is unlikely that any agency is willing to give up its current interests and control of existing programs without a fight. This is ironic, considering the last round of reforms in 1998, when the responsibility for the rural medical financing system was transferred from the MOLSS to the MOH. With the low levels of government financing for health care at the time, the MOH was somewhat reluctant to accept responsibility for an underfunded and failing program. Ten years later, government financing has increased significantly and the MOH is proud to point out that coverage of the rural cooperative medical system reaches virtually every county in the nation, in line with objectives set out in the most recent five-year guideline. It is likely that the current impasse in producing a new health care reform framework centers on the MOLSS advocating that it should regain control of the rural health care insurance system, while the MOH is reluctant to hand over a program it has successfully incubated and that is now adequately funded. Any proposal seeking to streamline or combine existing programs will likely break influential rice bowls—a major challenge in a system founded on compromise and power sharing.

We can speculate that the delay in releasing the reformed framework indicates that the ultimate outcome will be a compromise program, rather than a simple selection of one out of the ten proposals. Horse trading may account for some of the delay. It is also likely that the State Council reorganization process (which saw the MOLSS and Personnel ministries merge, and the State Food and Drug Administration subsumed into the MOH) complicated negotiations among the members of the health care reform small group. There has been some debate whether one proposal out of the ten would be selected as the “winner,” though that seems unlikely at this point, particularly in light of the State Council’s September 2008 decision to seek further comments on the future framework.

Likewise, the involvement of foreign submissions might also present a challenge, because the government may be reluctant to accept a foreign proposal as the backbone of the future framework for fear of a backlash from patriotic citizens (and ministries that perceive themselves to have lost out in a new program.) A future health care framework must have “Chinese characteristics” to ensure buy-in from all parties.⁴⁹ Supporting this notion, the organizations that submitted proposals were reportedly cautioned by the committee leadership “never to release their submissions” to the public.⁵⁰

Gaps and Challenges, Infectious Diseases, and U.S. Interests

The greatest challenge to the current process for the reform of China’s health care system will likely be translating the strategic framework set out by the health care reform committee into an action plan that is well defined and practical, and can be implemented throughout China in a consistent manner. The central government’s mission will be complicated by China’s diverse political and economic topography. The capacity of doctors, administrators, and local-level officials to effectively implement the final framework is by no means assured.

Human capacity is limited at critical points in the Chinese health care system, particularly at local levels. The 2003 Statistical Yearbook published by the MOH illustrates some of the personnel shortcomings of the medical system. Only 0.2 percent of medical workers in the entire system

49. Ma, “Health Minister Rejects Experts’ Accusations.”

50. This is from the author’s interviews.

have a doctorate degree. The gaps are widest at the lowest levels. Village and township health professionals generally have inadequate education to provide basic health care services. At the township medical center-level, only 1.6 percent of medical workers have graduated from college, and 17.1 percent have a certificate from a two-year “junior college” program. The remaining 81 percent are mostly high school graduates, though many have had some technical training. At higher-level hospitals, the level of education is better, but far from the U.S. or Western European standards—17.9 percent of health care workers in hospitals have a college degree, while 1.3 percent have a master’s and less than half a percent have a doctorate. Statistics for 2005 show a slight improvement in education levels, indicating that efforts are being made, although achievements will undoubtedly be incremental.

Poor-quality services at the lowest levels of the system cause patients to seek better quality care “higher up” the system, such as at county- and provincial-level hospitals. Similarly, the perceived high cost of care contributes to many patients deciding to postpone seeking treatment or to self-medicate. The lack of confidence in the quality or efficacy of service at local levels creates inefficiencies, including burdens at the higher levels, such as higher costs and patient loads, as well as a brain drain of qualified doctors at local levels. Though widely acknowledged thus far, addressing the education levels of medical workers will likely be necessary for the long-term success of future reforms.

This imbalance in capabilities between rural and urban facilities, and also between wealthy and poor provinces and municipalities, will need to be addressed. Assuring doctor incomes, and improving education levels and the quality of care, will increase the likelihood that health care system reforms are carried out consistently nationwide. Of particular importance, it would also contribute to a more effective provision of basic medical care and of preventive medical services and, indirectly, to improved overall national health indicators and an increased capacity to control infectious diseases.

Undoubtedly, some regions and provinces will be better equipped to pilot the future health care framework. Consistent with most historic, large-scale Chinese programs (from land reform to reform and opening the economy), the health care reform framework will be launched in several selected provinces before a national rollout. It is possible that several provinces from different regions will be selected to iron out the bugs and generate domestic experience that can be effectively disseminated to the rest of the country in time to meet the government’s objective to ensure medical coverage for all Chinese citizens by 2020.

Infectious Disease Control

It was an infectious disease outbreak, the SARS epidemic, in 2003 that sparked the process to review and reform China’s health care system. The cascade of failures in multiple systems, both political and medical, at the outbreak of SARS highlighted the problems facing China’s highly marketized health system, prompting official introspection into the issue. Subsequently, government attention to the health system increased, particularly toward infectious diseases such as HIV/AIDS, which had been neglected before 2003. Premier Wen Jiabao was quoted by the then-head of WHO’s Beijing office as saying to him, “Before SARS we knew one abbreviation: GDP. Since SARS, we also know another: CDC [Center for Disease Control and Prevention].”⁵¹

51. “You Cannot Fix This [Health] System in Three or Four Years,” *China Development Brief*, November 2, 2006.

Infectious disease control in China is certainly a significant international interest. SARS dramatically demonstrated that infectious diseases do not respect international borders. Controlling other emerging and reemerging infectious diseases—including HIV, avian influenza, hepatitis, and tuberculosis (particularly drug-resistant strains)—in China is a core national interest that China shares with the United States.

However, the bulk of the public debate about health care reform has focused on health care financing systems and the hospital system, rather than broader public health capacity or infectious disease control. The focus has been on resource management and pricing, rather than on a detailed discussion of broader health priorities or institutions that support the overall medical system, such as medical schools, doctors' associations, or the roles of various actors such as nurses, social workers, and psychologists. Likewise, there has been little visible consideration given to infectious disease control and the role that public health institutions—such as the Centers for Disease Control at the national, provincial, and local levels—will play in a future paradigm.

Just as the country's hospital system has become marketized, the CDCs have become reliant on fees and extrabudgetary income. International development assistance from major donors—including the Japan International Cooperation Agency, the U.K. Department for International Development, and nongovernmental organizations such as the Global Fund to Fight AIDS, Tuberculosis, and Malaria, as well as corporate philanthropic programs such as Merck & Company's HIV/AIDS partnership—have supplemented the CDCs' bottom line at the national, provincial, and local levels. However, many local CDCs and antiepidemic stations find ways to raise revenue through fees or other means to provide services that should be free, such as mass vaccination programs. The bifurcation of services between the public-health-oriented CDCs and the market-driven hospital system have proven a significant challenge for infectious disease control, including HIV/AIDS treatment.

Since SARS, the Chinese government has dramatically increased its attention and investment in HIV/AIDS treatment and prevention. The government established a program to distribute free anti-retroviral drugs (ARV), reaching more than 10,000 patients in the first two years.⁵² However, hospitals had no incentive, and they were largely unwilling to distribute free drugs to HIV-positive patients, many of whom are indigent. As a result, ARVs are distributed through the CDC system, most often with little or no coordination with the hospitals where patients seek treatment for other ailments.

Can the health care reform process solve key infectious disease challenges? Probably not, if the focus on hospitals and health insurance overshadows careful assessment and the allocation of needed resources for the public health network, headed by the CDCs. However, reform of the medical finance system will directly change practices and behaviors at hospitals, which will ideally include better provision of preventative medicine services. Additionally, more funding and investment over time should create greater capacity to identify and treat infectious diseases, including rapidly emerging epidemics. Unfortunately, many infectious diseases—including tuberculosis, malaria, schistosomiasis, and HIV/AIDS, all of which are well-defined line items within the CDCs' national and provincial budgets—will likely continue to fall largely outside the hospital system's responsibility.

Nonetheless, reforming the medical system and improving services will have indirect benefits on overall health of the population, which will contribute to lowering the incidence of infectious

52. The source for this is MOH presentations in Beijing, 2004.

as well as chronic and acute diseases. For example, hospital nutrition is an area where steady improvement in hospital-delivered services will improve the quality of care, refocusing doctors on ensuring the overall health of their patients, rather than the maximization of income through the selling of medicines and medical tests.

U.S. and International Interests

It is difficult to pinpoint how the future health care reform framework will affect the U.S. and international interests, though it is clear that these interests are significant. On one level, much will depend on the implementation of the plan in all localities. More generally, it is unlikely that the broad principles set out in the forthcoming framework will undermine international interests. Infectious disease control, a vital international interest, is one area where the framework will have at least an indirect impact, while U.S. commercial interests are more likely to be directly affected.

Certainly, U.S. commercial interests are at stake in the future health care system. The public debate on health care reform has included discussion of the role of the private sector, encompassing domestic and international interests, in an otherwise government-dominated system. Continued access to the Chinese market for medical devices, pharmaceuticals, financial and other services is a vital interest for the United States. Indications about how the framework will affect these interests will be readily visible in the treatment of tendering processes. The foreign business community has expressed satisfaction with the level of consultation with regulators on many issues. For example, the American Chamber of Commerce's 2008 *White Paper* indicated its appreciation for "the open manner" in which the State Food and Drug Administration solicited comments on draft regulations on medical devices.⁵³ Progress has also been made on medical device and drug issues through bilateral economic dialogue mechanisms.

Chinese regulators will undoubtedly seek to control costs as much as possible throughout the health care continuum. In addition to limiting fees charged by hospitals, domestic and international medical device and drug costs will undoubtedly be addressed. Drug pricing will be set through insurance reimbursement prices and the "essential drug" lists. Imported and patented drug prices are a politically convenient target for cost cutting by Chinese regulators, because limited domestic interests are negatively affected. Minister of Health Chen Zhu was quoted in early 2008 as saying, "Hospital doctors will not become slaves of multinationals. I am not afraid to say this!"⁵⁴

U.S. companies consulted by the MOH on the health care reform process have had the opportunity to advise the government and recommended that regulators take a long-term view that considers increasing efficiencies in the system, rather than a simplistic, product-focused price-reduction approach. Multinational corporations engaged in price negotiations with Chinese regulators are often frustrated by demands that the companies turn over commercially sensitive data in the regulator's search for the "true cost" of manufacturing a product, from which the regulators can then determine what they consider a "reasonable" price. The American Chamber of Com-

53. American Chamber of Commerce, People's Republic of China, *2008 White Paper on American Business in China*, April 28, 2008: 218, <http://www.amcham-china.org.cn/amcham/show/content.php?Id=3159&menuid=&submid=&PHPSESSID=cfd71f52bfb99...>

54. "Health Minister Chen Zhu Admitted That the Program Is Expected to Be Announced in March," *Modern Express*, January 18, 2008. Original quotation: "大医院的医生不要成为跨国公司的奴隶，这个你们不敢讲我敢讲!"

merce's 2008 *White Paper* also provides constructive advice to improve pricing and tendering processes, such as buyer commitments to defined purchase quantities rather than open-ended tenders demanding the lowest possible prices where no volume is indicated. Additionally, the future health financing format, whether government or individually directed, should provide for the portability of benefits to ensure that the private health service providers, both domestic and international, have the opportunity to compete for patients. Currently, government health insurance can only be used in hospitals charging government-set rates, discriminating against higher-end hospitals that provide better services at market rates.⁵⁵

Reforming the health care system will undoubtedly yield benefits to the international community as well as the Chinese population. This includes indirect benefits that will accrue from greater participation in insurance programs, earlier entry, and broader access for patients that will accompany increased perceptions of quality (both in terms of efficacy and value). Increased capacity to provide equitable, higher-quality services to a broader segment of the population will not only improve overall health but also mitigate some effects to the population from infectious diseases. Furthermore, expansion and improvements will benefit multinational companies, assuming that market access trends continue at their current pace or, ideally, improve. That said, a persistent lack of substantive transparency in critical areas raise concerns that Chinese organizations will not follow World Trade Organization principles and will seek to exclude foreign companies from the market. This could be driven partly by rising patriotism, which could influence purchasing decisions, and partly by more aggressive import-substitution policies.

Mao to Now: The Politics of Health

China's interconnectedness with the rest of the world makes the reform of its health care system a vital concern for not only its government and citizens but also its trading partners and neighbors. The economic reforms of the 1980s and 1990s saw the dismantlement of a publicly financed health system which was the pride of the first generation of Chinese leaders. The current government recognizes how high the stakes are to get the reform of the system right. Further failure risks deepening frustration and anger among a population that has little faith in the current overpriced, underperforming system, whose inability to quickly and effectively address emerging and reemerging infectious diseases also undermines international confidence in China. Despite the complexity of designing a new health care system that balances costs with the needs of Chinese citizens as well as the divergent interests of numerous regulators, the cost of failure is tremendous.

Reassuringly, the health care reform design process has been relatively transparent, fostering a lively debate involving government, academics, health care professionals, and the media. Though this might not be considered democracy in action in the Western sense, it does indicate a steadily improving level of pluralism and a measure of consideration for the interests of stakeholders outside government. This cannot be interpreted as anything but a positive development, one that hopefully will result in better policymaking, greater enrollment, and, ultimately, a functioning health care system that might once again be the pride of China's leadership.

55. This is from the author's interviews.



PART IV

THE REGIONAL AND GLOBAL
DIMENSIONS OF CHINA'S REFORM
EFFORTS

7

THE EXPERIENCE OF
HONG KONG

Thomas H. F. Tsang

With both Mainland China and Hong Kong taking center stage during the severe acute respiratory syndrome (SARS) epidemic of 2003, it is small wonder that both have also received worldwide attention with respect to other infectious diseases in the post-SARS years. As an epidemiological window to what happens in Mainland China, Hong Kong is uniquely positioned to detect new and emerging infections thanks to its intensive disease surveillance systems. Despite differences as to how public health systems are organized to handle infectious diseases, Hong Kong and Mainland China are constantly interacting with each other. The outcome of such interactions may bear regional and even global significance. The Mainland China–Hong Kong axis is one of the most interesting, dynamic, and important structures for regional and global protection against epidemics.

Although, from an infectious disease point of view, Hong Kong is inseparable from Mainland China—particularly Guangdong Province—it has a unique position among Chinese cities as a result of its separate, independent health administration. Thus, there are profound differences between Mainland China and Hong Kong in the way public health and medical care services are organized, funded, and delivered. Besides special strength in Hong Kong’s surveillance capacity, technological applications, and global connectedness, it also has a high degree of openness and transparency, and a prominent mass media.

Yet, despite Hong Kong’s relatively advanced public health infrastructure, it remains vulnerable to infectious diseases. Its high population density (approximately 7 million people per 1,100 square kilometers), along with its status as one of the world’s busiest trade and travel hubs, present formidable public health challenges. Nowhere is the porous nature of borders more evident than with the 300,000 daily passengers who zip through the gates between Hong Kong and Mainland China. Conversely, infectious diseases may pass through Hong Kong to reach other places within a short time. One only has to recount the single SARS patient living in a hotel in Hong Kong who infected a handful of hotel guests, who then went on to spread the infection to Singapore, Toronto, Vietnam, Taiwan, and many other places.

To understand the dynamics of the interaction between Hong Kong and Mainland China with regard to infectious diseases, it is instructive to know the changes that Hong Kong went through after the SARS epidemic of 2003. An Expert Committee set up to review the handling of SARS pointed to several weaknesses in Hong Kong’s health care system in dealing with infectious diseases, including areas such as emergency preparedness, infection control, command and coordination, surge capacity, and risk communication. Above all, the systems for communicating with Mainland China during infectious emergencies were not in order.

As a result of the Expert Committee’s recommendations, a new Centre for Health Protection (CHP) was set up in Hong Kong under the Department of Health in 2004. The CHP, which is the equivalent to the Centers for Disease Control and Prevention in China and some other countries, is a specialized organization responsible for all aspects of infectious disease prevention and

control in Hong Kong. At its core sit a Board of Scientific Advisers and seven scientific committees made up of local infectious disease experts. Operationally, the CHP consists of six specialized branches with a total of about 1,500 staff and an annual budget of HK\$1 billion.

Having drawn critical lessons during the SARS epidemic, the CHP has adopted a new philosophy and *modus operandi*. First and foremost, the defense against infectious disease has gone global. The horizon for surveillance and action has been extended well beyond Hong Kong's territory. Every morning, a report is compiled by monitoring infectious disease news from official and nonofficial sources around the globe, with the latter including newspapers, radio, the Internet, agency reports, and miscellaneous "rumors." Each outbreak report is individually assessed to determine the suitable course of action. Contact lists are maintained in cooperation with the World Health Organization and overseas health authorities for the fast exchange and dissemination of information.

Second, Hong Kong's infrastructure and coordination against infectious diseases have been enhanced. Under the CHP, new branches have been set up to upgrade Hong Kong's capability in surveillance and epidemiology, emergency preparedness, infection control, and laboratory technology. Notable initiatives include a field epidemiology training program for local epidemiologists; novel surveillance systems to monitor emerging infections; a new infectious disease hospital block with state-of-the-art isolation facilities; infection control training programs for health care workers; antibiotic resistance surveillance programs in health care settings; the formulation of contingency plans for avian influenza, SARS, plague, dengue fever, and other major infections; cross-disciplinary and interdepartmental exercises on infectious disease outbreaks; and new laboratory techniques and rapid diagnostics. Most important, the CHP acts as a platform where all relevant parties come together to share information, expertise, resources, and solutions. The interface among public health, clinical, microbiological, veterinary, and other related specialties has never been closer.

The third major change concerns the development and use of information technology. SARS exposed the fragmentation of data systems, a major stumbling block for efficient outbreak control. In the past, important data were kept by different parties using systems that did not interact with each other. The CHP is embarking on a new Communicable Disease Information System (CDIS) that will provide an integrated, instantaneous, and interactive platform for all stakeholders to share and use data on infectious diseases. The CDIS will incorporate powerful analytical tools—such as geographic information systems, automatic aberration detection systems, and syndromic surveillance systems—for the timely detection and accurate characterization of outbreaks.

Fourth, transparency is the new name of the game. Ever since SARS, the public and the media in Hong Kong have had an almost insatiable appetite for news on infectious diseases. The CHP issues press releases on all kinds of outbreaks on a daily basis. The frequency of press releases, press conferences, and other risk communication activities is about three times higher than before SARS hit Hong Kong. And this information must be released in a timely manner, because the Hong Kong media has little tolerance for any delay of more than a couple of hours.

Fifth and last, and returning to the main theme of this discussion, is the development of new links and relationships with Mainland China. These are emerging on several levels. The foundation of the Mainland China–Hong Kong axis to combat infectious diseases has been laid by a Tripartite Agreement with Guangdong Province and Macao, as well as a Memorandum of Understanding signed with the China's Ministry of Health. These two arrangements guarantee open channels for

communication on infectious diseases, which were absent in the pre-SARS era. An annual meeting is organized, whereby experts from Guangdong, Hong Kong, and Macao come together to analyze the latest trends in infectious diseases in the Pearl River Delta Region. China and Hong Kong exchange infectious disease statistics and updates on major outbreaks of mutual interest on a monthly basis. Most crucially, focal contact points have been established that are reachable 24 hours a day and 7 days a week. Through this mechanism, Hong Kong is in a privileged position to make ad hoc inquiries and obtain outbreak intelligence from Mainland China, which helps Hong Kong to put in place timely health protection measures.

Apart from this post-SARS exchange of infectious disease intelligence, Hong Kong and Mainland China have enhanced collaboration in many other areas. Hong Kong has been invited to join major outbreak investigations in China, such as avian influenza and streptococcus suis outbreaks. Exchange programs for epidemiology and laboratory staff have been put in place to foster the training of specialized health personnel. There are annual joint contingency exercises on avian influenza between the Ministry of Health in China, Hong Kong, and Macao. And joint research projects on seasonal influenza and HIV/AIDS generate valuable results. Most recently, Hong Kong has taken part in the earthquake disaster relief effort in Sichuan Province.

It is also worth mentioning a few key lessons learned in establishing the Mainland China–Hong Kong alliance on infectious diseases. To build a successful relationship, one has to know how things work in the other party, what the work culture and customs are, and what channels and forms of communication should be used at what times. Nothing is more important than cultivating trust with the people with whom one works. Such an apparently small thing as learning the language (Mandarin Chinese, or Putonghua) is vitally important.

Occasionally, the mass media in Hong Kong alleges that China has delayed the release of outbreak information, citing week-long gaps between a case's occurrence and the announcement. Accusations of this kind miss an important point: Delays are not uncommon in large countries like China with wide regional differences in health and communication infrastructures. Outbreaks like avian influenza often occur in rural areas, where infrastructures such as laboratory diagnostics and communication facilities are less developed and poor patients are reluctant to seek medical help until the infection is at an advanced stage.

The protocol for disclosure of outbreak information requires mutual understanding. According to the international convention, only the jurisdiction in question has the right to announce an outbreak occurring in the specific jurisdiction. However, when Hong Kong learns about an outbreak from Mainland China, the local media and the public expect this information to be disclosed to them. Fortunately and to its credit, Mainland China has adopted an open attitude and actively discloses outbreak information to the World Health Organization and the public arena. The CHP then confirms that it has received a notification from Mainland China.

Finally, Hong Kong sees Mainland China as a resourceful, competent partner. The assistance and collaboration are mutual. Though Hong Kong may be more advanced in its infectious disease management from certain perspectives, it still has a lot to learn from the Mainland, which has experience with a much broader range of infectious diseases. As far as infectious diseases are concerned, there is no doubt that Mainland China will continue to be Hong Kong's most important strategic partner for years to come.

8

CHINA'S NEW HEALTH DIPLOMACY

Yanzhong Huang

China plays a critical role in global health security. It has one-fifth of the world's population and one-seventh of the world's disease burden, measured in years of healthy life lost. Historically, it has been the origin of some major epidemics, including the 1957 Asian flu, the 1968 Hong Kong flu, the 1977 Russian influenza, and the 2003 severe acute respiratory syndrome (SARS) epidemic.

This chapter addresses China's evolving health diplomacy. After a brief overview of Maoist health diplomacy, it examines how the changing domestic and international contexts coupled with the 2002–2003 SARS crisis have transformed China's perception of the relationship among health, security, and foreign policy. This is followed by a discussion of some defining features of China's contemporary health diplomacy as well as its limits and constraints. The chapter concludes with a summary of major findings.

Maoist Health Diplomacy

In the Cold War era, China's participation in international cooperation on health issues was limited. During the 1960s, China sought to utilize foreign aid to expand its political influence in the developing world. In April 1963, the first Chinese foreign aid medical team arrived in the newly independent Algeria. Since then, a steady trickle of medical teams has been coming to the continent. Between 1963 and 1982, 6,500 Chinese health workers joined medical teams to serve in 42 countries and regions worldwide. Three-quarters of the recipient countries were in Africa, a regional priority of China's foreign policy.¹

China expanded its health diplomacy after 1972, when it resumed its membership in the United Nations and the World Health Organization (WHO), and especially after the late 1970s with its normalization of diplomatic relations with Western countries. Nonetheless, until the 1980s China pursued a health diplomacy that was flimsy, passive, and asymmetric. Though China contributed to international health through agreements with various international organizations, it acted more like a “free rider” in the provision of global health security. The notion of its taking responsibility toward humankind or fulfilling its promise to the world had not risen to its foreign policy agenda.

The Changing Context of the 1980s and 1990s

The end of the Cold War and China's integration with the world economy have led the nation to a soul-searching of its identity in the international system. China no longer views the international

1. Ministry of Health, *Zhongguo Weisheng Nianjian* (China Health Yearbook) (Beijing: Renmin Weisheng Chubanshe, 1983), 378, 386.

system as alien and illegitimate.² Furthermore, during the 1980s and 1990s, it developed a new sense of accountability and commitment in its interactions with the international system. This new identity has prompted new thinking about the meaning of security and international cooperation.

Although the Chinese government did not officially adopt the term “nontraditional security” (NTS) until 2001, it unveiled its “new security concept” as early as 1996 at an Association of Southeast Asian Nations (ASEAN) Regional Forum.³ This new concept abandons the traditional Chinese thinking of seeking security through confrontation and competition. Instead, it seeks common security through mutually beneficial cooperation. The development of the new security concept changed the discourse of foreign policy, allowing the incorporation into the policy process of a wide range of “human security” issues and challenges outside the traditional security framework. A joint declaration signed between China and ASEAN in November 2002, for example, recognized that China and ASEAN share “extensive common interests” in coping with NTS threats and emphasized the need to strengthen regional and international cooperation.⁴

The shift to a new Chinese security agenda is not just a technical issue. As a leading Chinese scholar suggested, the rise of “human security” also called for reordering the development agenda and restructuring broad state-society relations.⁵ Before the SARS outbreak, China’s single-minded pursuit of economic growth not only marginalized the role of public health but also resulted in growing social tensions and conflicts. The leadership transition starting in November 2002 increased the incentives for a new generation of leaders to strike a theme that is different from that of their predecessors. In March 2003, President Hu Jintao indicated his commitment to human security by promising to “exercise power for the people, feel as the people feel and work for their happiness.”⁶ This people-centered approach led to a favorable political environment for a policy shift in addressing NTS threats in general, and public health challenges in particular.

SARS and Health Security

The streams of problems, politics, and policy ideas joined in the 2002–2003 SARS outbreak.⁷ The crisis highlighted the devastating impact of health-related NTS threats. In recognition of both domestic and foreign policy challenges, Premier Wen Jiabao said that “the health and security of the people, overall state of reform, development, and stability, and China’s national interest and international image now are at stake.”⁸

Against this background, previous arguments about the negative downward spiral between infectious diseases, economic growth, social and political stability, and national security suddenly gained currency in academic and policy circles. In November 2003, the Ministry of Foreign Affairs

2. See Yong Deng and Thomas G. Moore, “China Views Globalization: Toward a New Great-Power Politics?” *Washington Quarterly* 27, no. 3 (Summer 2004): 121.

3. Ministry of Foreign Affairs, “China’s Position Paper on the New Security Concept,” July 31, 2002.

4. ASEAN Secretariat, “Joint Declaration of ASEAN and China on Cooperation in the Field of Non-Traditional Security Issues,” Sixth ASEAN-China Summit, Phnom Penh, November 4, 2002, <http://www.aseansec.org/13185.htm>.

5. Wang Yizhou, “China and Non-Traditional Security,” *Guoji Jingji Pinlun* (Review of International Economics), no. 11–12 (2004).

6. “Hu Jintao Addresses NPC Session Closing Ceremony,” *People’s Daily*, March 18, 2003.

7. Yanzhong Huang, “The Politics of HIV/AIDS in China,” *Asian Perspective* 30, no. 1 (2006): 95–125.

8. *Ibid.*

convened a special meeting of various government institutions to examine NTS threats, and for the first time HIV/AIDS was listed as one of the six NTS threats.⁹

The SARS crisis served as a catalyst to reorient China's development agenda and relax government information control. The government now realized that economic development does not trickle down, and public health should be treated as an independent criterion of good governance. In the aftermath of SARS, the central leadership formally adopted a people-centered approach in addressing social development issues, such as public health and rural health care.¹⁰

Subsequently, funding for public health has increased significantly. Between 2002 and 2006, public health spending grew by 107 percent. In 2007, the central government alone budgeted 31.2 billion yuan for public health, an increase of 85.8 percent over the previous year.¹¹ China launched an internet-based disease reporting system in early 2004, allowing hospitals (including township health centers) to directly report suspected disease cases to the Chinese Center for Disease Control and Prevention and the Ministry of Health. By September 2007, the system had covered 95 percent of the health institutions at or above the county level, and 71 percent of the township health centers.¹² The changing government development agenda and efforts to improve risk communication would not only increase the government's capacity in addressing future disease outbreaks but also facilitate information sharing with the international community.

The global spread of SARS and its foreign policy ramifications reinforced the perception of China as a stakeholder in the international system, creating strong incentives for China to participate in international cooperation on health. On April 30, 2003, Premier Wen Jiabao attended an emergency summit meeting with 10 ASEAN leaders in Bangkok, the Special ASEAN–China Leaders' Meeting on SARS. At this summit, Wen—keenly aware that the image of the country and the reputation of the new leadership were at stake—was very open, candid, and cooperative. To demonstrate its commitment to cooperation with ASEAN countries, China proposed the creation of a special fund to study and create preventive measures against the SARS contagion.

Defining China's New Health Diplomacy

The SARS-induced policy and institutional innovations appear to have been sustained after 2003 despite the tendency to get back to “business as usual.” A joint declaration signed by ASEAN and China in Bali in October 2003, for instance, reiterated the determination on both sides to implement the consensus of the Special ASEAN–China Leaders' Meeting on SARS, and it promised to launch the 10-plus-1 health ministers' meeting mechanism. On the domestic front, the 2003 Regulation on Public Health Emergencies (Article 7), the 2004 Revised Law on Infectious Disease Prevention and Control (Article 8), and the 2007 Emergency Response Law (Article 17) all expli-

9. The other five NTS threats are money laundering, sea piracy, extreme poverty, refugees and migration, and environmental security. See Wang Yizhou, “China and Non-Traditional Security.”

10. *Renmin ribao* (People's Daily), Overseas Edition, August 26, 2003, September 3, 2003, and November 3, 2003.

11. “Six Main Areas for China's Public Health Expense This Year” (Jinnian Zhongguo Gonggong Weisheng Zhichu Zhuzhua Liu Fangmian Gongzuo), Xinhua, March 9, 2007, http://news.xinhuanet.com/fortune/2007-03/09/content_5823322.htm.

12. “Weishengbu: Laoji Fuwu Zongzhi, Weihe Renmin Jiangkang” (MOH: Follow the Mission of Our Service, Protect People's Health), *People's Daily*, September 13, 2007, <http://cpc.people.com.cn/GB/75289/6260945.html>.

cate the Chinese government's support for international cooperation over disease surveillance and response.

A More Transparent and Cooperative China

Since 2003, China has been more willing to share important public health-related information with the international community. As part of the government transparency campaign since July 2003, information on veterinary epidemics, such as foot-and-mouth disease, swine vesicular disease, and avian influenza are no longer classified as state secrets. Following the delivery of 5 strains in 2004, China in November 2005 responded to WHO pressures and agreed to speed the delivery of another 20 avian influenza virus samples from 2004 and 2005 to support global efforts to prevent a bird flu pandemic.

China has also expanded its cooperation with other countries on a bilateral basis in disease prevention and control. Since 2002, it has established high-level dialogue mechanisms with ASEAN, the United States, Russia, the United Kingdom, and Japan. The annual U.S.-China Global Issues Forum, which started in 2004, provides a platform to discuss issues such as humanitarian assistance, public health, trafficking in persons, environmental conservation, and sustainable development.

Growing Interest in Multilateralism

China has dropped much of its reluctance and increased its participation in multilateral arrangements on international health cooperation at the global, regional, and subregional levels. At the global level, China has demonstrated strong interest in working closely with major international organizations in disease prevention and control. In January 2006, China hosted an International Pledging Conference on Avian and Human Influenza, in partnership with the European Commission and the World Bank. Also, China appears to be more active in participating in regional multilateral platforms, including the ASEAN+3 Summit, the East Asia Summit, and the Asia Europe Meeting. Through these venues, it has proposed a series of important initiatives on the control of avian influenza and the management of public health emergencies. In 2005, for example, Premier Wen Jiabao called for deepening the ASEAN+3 mechanisms by making the handling of public health emergencies a priority. In addition, China has expanded health cooperation projects with countries in the Greater Mekong Subregion.

Increasing Involvement of Top Leaders

Beginning with Premier Wen Jiabao's SARS diplomacy in 2003, top government leaders have become increasingly involved in health diplomacy. In September 2005, President Hu and President George W. Bush hammered out in their negotiations "Ten Core Principles" of global pandemic response, which were later signed by 88 nations and agencies.¹³ In June 2006, China nominated Margaret Chan, former director of health of Hong Kong, to become director-general of WHO. In campaigning for Chan, the Chinese Ministry of Foreign Affairs issued a general mobilization order to its embassies in the 33 countries that served on the WHO Executive Board, asking them to

13. Laurie Garrett, "Responding to the Threat of Global, Virulent Influenza," testimony before a hearing of Committee on Foreign Relations, U.S. Senate, November 9, 2005.

use various means to campaign for votes. Meanwhile, President Hu and Premier Wen wrote letters to related countries' leaders to recommend Chan. President Hu personally called President Bush to seek U.S. support.¹⁴ He also used the Sino-African summit meeting with African leaders in 2006 to lobby African leaders to support Chan. These efforts paid off in November, when Chan defeated 12 other candidates to become the first Chinese to head a major United Nations agency.

Sustaining Healing Power in Africa

Africa continues to be a priority for China's health diplomacy. At present, there are 38 Chinese medical teams distributed in 108 clinical stations on the African continent.¹⁵ The beneficiaries of their services are not confined to the general public. As indicated in a recent document issued by the Ministry of Health, the medical teams should "do a good job not only in routine medical care services, but also in the health care services of the upper class in the recipient countries."¹⁶ The friendships Chinese physicians have nurtured with African leaders have become an important source of information for the local Chinese embassies and, more important, have helped project China's "soft power" and achieve its desired foreign policy objectives for issues such as human rights, its bid for the 2008 Olympic Games, and its application to join the World Trade Organization.¹⁷

When China's diplomatic war with Taiwan intensified, China began to emphasize the "one-China principle" as the political foundation for developing relationships with African countries. As far as this is concerned, the Chinese medical teams also contributed to China's efforts to reduce Taiwan's international space.¹⁸

Southeast Asia: A New Regional Priority

Whereas China's health diplomacy in Africa to some extent serves its foreign policy objective of foiling Taiwan's diplomatic offensive and securing access to natural resources, China's cooperation with ASEAN countries on health focuses on combating diseases as an NTS threat. It has, thereby, created a stable security environment for China's economic development while reassuring the nations in the region that its rise is peaceful.

The "10-plus-1" cooperation framework over nontraditional security issues is constituted on three levels. At the top level is the leadership summit, launched in 1997, which determines the strategic direction of the overall cooperation. Below that level are the ministerial meetings, which provide assistance to the summit. The first health ministerial meeting was held in 2006. The third level is the work mechanism, including the Senior Officials' Consultation (SOC) at the vice ministerial level and the ASEAN-China Joint Cooperation Committee (ACJCC). Whereas the SOC is entrusted to discuss China-ASEAN relations and other international and regional issues, the ACJCC is responsible for coordinating overall cooperation matters. In March 2005, China

14. *Renmin ribao*, Overseas Edition, April 4, 2007.

15. *Guoji Shangbao (International Commerce Daily)*, November 5, 2007.

16. Ministry of Health, <http://61.49.18.65/publicfiles//business/htmlfiles/wsb/index.htm>.

17. *Zhongzhou Tongzhan* (Zhongzhou United Front), no. 1 (2003): 29–31; *Huaxia Shibao* (Huaxia Times), December 3, 2003. For a general perspective, see Bates Gill and Yanzhong Huang, "The Sources and Limits of China's Soft Power," *Survival* 48, no. 2 (Summer 2006): 17–36.

18. *Zhongguo Zhongyi Yao Bao* (Chinese Traditional Chinese Medicine), March 15, 2007, 2; *Tongyi Luntan* (Reunification Forum), no. 1 (2008): 24–25.

proposed including public health as a priority for cooperation, which was endorsed by the SOC in April.

In addition to the three-level mechanisms, there are supporting arrangements such as think tanks, conferences, and government-sponsored funds. For example, the China-ASEAN Eminent Persons Group, consisting of retired senior government officials, recommended in 2005 holding a China-ASEAN ministerial meeting on newly emerging infectious diseases. In addition, the two sides have established the China-ASEAN Public Health Fund to finance health-related activities and projects.

Challenges and Constraints

Despite progress, China faces several intractable dilemmas and constraints in pursuing health diplomacy. One major challenge is to find the appropriate balance between the traditional emphasis on state sovereignty and the universality principle inherent in addressing global health threats. In recognition of the global nature of infectious disease and its initial mishandling of the SARS crisis, China accepted the “universal application” principle in revising the International Health Regulations in 2005. But when universal application became a key facet of Taiwan’s diplomatic campaign for formal participation in WHO activities, it was viewed by China as a potential threat to its sovereignty and territorial integrity. Though the 2005 Memorandum of Understanding China signed with WHO allows WHO to interact with Taiwan, the implementation document sets out clear restrictive procedures on such contact.¹⁹ Beijing’s insistence on sovereignty and territorial integrity effectively raised the bar for Taiwan’s participation in WHO. Since 1997, Taiwan has been trying to become an observer in the World Health Assembly. But its bid failed every time due to opposition by China, which has insisted that Taiwan is part of its territory and that only sovereign states can join WHO. Beijing’s recalcitrance over Taiwan’s participation in WHO has embittered the atmosphere of cross-Straits relations, and generated strong popular support and international sympathy for Taiwan’s efforts to expand its international space.

The second challenge is related to the first one, though not unique to China. It is interesting that while China has realized that strategies of self-help are doomed to failure in containing the spread of infectious diseases, it is motivated to action primarily by its narrow self-interest. This dilemma becomes particularly a problem in Southeast Asia, where health challenges are intertwined with the traditional security dilemma. China—keenly aware of the U.S. power in the region and of the ASEAN countries’ fear of being swamped by their huge neighbor—is refraining from playing a dominant role in the region’s collective security-building effort. Yet allowing ASEAN to play a leading role in the process undermines the efficacy of regional cooperation on health issues, for the nonintervention principle long insisted on by the ASEAN countries is opposed to the basic concept of international cooperation for responding to NTS crises.

As a result, China’s cooperation with ASEAN on disease prevention and control is still confined to forums, declarations, and dialogues. Without institutionalization, the effectiveness of this effort is limited to solving problems of coordination (for example, standardization of border inspection and quarantine), which are caused by “dilemmas of common aversions”—situations in

19. ASEAN Secretariat, “Implementation of the Memorandum of Understanding between the WHO Secretariat and China,” July 12, 2005, <http://www.aseansec.org/19286.htm>.

which actors must coordinate their policies to avoid mutually undesirable outcomes.²⁰ Yet as far as problems of collaboration generated by the “dilemmas of common interests” (for example, sample sharing and vaccine development) are concerned, lack of trust becomes a central normative concern, and accounts for the absence of substantial progress in this area.

The negative impact of traditional security dilemmas on the incentives for and efficacy of cooperation on health is evidenced in China’s stance toward the HIV/AIDS crisis in Myanmar. In January 2007, international concerns regarding the impact of the crisis on international security were included in a resolution introduced by the U.S. government at the UN Security Council. China cast veto votes against the resolution on the grounds that situation in the country did not pose a threat to international peace and security. In doing so, Beijing seemed to be implying that it suspected that regional strategic concerns were the main reason behind U.S. interest in Myanmar’s HIV/AIDS crisis and human rights.²¹ This overwhelming concern for its own strategic security explains why China so far has still been reluctant to make full use the UN Security Council to address global NTS threats such as HIV/AIDS, in spite of the recommendations of leading policy experts.²²

Conclusion

China’s health diplomacy in the Cold War era was limited and passive, serving a foreign policy that emphasized traditional security concerns. Until recently, there were no signs of change in China’s willingness to work openly and constructively with the international community on health issues. To the extent that internal and international developments in the 1980s and 1990s changed the discourse of China’s security and foreign policy, it was the SARS crisis that catalyzed public health’s rise as a foreign policy issue in China.

This “health as foreign policy” transformation unleashed forces that led to significant changes in the substance and style of China’s participation in addressing health concerns in cooperation with the international community. This new health diplomacy not only contributed to national and international health security but also helped China in achieving its important foreign policy objectives. That being said, China’s global health pursuit as an aspect of foreign policy is still constrained by the traditional concerns of national security and sovereignty, which could ultimately undermine the incentives for China to engage in international health cooperation. In short, China’s new health diplomacy presents both opportunities and challenges for global health governance.

20. Arthur Stein, “Coordination and Collaboration: Regimes in an Anarchic World,” *International Organization* 36, no. 2 (Spring 1982).

21. *Guoji Xianqu Daobao (International Herald Tribune)*, January 18, 2007.

22. Wang Yizhou, “China and Non-Traditional Security,” 33.

9

THE PROSPECTS FOR ENGAGING CHINA WITH GLOBAL HEALTH ISSUES

J. Stephen Morrison

The past decade has seen a dramatic evolution in China's role as a donor in global health. This evolution has been shaped first and foremost by a series of health crises within China that starkly illustrated for the Chinese leadership the nexus between domestic and global health imperatives. It has also been shaped by rising interests in Africa, where global health has become an important component of China's projection of soft power. These two drivers have led to distinctive new forms of Chinese diplomacy, deployed to advance a Chinese donor agenda. There are, however, limitations to China's new global health diplomacy and uncertainty about the country's longer-term vision and strategy for its role in global health. Several of the chapters in this volume touch on these questions at different points.

Two major developments in this decade have shaped the Chinese approach to global health. The first, and most conspicuous, were China's sudden, unforeseen crises: concentrated emerging infectious disease shocks, emanating from within China itself, that not only imperiled China's internal social stability and legitimacy but also threatened global health and commerce, thus undermining China's self-styled image as a rising ethical global superpower. These crises hit powerfully upon multiple Chinese sensitivities, and the country's leadership responded.

The outbreak of severe acute respiratory syndrome (SARS) in the early part of 2003 presented a sharp, profound challenge, which exposed embarrassing governmental chaos and dishonesty, and brought home to Chinese leaders that for China global health was not something that could be separated from domestic considerations. SARS fused domestic health concerns with global interests. Global health was not in this instance perceived by China's leadership as a convenient "soft power" instrument of their foreign policy. Rather, engagement on global health was perceived to be unambiguously essential to protect their hard national interests, both domestic and outside China's borders.

Soon after the SARS shock had diminished, the prospect of a second possible shock emerged in 2005, in the form of avian influenza. It also emanated from within China, and it threatened both China itself and the world beyond, thus collapsing into one the concepts of domestic and global health. Engagement by China to combat it was meant to protect hard national interests, not to project soft power.

In this same period, awareness has also steadily increased about the scope and depth of the multi-drug-resistant tuberculosis burden within China; the prospect that this severe type of tuberculosis would continue growing, mutate into even more pernicious forms, and migrate beyond China's borders; and China's huge share of the global tuberculosis burden (see chapter 3 above).

In combination, these shocks have forced multiple changes in China's outlook, donor investments, leadership, and diplomacy. Controlling infectious diseases became a foreign policy and a domestic priority, just as the creation of new, effective global surveillance and response systems

became urgent operational priorities. Attention turned to advancing new national policies on HIV/AIDS (see chapter 1) and overhauling China's national health system (see chapter 6). Leadership on global health migrated from the Ministry of Health to much higher levels, in the office of Vice Premier Wu Yi. Internally, within China's foreign and health ministries, a normative shift occurred, in favor of greater openness, transparency, sharing of data internationally, and the deepening of technical partnerships with the U.S. Centers for Disease Control and Prevention and the World Health Organization (WHO).

In this new dynamic context, it made sense for China to seek the installation of Margaret Chan as the head of WHO in 2006—the first Chinese to head a UN agency—and to press WHO to play a heightened leadership role in managing the global response to avian influenza. It made sense for the Chinese leadership to forge a web of Asian regional diplomatic initiatives (detailed in chapter 8), matched by targeted donor investments in neighboring states, and aimed at building regional surveillance and quick response capacities. And it made sense for China to seriously engage in its role as a board member of the Global Fund to Fight AIDS, Tuberculosis, and Malaria, beginning from its launch in 2002. In late 2007, China hosted the first Global Fund board meeting on Chinese soil, and at the same time began the process of amending the legal bar on immigrants living with the HIV virus. This laid the groundwork for future expanded Chinese leadership of this new global financing mechanism, which in its first years committed more than \$400 million to controlling infectious diseases within China itself. (By contrast, China has contributed a mere \$16 million to the Global Fund.)

The second major shift of the decade was China's concentrated quest to romance Africa: to forge new South-South political alliances with African governments, to win reliable long-term access to energy and other high-value commodities, and to secure access to new African markets and commercial investment opportunities. This strategy builds upon linkages that date back to the 1960s and 1970s, when African support proved critical to China's entry into the United Nations. The strategy also relies upon remarkably active high-level visits to Africa and reciprocal invitations to China, and it has been structured around the Forum for China-Africa Cooperation launched in 2000 and since held every three years; the next gathering is scheduled for 2009 in Cairo.

At several levels, there were strong incentives for China to make public health investments in Africa a priority feature of its expanding engagement in Africa. As early as the 1960s, China had been sending doctors to sites across Africa and providing training programs in China. These programs conveniently provided ready-made instruments that could be refreshed and refashioned to better meet current needs. Today, approximately 1,000 Chinese doctors are deployed to more than 35 African countries. Along with doctors and medical training, the Chinese have emphasized the construction of new hospitals and malaria clinics (10 and 30, respectively, in the 2006–2009 phase). This commitment has been very much in keeping with the Chinese preference to invest in infrastructure—an area of critical need, Chinese officials are quick to point out, that is habitually neglected by Western donors.

What are we to make of these changes in China's global health approaches in recent years? It is a welcome change that on both human security and developmental grounds, the Chinese government has embraced global health in new ways, that it has made substantial new commitments at both bilateral and multilateral levels, and that it has applied to these ends China's prestige, expertise, and influence. In promoting better global surveillance and response capacities, and in strengthening public health systems in Africa, China's expanded efforts have added an important new dimension to global donor efforts. And these efforts have created new openings for U.S.-

Chinese collaboration, as well as for China to cooperate with other partner countries and international organizations.

At the same time, realism and caution are in order with respect to the sustainability of China's engagement and the prospects for expansion. China's overall material commitments on global health remain modest—dwarfed, for instance, by the U.S. President's Emergency Plan for AIDS Relief. And given the scope of challenges China faces in reforming its own health system and achieving affordable mass access to quality health services, it is highly uncertain that China will in the near to medium terms significantly expand its donor commitments in health outside its borders. The pull on resources and political attention will be inward—to meet the stark, hugely expensive, and profoundly complex demands of achieving a historic overhaul of China's health system (see chapter 6). In this respect, the domestic health agenda will likely trump the international agenda, and the pace of progress in the former will set the pace for progress in the latter. As long as domestic reform remains slow or stalled, the process of elaborating a unified Chinese approach to global health care will probably be delayed.

Today, China has no single unified vision laying out in a coherent fashion how global health relates to China's national interests, long-term goals, and strategies for attaining those goals. Rather, Chinese initiatives up to now have been overwhelmingly crisis driven, reactive, ad hoc, and fragmented. Internal discussions are reportedly under way on developing a long-term strategic approach, but these efforts remain at an early stage.

High-level leadership has been uncertain, since the retirement of Vice Premier Wu Yi. In the meantime, interagency squabbles persist, often unresolved. The Ministry of Health has, for instance, been very forthcoming in helping to lift the Chinese immigration ban on persons with HIV and in disclosing the numbers of persons infected with avian influenza. At the same time, the Ministry of Foreign Affairs has slowed final resolution of the immigration ban and has not entirely embraced a global health agenda. Similarly, the Ministry of Agriculture, protective of China's huge poultry export industry, is suspected of underreporting cases of avian influenza.

China's Africa health program remains in important respects outdated and weakly tied to measurable health effects. Chinese doctors deployed to Africa are often ill prepared in language skills, their provincial-based funding can be uncertain, their career incentives are weak, and their work is often not integrated effectively into efforts to strengthen health systems. Similarly, the construction of clinics and hospitals is often not integrated into broader plans, the sustainability of such facilities is uncertain, and their long-term effects on health are poorly understood. In the bigger picture, health investments remain a modest corner of China's expanded reach into Africa. Far and away the biggest component is China's massive concessionary financing of non-health-related infrastructure—such as ports, roads, power, and refineries—tied to the future delivery of energy and other commodities. Moreover, far too few reliable data are available on China's health investments in Africa and elsewhere, and there has been minimal cooperation and dialogue with other bilateral and multilateral donors that are active in the health sector.

In Africa, neighboring areas of Asia, and elsewhere, China continues to suffer damage to its reputation from counterfeit and low-quality drugs, and from tainted milk and other food exports. Though private Chinese businesses and networks, generally outside immediate official control, are responsible for these problems, the Chinese government thus far has been ineffectual in curbing them.

During the past decade, China's role as a global health donor has evolved swiftly and in unforeseen and promising directions as the country has been driven by its national interests, crises, and aspirations to become an ethical global superpower. China has helped strengthen WHO, regional bodies, and the Global Fund to Fight AIDS, Tuberculosis, and Malaria; and it has contributed to health capacities in Africa. Yet gaps, weaknesses, and uncertainties are still apparent, along with expanded openings for new partnerships and future innovation.



ABOUT THE CONTRIBUTORS

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Freeman received his J.D. from the Boston University School of Law, where he was an editor of the *Law Review* and graduated with honors. He earned a B.A. in Asian studies concentrating in economics from Tufts University, also with honors. He also studied at Fudan University in Shanghai and at the Taipei Language Institute. A second-generation “China hand,” he grew up between Asia and the United States and speaks Mandarin Chinese.

Yanzhong Huang is associate professor and director of the Center for Global Health Studies at the John C. Whitehead School of Diplomacy and International Relations, Seton Hall University. His research and teaching cover issues of global health governance, health security, and China's health politics. His publications appear in the *Harvard Health Policy Review*, *Harvard Asian Quarterly*, *Survival*, and the *Journal of Contemporary China*. He is completing a book on China's health governance. He is the founding editor of *Global Health Governance* (www.ghgi.org), a peer-reviewed online journal for the new health security paradigm.

Dr. Huang is frequently consulted on global health and China by major media outlets, the private sector, and governmental and nongovernmental organizations. He has testified before the Congressional Executive Committee on SARS, briefed U.S. Senate chiefs of staff on avian flu, and provided consulting services to Foreign Affairs Canada (FAC) on pandemic flu and human secu-

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He is an adjunct professor at Columbia University's School of International and Public Affairs, a term member of the Council on Foreign Relations, a Public Intellectuals Fellow of the National Committee on U.S.-China Relations, and an associate fellow of the Asia Society. He also serves on the advisory boards of Frontier Strategy Group (United States) and China Global Fund Watch (China) and the editorial board of the *International Journal of Healthcare Delivery Reform Initiative*. He was a visiting fellow at the Center for Strategic and International Studies in Washington, D.C., and a visiting senior research fellow at the East Asian Institute, National University of Singapore. He received his Ph.D. degree in political science from the University of Chicago in 2000.

Joan Kaufman, M.A., M.S., Sc.D., is the founding director of the AIDS Public Policy Project at the John F. Kennedy School of Government, Harvard University. She is also lecturer in social medicine at Harvard Medical School and senior scientist at the Heller School for Social Policy and Management at Brandeis University, where she serves as the associate director of the M.S. program in international health policy and management. Dr. Kaufman also works as the China team leader for the International AIDS Vaccine Initiative, a public-private partnership based in New York. She served as the Ford Foundation's reproductive health program officer for China based in Beijing during 1996–2001, supporting policy research, programs, and advocacy with government, NGOs, and academia. Dr. Kaufman was the first international United Nations Population Fund program officer for China from 1980 to 1984, based in Beijing, and has lived in China for more than 10 years and speaks Mandarin. Dr. Kaufman received her doctorate in population and international health from the Harvard School of Public Health, where she taught from 1991 to 1999. She was a Radcliffe Fellow at Harvard University (2001–2002) and a Soros Reproductive Health and Rights Fellow (2005–2006). Dr. Kaufman has published widely on AIDS, gender, international health, emerging infectious diseases, reproductive health, health sector reform, and health governance issues, with a focus on China. Her recent coedited book, *AIDS and Social Policy in China* (Harvard University Asia Center Publications, 2006), examines the current state of China's AIDS epidemic and its policy and program response.

Gordon G. Liu is a professor and founding chair for the Department of Health Economics and Management at Peking University Guanghua School of Management, and director of the China Center for Pharmacoeconomics and Outcomes Research (CCPOR). Prior to his appointment at Peking University, he served as tenured associate professor at the University of North Carolina–Chapel Hill (2000–2006) and assistant professor at the University of Southern California (1994–2000). He received a Ph.D. in economics from the City University of New York's Graduate School under the supervision of Michael Grossman, and did post-doctoral training in health economics at Harvard University with Professor William Hsiao.

Dr. Liu currently serves on the Chinese Ministry of Health's Expert Commission for Emergent Public Health Events and is chair of the Asian Consortium for the International Society for Pharmacoeconomics and Outcomes Research (www.ISPOR.org). He was elected as the 2004–2005 president of the Chinese Economists Society (www.China-CES.org). Dr. Liu serves as coeditor of the ISPOR official journal *Value in Health*, is editor in chief of the *China Journal of Pharmaceutical Economics*, and a member of the editorial boards for the *International Journal of Applied Econom-*

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Yuanli Liu conducts empirical research on health system performance and reform issues. He is the author of more than 70 articles and book chapters on structural analysis of health systems, measurement of medical impoverishment, socioeconomic inequalities in access to essential medicines and healthcare finance, smoking and poverty, and other topics. His recent projects include an international study on the roles of private healthcare providers; a comprehensive assessment of China's health system performance; an intervention study on the impact of rural community medical cooperatives (a consumer-driven healthcare model); a study on major problems of China's medical pricing and payment systems; and an investigation of the impact and feasibility of raising cigarette taxes in China. Dr. Liu's evidence-based policy recommendations, which are published in both English and Chinese, helped inform China's health system reform policy development process, particularly in areas of developing the New Rural Cooperative Medical System, the Medical Assistance Program for the urban poor, portability of social health insurance schemes, and vertical integration of healthcare organizations.

Dr. Liu is the founding director of the HSPH China Initiative, a major effort at the Harvard School of Public Health aimed at advancing health and social development in China through a series of applied research studies, annual senior health executive educational programs, and conferences on social development. He is an adjunct professor at the Health and Development Institute of the Tsinghua University School of Public Policy and Management, and he also serves on the Expert Committee on Health Policy and Management of the Chinese Ministry of Health.

Xiaoqing Lu is a research associate with the Freeman Chair in China Studies, where she works on projects focusing on China's domestic socioeconomic transformation. Her research interests cover China's public health challenges, including the HIV/AIDS epidemic and health care reforms, civil society development, and current trends in U.S.-China bilateral relations. She previously worked at the Woodrow Wilson Center for International Scholars and the Kenan Institute of Private Enterprise-Washington Center. Ms. Lu graduated with an M.A. in sustainable international development from Brandeis University in 2005. Born and raised in China, Ms. Lu worked as a program assistant for the American Bar Association-Asia Law Initiative in Beijing. She received her B.A. in international economics and trade from Beijing Second Foreign Language University.

J. Stephen Morrison joined CSIS in early 2000. He currently directs the new CSIS Global Health Policy Center. Just prior, Dr. Morrison directed the CSIS Africa Program and the CSIS Task Force on HIV/AIDS (begun in 2001), and most recently codirected the CSIS Task Force on Non-traditional Security Assistance and the CSIS Task Force on the Global Food Crisis. In his role as director of the Africa Program, he conducted studies on the United States' rising energy stakes in Africa, counterterrorism, the stand-up of the U.S. Africa Command, and implications for U.S. foreign policy. In 2005-2006, he was codirector of the Council on Foreign Relations Independent Task Force on Africa. Immediately prior to that, he was executive secretary of the Africa Policy

Advisory Panel, commissioned by the U.S. Congress and overseen by then-secretary of state Colin Powell. From 2005 to the present, he has directed multiphase work on China's expansive engagement in Africa. His work on HIV/AIDS and related global health issues has involved multiple missions to China, Russia, India, Vietnam, and Africa and, most recently, a series of focused studies on the President's Emergency Plan for AIDS Relief.

Dr. Morrison writes widely, testifies often before Congress, and is a frequent commentator in major media on U.S. foreign policy, Africa, foreign assistance, and global public health. From 1996 through early 2000, he served on the secretary of state's policy planning staff, where he was responsible for African affairs and global foreign assistance issues. From 1993 to 1995, he conceptualized and launched the Office of Transition Initiatives at the U.S. Agency for International Development, which operates in countries emerging from protracted internal conflict and misrule. From 1992 until mid-1993, he was the U.S. democracy and governance adviser in Ethiopia and Eritrea. In the period 1987 to 1991, he was senior staff member of the House Foreign Affairs Subcommittee on Africa. Dr. Morrison holds a Ph.D. in political science from the University of Wisconsin and is a magna cum laude graduate of Yale College. He has been an adjunct professor at the Johns Hopkins School of Advanced International Studies since 1994 and is a member of the Council on Foreign Relations and the International Institute for Strategic Studies.

Drew Thompson is the director of China studies and Starr Senior Fellow at the Nixon Center in Washington, D.C. Prior to joining the Nixon Center, he was the national director of the China-MSD HIV/AIDS Partnership in Beijing, a five-year, \$30 million HIV/AIDS program established by Merck & Co. and the Chinese Ministry of Health. Mr. Thompson served previously as assistant director to the Freeman Chair in China Studies at the Center for Strategic and International Studies (CSIS). He also was president of a Washington, D.C., company that manufactured snack food in Qingdao, China. He lived in Shanghai from 1993 to 1998 where he was the general manager of a U.S. freight-forwarding and logistics firm, overseeing offices in Beijing, Shanghai, and Nanjing. Mr. Thompson was the founder and chairman of the American Chamber of Commerce Transportation and Logistics Committee in Shanghai and has traveled extensively throughout China in both urban and rural areas.

Mr. Thompson studied Chinese language at Beijing University in 1990 and was a graduate student in 1992 at the Johns Hopkins University Center for Chinese and American Studies in Nanjing, China. He graduated cum laude with a B.A. in Asian studies from Hobart College in 1992 and was elected to Phi Beta Kappa. In 2004, Mr. Thompson received an M.A. in government, with a concentration in homeland security, from the Johns Hopkins University.

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Dr. Tsang joined the Hong Kong Department of Health as a medical and health officer in 1992. His work experience and publications have mainly been on the prevention and control of infectious diseases, including avian influenza A (H5N1) in 1997 and SARS in 2003. Beginning in 2004, he served as a consultant in community medicine with the Centre for Health Protection of the Department of Health. He is currently controller of the Centre for Health Protection.

Janet Vail recently retired from PATH, where she held a wide range of leadership and technical positions in both reproductive health and vaccine programs for almost 25 years. From 2005 through 2007 she served as PATH's representative in China (Beijing), where she provided strategic leadership and supported project implementation for vaccines and immunization, product commercialization, and girls' empowerment programs. In addition to her PATH experience, Ms. Vail served as an international program adviser for the United Nations Population Fund in Beijing from 1985 to 1987. Ms. Vail has published articles on product development, reproductive health product supply, and logistics management. Ms. Vail studied Chinese language at Georgetown University where she graduated with a B.A. in Asian Studies from the School of Foreign Service. She received a Masters in Public Health in population from the University of Pittsburgh.

