Evolution of Health Provision in Pre-SARS China: The Changing Nature of Disease Prevention

Jonathan Schwartz, R. Gregory Evans and Sarah Greenberg

Abstract

A major player on the world stage, China influences nearly all spheres of international interaction. The global community was reminded of this fact in 2003, when Severe Acute Respiratory Syndrome (SARS) became the first epidemic of global scope in the 21st century. The disease, originating in China’s Guangdong Province, spread to over thirty countries, killing more than 800 people while negatively impacting international trade and transportation and inspiring fears of a global pandemic. Following the outbreak, China’s disease prevention and control mechanisms came under fire by international public health experts who had hailed China’s pre-reform health care system as a model for reducing incidences of infectious diseases in developing countries.¹

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In this paper we focus on China’s efforts to address the failures of its health care provision system in the post-reform period preceding the SARS outbreak. We begin by describing the health care provision model under Mao, a model that proved effective at dramatically reducing incidences of infectious disease across China. We then consider the reforms to the health care model following Deng Xiaoping’s initiation of economic policy reforms in 1979. Finally, we evaluate recent Chinese efforts to reform the health care system and the implications arising from these reform efforts in the context of infectious disease outbreaks. We argue that the key weaknesses in China’s efforts to control SARS can be linked to China’s economic liberalisation in the 1980s and the subsequent abandonment of key aspects of the Financial Law, and Maoist health care provision model. Furthermore, we suggest that a streamlined disease prevention and control system, in part modelled on the U.S. Centers for Disease Control and Prevention (CDC) system, is insufficient to tackle the threat of future disease outbreaks.

China’s Health Care System from 1949 to 1979

Between 1949 and 1979, the People’s Republic of China (PRC) achieved broad success in providing basic and preventive health care to its large and widely-spread population. Under Mao’s leadership, the health care model focused on the health care needs of the largely rural peasant base, which were largely a result of occupational hazards of farming and animal husbandry, and inadequate access to potable water, nutritious food and basic environmental sanitation.

The PRC’s health care ideology focused on meeting all residents’ health care needs through preventive care financing schemes. These schemes included directing national health resources to rural areas and pursuing collective preventive health aims through National Patriotic Health Campaigns. The central government also established an extensive health care provision hierarchy to oversee health care and disease prevention services from the national to the county level. These services were funded by central and local governments, and provided by both professional and non-professional health workers.

The Maoist health care model led to substantial improvement in China’s collective health, including a decline in the infant mortality rate from 200 per 1,000 live births in 1949 to 47 per 1,000 live births in 1973, and an increase in life expectancy from 35 to 65 over the same period.
Between 1949 and 1979, the Maoist health care model also effectively reduced incidences of infectious disease, with some eighty percent of the population completing the “epidemiological transition”. Normally occurring only in high income countries, this transition from communicable diseases to chronic diseases as the leading causes of morbidity and mortality, reflected improvements in health care interventions.\(^7\) Notable successes included the eradication of Smallpox by 1960, the fall of Tuberculosis as the leading cause of death in pre-1949 China to the ninth ranked cause of death in 1980, and a reduction in the annual incidence of Schistosomiasis from 32 million cases to only two million over the same time period.\(^8\)

Crucial to Maoist health care successes was the extensive health care provision bureaucracy. The Ministry of Health (MoH) was established as the primary government agency responsible for setting health policy.\(^7\) The MoH operated on a vertical structure paralleling Chinese political administrative divisions from the central to the county level.\(^10\) At each level, a health agency was established that was responsible both to its corresponding level of government and to the public health office at the level above it (Figure 1). The central government established targets for the entire health sector, public health officials devised technical plans for reaching these targets, and local government officials ensured the targets were met.\(^11\) Between 1949 and 1979, this hierarchical network was in large part responsible for implementing the public health initiatives that contributed to the successes achieved throughout the Chinese population.\(^12\)

Epidemic Prevention Stations (EPS) played a major role in the Maoist disease prevention efforts and were fully funded by their corresponding level of government, coming under the administrative aegis of the corresponding level health agency (Figure 1).\(^13\) EPS responsibilities included infectious diseases surveillance and running sanitation, immunisation and health education programmes.\(^14\) County-level EPS, with between three and ten staff members, served as hubs between local service providers and the remainder of the government health bureaucracy. Thus, county-level EPS both organised and supervised the work of rural public health service providers, and also reported up the administrative ladder to provincial-level EPS.\(^15\) The close ties that were encouraged among service providers throughout the public health system ensured that senior professional health workers oversaw and supported the grassroots health services.

The public health system in both rural and urban areas employed non-
Figure 1. The Rural Chinese Disease Prevention System: 1949–1979

Arrows (→) indicate bureaucratic lines of control. Thicker arrows imply stronger relationships. Bureaucratic lines of control may differ for issues other than disease prevention and control. Communes were the lowest level of government. Production Brigades fell under commune administration.
professional health workers to serve as a link between the general population and the professional health care providers. In rural areas, barefoot doctors, with three to six months of health training, staffed the first-tier village clinics. As members of the production brigade, barefoot doctors performed regular agricultural work in addition to their health work. Under EPS supervision, barefoot doctors provided a small package of basic preventive care, including sanitation, immunisation and health education programmes. In urban areas, these responsibilities were borne by Red Medical Workers with one month of health training at second-tier health facilities. These workers provided the first tier of urban care at street health stations.

Professional health workers at second- and third-tier facilities combined curative care with their regular preventive services. In rural areas, second-tier township health centres employed medical workers with three years of medical education beyond high school. In addition to providing preventive services, these workers were responsible for overseeing village clinics, training barefoot doctors and providing technical assistance to village clinics. They also staffed township health centres that housed between ten and twenty beds for inpatient care. The full costs of preventive services provided by these village clinics and township health centres were borne by township governments and village collectives. EPS and county hospitals comprised the third tier of the rural health system. Patients could only access this tier after obtaining referrals from tier I and tier II health workers.

In urban areas the system was less rigid. Patients could directly access tier II or tier III facilities without first obtaining referrals from lower tier providers. Some urban residents received services from outside the public health service system. For example, employees at State Owned Enterprises (SOE) relied on facilities operated by the SOEs. Although outside of the official public health system, SOE facilities nonetheless received technical guidance from provincial and local health departments and operated within the public referral network when medical ailments required care beyond the capacity of the SOE medical facility.

Overall, urban residents enjoyed better health services than their rural counterparts. A two-part financing method, comprised of the Labour Insurance System (LIS) and the Government Insurance System (GIS) guaranteed urban residents access to primary and preventive care. The LIS covered employees of state and collective enterprises and their dependants, while the GIS covered government employees, university students and
army personnel. However, because China’s rural population so disproportionately outnumbered its urban population and were not covered by either the LIS or GIS, the overall outcome was a comparative lack of rural access to health services. While this negatively impacted China’s overall ability to control infectious diseases, this period remains exemplary in terms of overall health service provision.\(^{30}\)

The Maoist unified public health system structure ensured professional oversight of grassroots health workers and consistency in public health policies from the central to grassroots level. This unified structure also facilitated implementation of collectively beneficial public health programmes. Thus, when the State identified health risks and disease threats, service providers and public health administrators were able to reallocate medical resources, relocate medical personnel and requisition public health funds to strengthen disease prevention and control.\(^{31}\)

As noted, in addition to ensuring that public health initiatives were coordinated at all levels, the central government enabled wide access to the system by providing essential financing. The central government also controlled the costs of health care provision. It achieved this by employing non-professional health workers to provide basic preventive care and by setting price caps on most services.\(^{32}\) The centre also ensured that it was not responsible for financing all costs. Indeed, as discussed below, the rural sectors, communal farm production teams and the communes also contributed.

By 1966, the Cooperative Medical System (CMS) became the most widely employed rural preventive care financing scheme, covering over ninety percent of the rural population.\(^{33}\) Under the CMS, farm production teams maintained a collective fund to support members’ health expenses. This fund was further supplemented with a commune-level welfare fund and contributions from the central government via the provinces. Finally, peasants were required to contribute an annual fee of between four and eight yuan per person, between 0.5 and 2 percent of an average peasant family’s annual income.\(^{34}\)

When accessing first-tier medical services, users were also required to pay a nominal user fee.\(^{35}\) The goal was to discourage patients from overusing medical services and thus driving up costs. However, when necessary, a patient could advance to second- or third-tier facilities where the CMS often covered up to 50 percent of the costs, with the remainder covered by the state and the individual.\(^{36}\) In addition to enabling peasant access to health services, the rural CMS helped unify the public health
system, ensured that salaries and training were provided to barefoot doctors, and strengthened ties between the health provision tiers.\(^{37}\) The financial connection gave government officials incentives to monitor health care practices and control health service prices.

While it should be viewed as largely successful, the CMS did have its flaws. Above all, the system could not ensure equal quality of care among regions. The size of each commune’s welfare fund (the main CMS funding source) varied with the wealth of the commune and by extension, its ability to contribute funds.\(^{38}\) Thus, in many poorer communes, welfare funds were insufficient to fully finance health services. Furthermore, in poorer communes, members were often unable to pay the minimum user fee. This combination invariably resulted in care inferior to that available in wealthy communes.\(^{39}\)

To summarise, between 1949 and 1979, the PRC successfully provided public health with a preventive care focus. By organising public health service provision in a hierarchical system, employing both professional and non-professional health workers, and enabling almost universal access to the system through rural and urban preventive care financing schemes, the Maoist public health system achieved major successes in providing preventive care. The extent of these successes was such that international public health experts characterised the Maoist public health model as an effective option for providing health and preventive care in developing countries.\(^{40}\)

**A Changed Public Health Model**

In 1979, Deng Xiaoping initiated major economic and ideological reforms with the result that, in addition to national security, the creation of wealth became the top government priority.\(^{41}\) In the spheres of health care and infectious disease control, the central government initiated policies that shifted funding from public health services to modernising and professionalising health care services via market forces.\(^{42}\) This shift has had an immense impact on all aspects of Chinese public health service provision.

In nominal terms, funding for Epidemic Prevention Services increased since 1986. However, the increase is misleading and failed to result in improved services (Table 1). There are a number of reasons why the additional funding did not result in improved services. First, as a percentage of GDP, state funding for EPS declined from 0.11 percent in
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1978 to 0.04 percent in 1993 (Table 1).43 Second, the value of that funding was eroded by the high inflation rates of the 1980s.

Third, lacking the resources to compensate for declines in the real value of central funding, local governments were forced to reduce preventive health funding. For example, once fully-funded health centre services, salaries and capital costs saw cuts in funding from local government to only 60 percent of previous levels, with any additional funding deriving from user fees.44 With real salaries declining, county and township EPS as well as Health Centres turned to user fees to generate additional revenue. As salaries became increasingly based on independently generated income, doctors began shifting their focus to services such as high user fee-curative care and drug prescriptions.

Fourth, financially independent doctors, because they no longer depended solely on shrinking state salaries, grew less sensitive to EPS requirements, with the result that coordination among EPS, Township health centres and village doctors weakened and ancillary preventive services (e.g. immunisation of rural populations) declined in both number and quality.45 Ultimately, loss of central government funding contributed to a breakdown of the public health system (Figure 2).46 Funding from local governments was no longer sufficient to cover the salaries of barefoot doctors, forcing many of them to return to full-time agricultural work. Very quickly, peasants found themselves with deteriorating basic and preventive care, and without a crucial point of entry into the health system.

Another factor contributing to the breakdown of the preventive care system was the rise of competition between formerly cooperating health

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Table 1. Financing of the Epidemic Prevention Services

<table>
<thead>
<tr>
<th>Year</th>
<th>Public Financing</th>
<th>EPS Revenue From User Fees</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>EPS Budget (1993 Billion Yuan)</td>
<td>EPS Budget Per Capita (Yuan)</td>
</tr>
<tr>
<td>1978</td>
<td>0.94</td>
<td>1.0</td>
</tr>
<tr>
<td>1982</td>
<td>1.13</td>
<td>1.1</td>
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<td>1986</td>
<td>1.54</td>
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<tr>
<td>1990</td>
<td>1.58</td>
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<td>1993</td>
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<td>1.3</td>
</tr>
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Dashed arrows (---) indicate weakened relationship since 1979 reforms.
care institutions. In 1980, private medical practices were made legal for the first time. These newly-opened private practices could charge higher service fees, with the result that over the next decade almost half the village health service providers privatised. Health care institutions no longer operated within the vertical referral network and wealthier rural peasants began to bypass village clinics and township health centres, going directly to county level hospitals for more sophisticated care (Figure 2). Concomitantly, poorer rural residents faced greater difficulties accessing even basic care.

As a result of the decentralisation of the government and the decline in government funding, public health service providers were forced to focus on profitability. To create revenue, providers began to promote profitable services such as diagnostic testing and prescription drug sales, even when not medically essential, leading to ballooning care provision costs. Service providers also began charging fees for preventive services once funded by the State. In areas where fees are charged for immunisations, coverage rates declined, indicating the economic barriers to preventive health service that such fees represent.

Universal access to care was further compromised because the commune system, and with it the funding by communes of rural cooperative medical systems, was disbanded. Between the late 1970s and late 1990s, rural CMS coverage dropped from 90 percent to an estimated 10 percent of the rural population. In the urban areas, health coverage declined as well. This decline was largely due to newly emerging cohorts such as the urban unemployed and employees of private companies, who fell outside of the LIS and GIS targeted demographic. Urban residents now had to pay for health services previously covered by health insurance programmes.

User fees created a financial barrier that prevented the most vulnerable segments of the population from accessing preventive and basic care. Thus, due to reforms, willingness to turn to the health care system continued to decline, even as the number of rural households driven below the poverty line by out-of-pocket medical expenses increased by 44.3 percent. Ultimately—and as seen in declining immunisation rates—the focus on generating revenue shifted the health provision focus away from preventive care initiatives, including collective goals, such as sanitation and health education campaigns. The new focus was on curing disease, which is more profitable for the care provider.

An additional result of the reforms has been lower rural admissions
among people requiring care. Lowered hospitalisation rates should alarm public health officials. Those most vulnerable to disease are generally the most unable to afford health care and least likely to seek health care when ill. If people contract communicable diseases and fail to seek care, they contribute to the spread of diseases that may overwhelm the health system.

**Pre-SARS Efforts to Strengthen Disease Prevention and Surveillance (Mid-1980s–2002)**

The central government realisation that it could not adequately respond to the threat of infectious disease outbreaks following the 1979 economic reforms led to renewed efforts to improve public health services. The central government has focused on developing new preventive care financing schemes for rural residents to ensure that the large majority has access to basic preventive services. The central government has also begun to restructure the Epidemic Prevention Services network to better report and prevent infectious disease outbreaks. A key goal of these government efforts is to better inform Ministry of Health policies by improving the collection of health statistics at all levels. These efforts have met with varying degrees of success.

In an additional effort to improve health services, the central government has increased pressure on local governments to revive rural preventive care financing schemes. Often, these schemes resemble the Mao-era CMS in which individuals, local governments and local industries contributed to a collective fund that could be drawn upon for health care costs, including prevention. However, this initiative has received no funding from the central government. As a result, high-income rural areas often respond positively, establishing new financing schemes, while middle- and low-income areas are more likely not to. It has become apparent that without central government funding, poorer rural governments are unlikely to be able to implement the preventive care financing schemes.

Aware of these problems, the central government took additional steps to increase access to preventive care through prepaid immunisation programmes, often targeting children. One such programme requires households with children under the age of seven to pay between 2 and 4 yuan per child per year for a basic immunisation package. The revenue generated by this programme is split between the village clinic, township health centre and county EPS. In the event of an infectious disease
outbreak, treatment costs are also covered by the three parties. Although by 1997 the Ministry of Health reported childhood immunisation rates for measles of more than 85 percent, by 2002, the rate of childhood measles immunisations had dropped to 65 percent. This outcome indicates that the childhood disease prevention schemes were inadequate.

In addition to pressuring local governments to extend preventive-care financing schemes, the central government has sought public health system reform to better guard against infectious disease outbreaks. In 1998 US and Chinese health officials began a collaborative effort to modify China’s Epidemic Prevention Services to enhance disease surveillance and reporting. Modelled on the United States Centers for Disease Control and Prevention (US CDC), the Chinese system emphasised disease prevention through laboratory science, disease surveillance and education.

These efforts began in Shanghai at the behest of the Shanghai Municipal Health Bureau. The goal was to better address Shanghai’s changing health demographic in which declines in the outbreak of infectious diseases resulted in increased life expectancy but also a rising prevalence of new diseases, such as HIV/AIDS that were fast becoming the dominant threat. An important result of the China-US cooperation was increased efficiency in Shanghai’s public health resource management. In 2002, four years after the establishment of the Shanghai CDC, the system was extended throughout the country.

On 23 January 2002, the Chinese Academy of Preventive Medicine formally changed its name to the National Centre for Disease Control (National CDC). Whereas the Ministry of Health serves primarily as an administrative body, the National CDC is responsible for epidemiological research, clinical preventive health research, formulating technical control and prevention plans for specific diseases, and managing environmental, maternal and children health policy and occupational health programmes. The mandate of the National CDC is to better inform central health policy by efficiently collecting national health information, strengthening emergency response mechanisms and improving preventive care service provision. This new public health structure serves to strengthen communication and cooperation among existing institutions, including Epidemic Prevention Stations, under the administrative control of China’s MoH. The MoH coordinates the 3,500 to 4,000 provincial, regional, municipal and county CDCs in China. These local CDCs function at various levels of government within the relevant departments and bureaus of health (Figure 3).
In theory, the new disease prevention system should enable China to strengthen the connections among the various components of the health system and refocus its health protection efforts on preventive care. However, as of late 2002 when SARS broke out, the shift to a more preventive health care approach had yet to occur. Contributing to the failure to make the shift are inadequate information collection procedures, outdated health legislation and fragmentation of authority among public health and government bureaucrats. Thus, even though the central government began referring to local EPSs as local CDCs in government publications, the EPSs continued to function as they had before, failing to incorporate their new responsibilities. As a result, preventive care remained secondary to curative care, and service providers continued to fail to cooperate, especially in information reporting procedures.

Epidemiological information is vital to the success of a public health system. To conduct successful epidemiological studies at the national level, mortality and morbidity data from across China are required. However, China’s disease and health indicator reporting network is inadequate to collect such information. Although inadequate computer technology complicates data collection, a key problem lies in failures at horizontal and vertical information collection and distribution (Figure 3).

Thus, county-level CDCs (essentially, the Epidemic Prevention Stations) are required to collect infectious disease information from county, township and village-level service providers and pass the information to higher-ranking local CDCs (EPS). However, this procedure is complicated by the fact that many service providers are outside the public health system, either as private providers or as part of the independent military or SOE-administrations. When county level CDCs do collect information, instead of reporting up the administrative ladder to municipal or provincial level CDCs, they tend to report solely to their county health departments. The county health departments are controlled by county governments. Officials at the county health bureaus face numerous disincentives when reporting health data to their superiors in the public health bureaucracy, including threats to their advancement within the Party and government should the public health officials make negative reports. Although the CDC system potentially represents movement forward in the effort to prevent and control infectious diseases, information reporting is dictated by outdated legislation.

In response to these weaknesses, and after infectious disease outbreaks in Xinjiang and Shanghai, the central government adopted the 1989 ‘Law
Figure 3. The Rural Chinese Disease Prevention System Projected Structure after the Transition to a CDC System

Arrows (→) indicate bureaucratic lines of control. Thickness of arrow implies strength of relationship. Dashed arrows (---) indicate weakened relationship since 1979 reforms. Grey arrows (→) indicate bureaucratic lines of control strengthened by the shift to the CDC system.
of the People’s Republic of China on the Prevention and Treatment of Infectious Diseases” at the Seventh National People’s Congress. During the SARS outbreak, this law was the primary legal document directing government health system responses and reporting procedures. Although the law clarifies the disease reporting sequence among health care providers, Epidemic Prevention Stations (now local CDCs), health bureaus and local governments, it applies only to diseases legally defined as infectious and has little bearing on new diseases. It also fails to regulate information-sharing practices within the public health system. As a result, there continues to be little legal incentive for service providers to better share information that could be used to prevent and control infectious disease outbreaks.

The CDC system that began replacing the EPS system in 2002 also fails to correct the fragmentation of authority within the health system. The CDC system remains within the Ministry of Health (MoH), meaning that it cannot independently formulate national health policy. However, the Ministry of Health is “bureaucratically weak”. Indeed, until the SARS outbreak, the MoH minister was not a powerful member of government and was forced to vie with other, often more powerful ministers for funding and personnel. Although shifting preventive services control to the China CDC does, in theory, strengthen the EPS/CDC system, the restructuring effort has yet to yield these results. The vague public health bureaucratic lines of control, fragmented structure of authority and unclear disease-reporting procedures continue to impede efforts to develop and implement collectively beneficial public health policies.

Another problem constraining disease control efforts is that creation of the CDC has failed to improve or even alter disease prevention services. Thus, despite a central government commitment of roughly 3.5 billion yuan to strengthen the CDC system, these funds have proven insufficient to ensure CDC financial independence from user fees. In 2002, local CDCs remained dependent on user fees for roughly 57 percent of their revenue. As noted, user fees constitute a barrier to preventive care access by poorer residents, thereby contributing to unequal care.

Furthermore, we can anticipate existing inequalities among socio-economic and geographic regions will grow. This is because, unlike their Epidemic Prevention Stations predecessors, local CDCs do not rely on the government for staffing. Local CDC staff are attracted by high salaries and bonuses. These derive largely from revenue generated by user fees. Local CDCs in wealthier areas are able to offer higher salaries and larger
bonuses, and will therefore most likely attract higher quality staff. Concomitantly, we can anticipate that disease prevention in poorer and rural areas will become weaker, thus deepening the rich-poor, urban-rural divide within the health system. This bodes ill for disease prevention, as poor, rural areas are those most susceptible to health risks and are thus most in need of a strong disease prevention and surveillance system.

**Recommendations to Strengthen Disease Prevention**

Although China’s public health services have undergone profound and potentially damaging changes during the reform era, health indicators for the population have not revealed a decline. In fact, infant mortality rates and life expectancy continue to improve. However, these improvements mask serious and growing problems. Chief among these, the vast low-income segments of society have fewer resources to invest in increasingly expensive preventive and curative medical care. As a result, these segments are increasingly vulnerable to general illnesses and to the outbreak of infectious diseases. Drawing on a 2003 MoH survey, Banister and Hill support this assertion by identifying a half-year decline in life expectancy masked by improved access to quantities of higher quality food, declining poverty, increased household consumption, better education and literacy, better water supplies and greater access to medications. They argue that survival gains “would have been even greater if the public health and medical system had been functioning adequately”. The resurgence of, or failure of previously controlled communicable diseases such as Hepatitis, TB and STDs to further decline, testifies to the renewed growth of this vulnerability. The 2002–2003 SARS outbreak is suggestive of the weaknesses of China’s disease prevention capacity which could have potentially resulted in a severe epidemic.

The CDC system in general reflects a Chinese effort to address the weaknesses of its disease surveillance and control mechanisms. At the national level, the National CDC has adopted a US CDC model. The National CDC provides advice to local CDCs, policy recommendations to the MoH, nationwide surveillance, educational material and laboratory capacity. While these are highly beneficial services, it is at the local level that further work needs to be done. Future improvements to local CDCs will be greatly enhanced if administrators look to the successes achieved under the Maoist health care provision model. First, the local CDC
system should shift to a prevention-based health care system offering free preventive services to those most vulnerable to health risks. This initiative will require centrally mandated and funded preventive care schemes at all bureaucratic levels. The central government must also provide financial support to local governments that lack the resources and capabilities to support such schemes. Employing grassroots non-professional health workers with basic training and only limited responsibilities would help control the costs of providing preventive services.

In addition to enabling access to preventive care, the PRC must rework legislation to strengthen disease reporting procedures. Bureaucratic lines of control must be strengthened between government health agencies, local CDCs and service providers (Figure 3). Lines of control and information reporting must also be strengthened to ensure that information reaches the national level China CDC, and informs central MoH policies. Only with accurate information will the MoH be able to formulate effective disease prevention policies.

The new local CDC system offers an opportunity for positive change through strengthened disease prevention. However, unless China’s disease prevention system is able to fully transition to a local CDC model where information flows freely up the administrative chain, disease prevention service provision is better financed and bureaucratic antagonism is overcome, it is unlikely that extensive improvements in disease prevention and control will be achieved.

We recognise that, in the current era of decentralisation and declining state funding, these recommendations will be difficult to achieve. A key component for success is clear, repeated and concrete commitment by the central leadership. Given the numerous priorities and limited resources available to local governments, only by publicly placing a high priority on disease prevention and control will the central leadership ensure that this issue must be prioritised.

Another important source for success is international collaboration. In 2002, with the support of the WHO, the World Bank and the UK Department for International Development, the Chinese government began establishing rural Cooperative Medical Care Systems that divide responsibility for health coverage among individuals, the central government and the local governments. While this project has encountered problems, it represents a recognition by local governments, the central government and international actors of the importance of identifying creative and cooperative ways to revive government supported health care provision.
Conclusion

Recognising the weaknesses of the post-1979 reform of the public health system, the Chinese central government has attempted to redress deficiencies in service provision through preventive care financing reform and the creation of a CDC system. However, the legislation directing public health operating procedures is vague, and the creation of the CDC system has not remedied the problems of inequality of access and quality of care, nor strengthened protection against infectious disease in vulnerable areas. Of greatest concern is that certain segments of the Chinese population are losing access to public health services because of reform-era financial barriers.

As is apparent from the SARS outbreak and the appearance of Avian Influenza, the potential for infectious disease epidemics is real and present. The tools available to the Chinese public health system are not currently organised in a manner that enables effective responses to this type of public health challenge. In order to address the weaknesses within the disease prevention system, the PRC should revive certain elements of the 1949–79 public health model. Specifically, the central government must take greater initiative in enabling widespread access to preventive care. Unless the central government redresses growing inequality of access to care and of quality of care, while facilitating better communication among public health entities, it is unlikely that current reforms will adequately protect China from future disease outbreaks.

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Notes


4. Sidel and Sidel, pp. 4, 38. Teh-wei Hu, “An Economic Analysis of the Cooperative Medical Services in the People’s Republic of China”, (John E. Fogarty International Centre for Advanced Study in the Health Sciences, 1975), pp. 12, 23. These campaigns were part of the Maoist mass mobilisation approach to achieving policy goals such as dam building and field preparation. During this era, Mao exhorted the people to sacrifice their individual needs to the needs of the larger community. This ideologically driven approach was, overall, highly successful.

5. The services provided by these non-professional health workers are discussed later in the article.


8. Jamison, pp. 18, 129, 133.


24. Liu and Mills, p. 1692. Funds were transferred from the Centre.


26. Liu et al., p. 1086


28. Jamison, p. 43. The Peoples’ Liberation Army also operated a network of military hospitals outside of the administration of the Ministry of Health. However, unlike SOE facilities, there was little interaction between military and public health service providers.


34. Liu, Rao and Hu, p. 7.

35. Sidel and Sidel, p. 47.

36. Some CMS provided a set amount. These fixed contributions ranged between 30 and 200 yuan. Hu, p. 21. According to the World Bank (China 2020, p. 19), CMS contributions declined from 20 percent to 2 percent (1978–93); Central government funding declined 32 percent to 14 percent (1986–93); and patient out-of-pocket contributions increased from 20 percent to 42 percent (1978–93).

37. Feng, p. 1114.

38. Sidel and Sidel, p. 47.
39. Sidel and Sidel, p. 47. Sidel and Sidel suggest that the reason CMS coverage did not reach 100 percent was because, in the most financially vulnerable communes, members would have been unable to pay the minimum premiums.


44. Liu and Mills, p. 1692. Hsiao, “Lessons”, p. 1048. This is further exacerbated by the rising cost of service provision.

45. World Bank (1997), pp. 28–29. While overall user-fees steadily increased, the increase was uneven between poor and wealthy regions.


47. Bloom and Gu, p. 353.


50. Liu and Mills, p. 1695. In Shandong, for example, after charges for immunizations were introduced, coverage rates dropped from 75 percent to 39 percent over seven years.


52. Duckett “State”, p. 162.

53. Liu, Rao and Hu, p. 20. This occurred between 1993–98.

54. Liu and Mills, p. 1695.


57. The central government began work to improve the public health network in the mid-1980s (Duckett, pp. 160–161). Through the 1998 National Programme, the central government aimed to reform and extend urban preventive financing. A discussion of these initiatives is beyond the scope of this paper. For more information, see Jane Duckett, “State”, pp. 155–173.

Little information has been published about this recent dramatic decline in childhood immunisation coverage rates. More research on this topic is needed.


76. To fall under the purview of this law, the disease must be recognised and defined as an infectious disease under the law. The law stipulates this process. New diseases that have not been recognised are not covered by the law. See Chapters I and III of the 1989 Infectious Disease Law of the PRC.

77. “Apparent”, p. 5.


79. Huang, “Dangerous”, p. 35. On 20 May 2003, Ms. Wu Yi, a vice premier member of the Politburo and key negotiator in China’s accession to the WTO, was appointed Minister of Health. This greatly increased the prestige and power of the ministry.


82. Liu and Mills, p. 1695.


85. Huang, “Mortal”, p. 22.

86. Of great concern is the unequal distribution of economic benefits resulting in rising income inequality as measured by the Gini coefficient. According to this measure, inequality has risen steadily between 1980 and 2002. “Upbeat in China”, The Australian National University, http://www.aseanfocus.com/asiananalysis/article.cfm?articleID=602. Accessed 1 August 2004. The Gini coefficient is a measure of income disparity, in which 0 is perfect equality and 1 is perfect inequality. From 1980 to 2002 China’s Gini coefficient rose from 0.33 to 0.45.

87. Banister and Hill, p. 68.
89. The Maoist model included high health coverage rates, broad accessibility to
treatment and a focus on preventive care. This view is shared by Huang in
*China Special Report* No. 7 (pp. 23, 24); Marcel Roux, head of the China
mission of Doctors without Borders in Antaoaneta Bezlova, “Health China:
Ailing Rural Care Raises Risk of Epidemics” (Inter Press Service, 15 October
Intellectual, Legal and Governmental Reforms* (Armonk: M. E. Sharpe, 1999),