Health care systems in transition: People's Republic of China
Part I: An overview of China's health care system

Sheila Hillier and Jie Shen

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Background

For the first 30 years of its existence the People's Republic of China possessed a centrally directed health care system that produced impressive health gains. Despite few resources the world's most populous nation has seen increased life expectancy for most of its population, dramatically reduced infant mortality and eradicated or controlled a range of infectious and parasitic diseases. These changes have been achieved by emphasizing prevention, organizing innovative, low-cost, locally controlled health services and promoting accessible primary health care in rural areas. After 1948, a strong programme involving the development of health services in towns and rural areas and emphasizing the growth of preventive services, was put in place. This programme was geared towards the eradication of parasitic and infectious diseases and the establishment of hospitals and rural clinics, and continued to develop, with varying rates of progress, throughout the 1950s and the early 1960s. In the mid-1960s, during the Cultural Revolution, policy objectives switched firmly towards the need to establish and improve rural health care. As a result, some medical staff were transferred from urban to rural areas, and together with schemes for the training of barefoot doctors, the rudiments of a rural health care system were set up. Although it could never be argued that the system was comprehensive or of high quality, it was certainly the continued expression of a policy objective to expand health care in rural areas, as part of socialist political objectives.

Since 1978, however, China's leadership has taken a new developmental path and the chosen route to economic transformation uses the market rather than central direction and planning as a means of economic growth. These macro-economic changes have, in turn, produced major effects on the organization and financing of health services. It is fair to say that after more than a decade of economic and agricultural reform, China is still facing difficulties in providing good-quality, affordable and equitable health services for the majority of the rural population and both urban and rural poor.

The purpose of China's economic reforms was to end disruption and stagnation in industry and agriculture. Added to the endemic problem of low productivity was the Cultural Revolution's legacy of fiscal and administrative confusion. Therefore the communal system of agriculture was dissolved and replaced by a production system based on individual households that were contracted to produce grain for the state at fixed quotas and sell their surplus production on the open market. Many previously state-owned industrial enterprises became independent and responsible for their own profits and losses. Capital investment was increased and the emphasis on economic growth became paramount. The results were impressive. Grain output trebled initially, although this has slowed in the 1990s. Industrial growth has also been considerable, although much inefficiency remains. Foreign investment in China has increased by 30 per
cent\(^1\) and foreign trade has expanded. Significant gains have been made, with a doubling of per capita income and consumption.\(^4\) Overall, the estimated proportion of the population in absolute poverty has been reduced from one-third to one-tenth during the first 7 years of the agricultural reforms.\(^5\) Although this was followed by a slight increase in poverty during the second half of the 1980s, the overall percentage of people living in poverty, estimated at 9 per cent, is extremely low by the general standards of developing countries. Poverty and ill health are linked in two important ways. Although ill health is greater among the poor, it is also clear that in the absence of a publicly funded system, the need to pay for health care considerably exacerbates poverty in China at present.

**Structure of government and the health care system**

To understand the current organization of health care and the changes which have occurred, some description of government structures is necessary. The State Council is the premier governmental body which is responsible for national policies regarding China’s 22 provinces, three municipalities and five autonomous regions. It has direct jurisdiction over them. Relations between the State Council and the provinces fluctuate, although usually the centre remains dominant. Since the mid-1980s, however, a degree of fiscal decentralization has occurred and provinces have had more control over their budgets. The State Council itself remains heavily influenced by the Communist Party, and the latter retains a structure which parallels the organs of government from the central to local level. The extent and force of party control is a matter of debate in China but there is no doubt that its power remains paramount.\(^6\)

Directly below the provincial government is the county government. Boundary changes and urbanization have meant that the number of counties fluctuates slightly, but current estimates place the number at around 2000. A corresponding urban structure is the prefecture or city government. The latter is a development of the 1980s and represents the need to promote more efficient administration for large urban centres by separating their government from that of the province. The county exercises supervision over the tier below, which is the township. Independent township governments are also a product of administrative reform and have replaced the communes. The basic administrative unit and the lowest in the hierarchy is the village.

The population and number of units supervised by each level varies. China’s population is currently estimated at around 1.2 billion, 80 per cent of whom are classified as living in rural areas. Provincial population densities range from 1.9 million in Tibet to 100 million in Sichuan. On average, provinces contain about 70 counties each with an average population of 350,000. An average county will comprise around 25 townships, each with an average of 16,000 inhabitants. A township controls about 14 villages; the average population of the villages ranges from a hundred to several thousand inhabitants. There are about 50,000 townships and about 700,000 villages in China.

The health care system replicates, to some extent, the structure described above. A system known as ‘dual control’ exists — horizontal control by the government unit and line management by the professional health unit. Each tier, down to county level, has a Department of Public Health. The Ministry of Public Health is at the apex of the pyramid and is accountable to the State Council. The Ministry holds a central budget and directly controls and finances medical schools, some hospitals and specialized research institutions. Through special agencies it co-ordinates task forces concerned with the eradication of infectious and parasitic disease and the support of maternal and child health; these agencies are, however, usually administered locally. The Ministry has a relatively small capital building programme.

At the provincial or municipal level there are 500–700-bedded hospitals; richer provinces and municipalities may have several of these. Also at this level, centres operate which are involved with maternal and child health, maintain pharmaceutical standards and are involved with the containment of epidemics. The provincial capital will usually have a university or middle-rank medical school and other institutions involved with training health care professionals. At the county level, the public health department manages one or more county hospitals and a traditional Chinese medicine hospital. In addition, there is an agency involved with maternal and child health at county level and an agency for the containment of epidemics. Smaller county health schools, for training rural doctors, also exist. A township generally has a small 30-bedded hospital staffed by doctors who have been trained at middle-rank medical schools. At the village level, however, the small village clinic will be staffed by one or two village health workers. These were previously known as ‘barefoot doctors’ and are now called ‘rural doctors’ if they are licensed. They generally provide health care on a fee-for-service basis.

Health institutions at provincial, municipal and city prefecture level are usually called ‘urban’ in China, and those at county level or below are referred to as ‘rural’, even though they may be located in a county town or
local township. There is a three-level network of county-township-village health units, which has been designed to act as a referral chain from primary to secondary care and a means of technical assistance from county health departments to the villages. In 1990, 2256 county hospitals existed, or more than one hospital per county. At the same time, 47 000 township hospitals existed, covering 88 per cent of townships, and 638 580 village clinics covered 87 per cent of all villages. Municipal departments are similarly linked to district hospitals and sub-district health centres in the urban system.

Government health structures are, however, not the only institutions involved in health care delivery (Fig. 1). The People's Liberation Army runs its own medical schools and hospitals. Some large state-owned industries, such as the railways, possess their own hospitals and in some cases medical schools. These hospitals and schools are under the control of their respective ministries not the Ministry of Public Health. Almost one-third of hospitals are in the private sector, with many businesses in the larger urban centres owning their own hospitals. There is also a growing number of privately owned and financed hospitals and clinics which are run as profit-making enterprises. Whereas China's health care system of the 1970s was fixed, bureaucratically organized and relatively easy to describe, that of the 1990s comprises a set of changing structures which responds more to the dynamics of the market than the imperatives of health need or planning. In this new system, the supply and demand for health care is predicated on people's ability to pay. As the majority of the health care facilities are historically based in towns and cities, this has produced a further skewing of resources towards those areas where incomes are greater, or where widespread insurance cover exists.

Features of change 1978–1990

The macro-economic policies that have transformed China give economic growth a higher priority than redistribution of wealth. The restraints of a planned economy were removed. In the early 1980s this meant that the health budget, as an aspect of social welfare rather than of economic productivity, was restrained to assist capital accumulation for economic growth. This produced an emphasis on 'cost recovery' and an attempt to limit waste and overspending. 'Cost recovery' in this context refers to health services which should be provided at or above cost. Two measures used to achieve this were financial decentralization of budgets from the central to provincial governments, which began in 1979, and reform in the

![FIGURE 1 Overview of the corresponding governmental and health care system tiers in China.](https://academic.oup.com/jpubhealth/article-abstract/18/3/258/1528728)
management of hospitals, first promulgated in a State Council document in 1983. Hospitals were expected to avoid losses, staff would earn bonuses for extra work and profits could be reinvested. The hope was that both direct (health budget) demands and indirect (government and labour insurance) demands would be reduced by better controls, operating mainly, but not exclusively, in the secondary and tertiary sectors. These controls included the introduction of a more realistic pricing system, reduction of administrative staff, removal of welfare benefits to hospital staff (e.g. free or low-rent housing) and a ceiling on hospital budgets.

In primary care – particularly in the rural areas – the economic impact of agricultural reforms occurred almost immediately. The co-operative medical system (CMS – hezuo yiliao – a form of collective medical insurance in villages) collapsed as soon as the collective commune organization, which had supported it, was dissolved. When the CMS had been introduced in the early 1970s it covered nearly 75 per cent of the population in 90 per cent of villages; by the mid-1980s only 6 per cent of villages retained a CMS scheme. Although schemes varied, families were usually asked to contribute about 2 per cent of their annual income, which was matched with money from the village’s welfare fund. The village’s welfare fund consisted of monies retained by village administrators previously called ‘brigade cadres’ – from the accumulated income of the village. When households became independent rather than collective producers under the agricultural reforms, they ceased to pay into the CMS and thus the assistance with payment of medical expenses and support of the village health station stopped as well. Although the CMS was often in deficit and had been declining in popularity, it supported basic-level health services in the villages at relatively low cost. In particular, it contributed to the salaries of barefoot doctors. Its decline meant that these health workers left their jobs or turned to private practice. Village health stations closed, with a 14 per cent decline between 1980 and 1990. Mostly, however, basic-level health services changed in character: health stations became fee-for-service organizations and the vertical links of training, expertise and financial control with more complex secondary units (the ‘three-level network’) were weakened.

Both central and provincial governments took active steps to introduce cost-recovery and hospital reforms. They came as part of a package of health policies which included increasing the number of hospital beds to keep pace with the rising population, improving training for rural doctors and the maintenance of national preventive programmes. Problems in rural health care, on the other hand, were neglected as health agencies at all levels were unable to confront or anticipate the suddenness of change.

Any future activity in rural health care had to be embedded in a market philosophy. In 1985, a State Council document set out regulations which allowed for ‘diversity of provision’ in health care, licensed private practice and promoted a multiplicity of types of ownership and methods of payment for health care. It produced ‘rulings in principle’ for provision and payment in both urban and rural areas and set an official seal on market operations in health care. In 1986, the seventh five-year plan, 1986–1991, confirmed a commitment to ‘multiple forms’ of health care delivery. Although acknowledging a need to develop rural health services, these were not given priority, despite the fact that the number of village doctors in 1987 had fallen to less than half the number of barefoot doctors in 1975. It was thought that rising rural incomes would eventually promote a flourishing market in health care, but it was already clear that rural health care was disastrously affected by the reforms.

Impact of the reforms on health status and health care delivery

Although good population health is determined not just by health care provision but also by the eradication of poverty, improved education and redistributive social and economic policies, it is widely acknowledged that the health gains in China up to 1978 were greatly influenced by large-scale preventive health services and accessible primary health care. Together, these factors produced results which outstripped those of countries at a similar stage of economic development. Since the reforms, broad-brush health indicators, such as infant mortality rates and life expectancy, have improved slightly, although these trends mask rural–urban and intra-rural inequalities. The infant mortality rate in 1981 was approximately 40 per 1000. In the 1990s it had fallen to 31 per 1000, though rates were 68 per 1000 in some poor rural areas and 43 per cent of China’s counties still have an infant mortality rate of 50 per 1000 or over. Reductions in infant mortality in the poorest counties were observed between 1982 and 1987, but under-reporting of deaths may have contributed to this reduction. Average life expectancy remains at 69 years for men and 71 for women.

Evidence from case studies of villages suggests that the disintegration of primary health care services has affected primary preventive work, which, before the reforms, was carried out free of charge by barefoot doctors. Childhood immunization programmes were rescued by a major UNICEF initiative in 1984 but
increases in cases of poliomyelitis were reported up to 1989. According to a 1987 survey, five provinces failed to reach their immunization targets. Although spending on government-sponsored programmes went up in real terms, funds were still inadequate. Other agencies, previously involved in preventive work, were unable to function within the framework of cost recovery. Faced with a choice, hospitals – especially at township level – could earn revenue more readily from curative services.

A decline in reported morbidity from 35 infectious diseases from 875 per 1000 in 1985 to 339 per 1000 in 1989 must be treated cautiously because of under-reporting by village health workers. This occurred either because of lack of staff or because village doctors were otherwise engaged in more lucrative private practice. Earlier gains in infectious disease control were reversed in the 1980s. Particularly noteworthy was the increase in areas infested by snails – vectors for schistosomiasis – by the end of the decade.

Effects on health status have been mixed, but the clear link between economic policies in health and the decline of preventive services has resulted in a threat to China's preventive health programmes. The situation has not been assisted by the recent introduction of charges for immunization and some limited health insurance requirements for preventive services. It is unlikely that these can add significantly to the funding of a preventive programme, which at present consumes only 2 per cent of total health costs and only 15 per cent of the Ministry of Public Health's budget.

Although cost containment was not the major aim of the health service reforms, which were concentrated more on ensuring that costs were reflected in prices, it should be a concern of any government. Broadly defined, China currently spends 3-6 per cent of its GNP on health care, but real spending on health by both governmental and non-governmental agencies rose faster than total economic growth throughout the 1980s. A major aim of the health service reforms was to shift the cost burden away from government by making hospitals independent and forcing them to earn enough to cover their capital, salary and running costs. This has been achieved by user fees. Patients either pay a straight fee-for-service or have their costs paid for by one of the two major insurance systems: gongfei yiliao (cadres and student insurance), which covers 29 million people, or laobao yiliao (labour insurance), which covers 144 million people.

Rising costs have mainly hit the insurance sector, which now takes up a larger share than government of payments for health care. Government spending as a proportion of the total expenditure on health declined from 30 per cent to 20 per cent between 1980 and 1988; labour insurance comprised 32 per cent, but the largest contribution (36 per cent) came from self-financed, fee-for-service payments. The majority of these are made in rural areas where most people do not have health insurance. Insurance schemes tend to be confined to towns and more affluent suburban counties.

The need to cover costs and charges means that hospitals have raised their prices. Insurance spending increased by some 16 per cent in the 1980s, which resulted in a greater volume of health services especially for urban dwellers. During the 1980s, most provinces embarked on capital building programmes and increased the number of hospitals. The private sector has also expanded, and there were 153 000 private doctors by the end of the decade; about 3 per cent of China's doctors are now private practitioners. The need for hospitals to earn revenue has meant that the system has become 'provider led'. This satisfies the desire, of those who can afford it, to receive better quality health care. A number of studies have shown that demand for care at county hospitals by richer peasants led them to bypass their local clinic or township hospital. In a recent study, 66 per cent of patients at a sample of county hospitals were self-financing peasants.

Various inefficiencies have resulted from the provider-led service. These include longer in-patient stays for the insured, polypharmacy and excessive drug costs, because hospitals derive much income that way, and the inappropriate use of expensive technology. A clear incentive exists to offer CT scans, for example, especially for those with insurance cover. Itemized payments mean that intravenous vitamin infusions, antibiotic injections or other treatments – some of dubious therapeutic value – will continue to be prescribed. Evidence suggests that drug costs for insured patients are roughly twice as high as those for uninsured patients, and often many medicines which are bought remain unused.

Finally, the imbalance between sectors in terms of their revenue-generating potential means that curative, hospital-based medicine is emphasized at the expense of population-based programmes of primary or secondary prevention and primary care. This has led to a situation where no township feels it is complete without a hospital, of whatever quality, and precious funds go toward building one. Sixty per cent of township hospitals are still locally financed, but cannot compete with private doctors or county hospitals. Whereas city or county hospitals usually have full occupancy, township hospitals are less likely to have full occupancy rates, resulting in the closure of a number of them. In terms of care provided, township hospitals may also offer little more than the village clinics.
Inequalities in the availability of health services to rural and urban residents have long been a feature of the Chinese health care system, and certainly predate the reforms. Indeed, they were one reason for the radical attempts to change health care in the 1960s. In 1981, the World Bank found higher death rates and birth rates, poorer nutrition, fewer medical staff and hospital beds and lower per capita spending in the countryside compared with towns and cities. Between 1981 and 1989, these discrepancies increased; the average number of rural beds decreased from 1.5 per 1000 population in 1985 to 1.4 in 1989, whereas the number of urban beds increased from 4.5 to 6.1 per 1000. Per capita expenditure on health in urban areas was three times higher than in rural areas in 1981, but was five times higher in the 1990s. Health care professionals in the countryside also decreased from 2.8 to 2.6 per 1000 population, but increased from 10.8 to 12.6 in the city. The collapse of rural health cooperatives and the declining government investment in township hospitals have also contributed to these increasing inequalities. Rising medical costs have hit the rural populations, especially the poorest. Several surveys by the Ministry of Public Health and others have indicated that families are spending large sums of money – often on ineffective drugs or phoney remedies as untrained charlatans operate extensively in the countryside – or are being impoverished by illness.

Ninety per cent of rural residents now rely on a self-financing, fee-for-service system such that inequity in the use of health services has been the most common consequence of the changes in rural health care. A recent Ministry of Public Health survey of 280,000 rural residents showed that 18 per cent of those who were ill could not afford the prescribed treatment. A quarter of those who needed hospital care did not get it, and over half could not afford rising hospital fees. In one survey, 50 per cent of peasants claimed that medical expenses made them poor, and in another survey, one-third of rural families claimed that their poverty was caused by illness.

**Future challenges**

The introduction of a largely private market in health care has not been a success in China. Possibly, given the naive model it was based on, many problems were likely to result. There have, however, been two positive achievements. The quality and supply of curative hospital services, largely to urban or richer rural dwellers, have been improved, and the Government has gone some way towards divesting itself of the escalating costs associated with unprofitable hospitals. These changes have been at the expense of the majority of rural dwellers, whose access to health care has not been improved and for whom the costs under a fee-for-service system of payment have restricted their use.

Two major challenges confront the health care system in China. The first is to construct a health care system which can adequately respond to the challenges of the epidemiological transition. This mainly means reducing premature death and disability in economically productive adults, as heart disease, chronic obstructive lung disease, cancers, stroke, industrial injuries and suicide now account for 72 per cent of all deaths in China. At the same time, effective structures to preserve child health and combat endemic infectious, especially parasitic, diseases have to be maintained. This means a clear emphasis on the planning of preventive services. So far, financial and managerial assistance from international agencies has supported efforts at programme direction and control which would otherwise have been severely affected in the newly decentralized system. However, internal systems need to be re-created, with horizontal integration of preventive structures at village level. These are clear signs that in the 1990s the Government, under pressure from international funding agencies, regards the maintenance and development of preventive mother and child health and anti-epidemic programmes as essential. However, the initiation of large-scale primary or secondary interventions in chronic diseases remains some way away. For example, there is no national anti-smoking programme, which could be instrumental in reducing death from heart disease and by cancer.

The second challenge is to construct a viable system of health care financing. All countries, developing or industrialized, are grappling with this problem. Perhaps a minimum requirement is that whatever is put in place should not simply transfer problems from one sector to another. Recent attempts in China to reduce government and labour insurance costs by systems with up to 50 per cent co-payment may be effective in controlling costs and wasteful use of resources. Raising drug prices may reduce polypharmacy and make hospitals seek alternatives to the sales of medicines to boost their income. Linking cost reimbursement to service and quality assurance may produce incentives to improve training and evaluate care. Therein lie potential efficiency gains. Greatest equity gains, by contrast, may be made by promoting an affordable system for the rural areas which guarantees access to preventive and primary care. Moves to address the problem are under way. In 1991, a State Council document signed by five Ministries – Agriculture, Planning, Education, Personal and Public Health – endorsed the Cooperative Medical System in Rural Areas, which...
was ratified in the eighth five-year plan. Further rulings made official provision for village welfare funds to be used for co-operative medical schemes, and draft regulations are now being promulgated to provide for a co-payment scheme of 30 per cent and sometimes 50 per cent for rural medical fees, as well as for capital schemes. Although some private schemes may offer better terms, they are not yet available to rural dwellers. In any case, it could be argued that private schemes lack the institutional and organizational links that the 'new generation' of co-operative medical schemes offer.

Some consensus seems to have emerged in China as to the nature of the health issues with which she is confronted. Consensus is an important objective and a necessary condition for events to move forward. Disquiet with the impact of the reforms on rural health care has been voiced with increasing vehemence over the last decade by many health officials and by senior members of the Ministry of Public Health. The decision-making process in China moves slowly through a centralized bureaucracy, which can cope with only a limited amount of information at any one time. Health matters have to take their place in the queue. Decisions sometimes produce unexpected side effects. For example, in the early 1980s, the one-child family programme was disrupted by the pro-natalist consequences of the production responsibility system, when more children implied more household income. It was some time before central government responded to the increases in the birth rate that resulted. Similarly, the dissolution of the fledgling rural health care system that followed the ending of the communes seems to have been unanticipated. On the other hand, the loss of information and the reorganization of public health services, have been anticipated. If China can tackle these problems, she will regain her role among developing nations as an effective leader in the health field.

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