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# Reform of how health care is paid for in China: challenges and opportunities

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China's current strategy to improve how health services are paid for is headed in the right direction, but much more remains to be done. The problems to be resolved, reflecting the setbacks of recent decades, are substantial: high levels of out-of-pocket payments and cost escalation, stalled progress in providing adequate health insurance for all, widespread inefficiencies in health facilities, uneven quality, extensive inequality, and perverse incentives for hospitals and doctors. China's leadership is taking bold steps to accelerate improvement, including increasing government spending on health and committing to reaching 100% insurance coverage by 2010. China's efforts are part of a worldwide transformation in the financing of health care that will dominate global health in the 21st century. The prospects that China will complete this transformation successfully in the next two decades are good, although success is not guaranteed. The real test, as other countries have experienced, will come when tougher reforms have to be introduced.

### Introduction

To implement the ambitious strategy that China is now rolling out to improve its health system,<sup>1,2</sup> several key challenges need to be met. One challenge is already being resolved: the central government's spending on health, after languishing for many years at exceptionally low levels compared with that in other countries, is now being increased substantially.<sup>3</sup> Other financial and systemic issues include reversal of the upward spiral in the out-of-pocket payments that households pay to get health services; achievement of adequate financial protection for the entire population through insurance or other prepaid coverage; control of the rapid escalation of health-care costs; curtailment of inefficiencies and reducing waste; improvement of the quality of care; and enhancement of equity, including addressing disparities among China's diverse regions.

These challenges affect global health, not only because China's 1.3 billion people comprise a fifth of the world population, but also because its innovations and experiences will be helpful and influential for other countries. China's renewed quest to modernise its health system is part of a larger process worldwide. If the 20th century was transformed by two great health-related transitions (the demographic revolution that increased longevity and reduced fertility and the epidemiological revolution that reduced the incidence of many infectious diseases), the 21st century may be fundamentally changed by a third great transition in how health care is financed, provided, and organised. Some countries are well advanced in this third transition, having already replaced arrangements in which the cost of health care is borne mainly by the few who get sick, with policies by which cost is shared by all, equitable access to services is assured, and protection against financial ruin because of illness is widespread. But many countries still have a long journey ahead, and their citizens are impatient for faster advances.

In China major steps toward this third transition were made in the four decades after 1949 and the formation of the People's Republic, but advances then stalled and were partly reversed in subsequent years.<sup>4–9</sup> Now China is trying to recover lost ground and finish the job, helped by a strong economic base and a new development policy centred on people rather than economic growth alone.

### Current challenges

Health care has become the number-one concern of China's population, according to a January, 2008, survey of 101 000 households in 5000 communities.<sup>10</sup> A new saying appears frequently in Chinese media: "It's too difficult to see a doctor, and too expensive to seek health care!" And government officials have noted publicly the gap in meeting "the people's new expectations".<sup>1</sup>

### High out-of-pocket payments

Among the reasons for high levels of public concern is the fact that the fees that households are paying to get services (out-of-pocket payments) are more than 18 times what they were in 1990 (figure 1). As a proportion of total health expenditure, these payments rose from 20% in 1980 to 59% in 2000, falling to 49% in 2006.<sup>11–14</sup> The average cost of a single hospital admission is now almost equivalent to China's annual income per head (figure 2), and is more than twice the average annual income of the lowest 20% of the population.<sup>15</sup> Not surprisingly, paying for health care has become a notable cause of impoverishment for households that lack adequate health insurance. More than 35% of urban households and 43% of rural households have difficulty affording health care, go without, or are impoverished by the costs.<sup>16</sup>

### Inadequate insurance coverage

Government insurance schemes (panel) have been expanded in recent years (figure 3), partly in hopes of

mitigating the rise in out-of-pocket payments and the lack of equity in the financing of, and access to, health care. However, the coverage provided through these programmes is very small, in terms of both the service benefit package and the financial protection provided.<sup>17</sup> Outpatient services are very inadequately, if at all, insured in many parts of China. Inpatient services, where covered, leave patients with significant costs (co-payments, deductibles, or additional fees) to bear. The rural cooperative medical scheme, for instance, reimburses only around 30% of inpatient expenditure.<sup>2</sup> The medical-assistance programme for poor people simply helps its participants enroll in the rural scheme in many instances, rather than covering more of their costs. As a result, access to primary care for poor people has not really improved, and financial protection against high health-care expenses remains very restricted.<sup>18</sup>

### Escalation of costs

Rapid cost increases, compounding high out-of-pocket payments and insufficient insurance, have imposed further burdens on patients and their families. A hospital stay in rural areas was 1.8 times as costly in 2005 as in 1995, but average disposable income rose only 1.1 times over the same period.<sup>19</sup> Although increases in health services costs could be a consequence of either price or quantity changes, price increases have accounted for the lion's share, because quantity increases were much smaller during this period. Outpatient visits, in fact, declined between the early 1990s and the early 2000s, as households felt the pinch of rising fees and collapsing coverage.<sup>20</sup> Similarly, although changes in the types and mix of services used might have contributed to some of the increases, there is no evidence that such changes were a dominant factor.

Fuelled by cost escalation, health spending was 143% higher in 2006 than in 1999 (figure 1). Total health expenditure increased 11.5% annually between 1978 and 2003, which was notably faster than the gross domestic product, which grew 9.6% annually. During the same time period a 1% increase in gross domestic product was associated with a 1.18% increase in health spending. Furthermore, the share of income per person spent on health care rose from 1.9% to 4.7% between 1978 and 2005.<sup>19</sup>

### Inefficient use of scarce resources

Widespread inefficiency and low productivity weaken the health system's effectiveness and waste resources. Bed occupancy averages around 65% for hospitals and below 40% for health centres in townships,<sup>21</sup> compared with an average of almost 80% in countries in the Organisation for Economic Co-operation and Development (OECD).<sup>22</sup> Doctor-patient contacts per day suggest further inefficiencies: whereas doctors at some hospitals see over 70 patients daily according to anecdotal reports, much lower figures—ranging from 4.5 to 6.9 outpatient visits

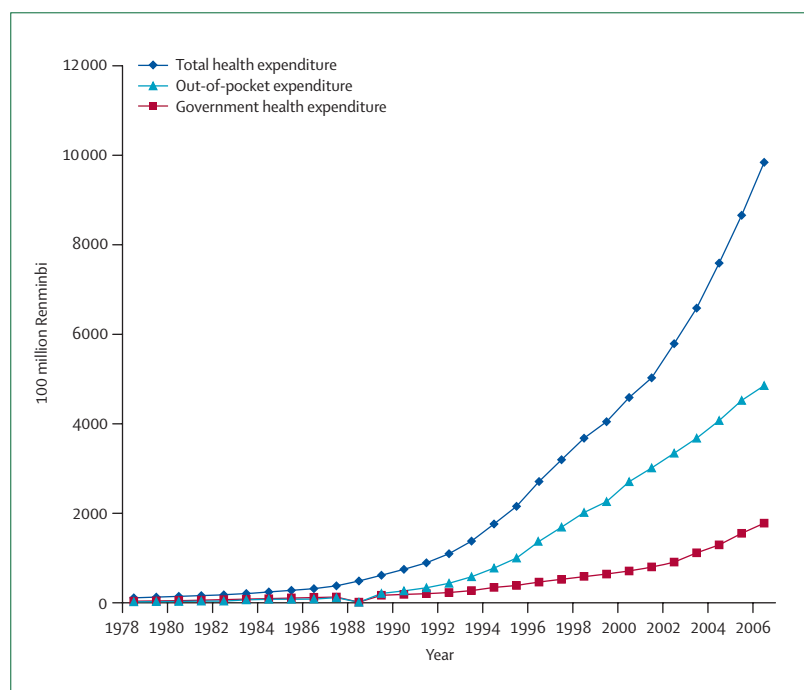


Figure 1: Health expenditure in China since 1978

Data from China National Health Accounts, Chinese Ministry of Health.

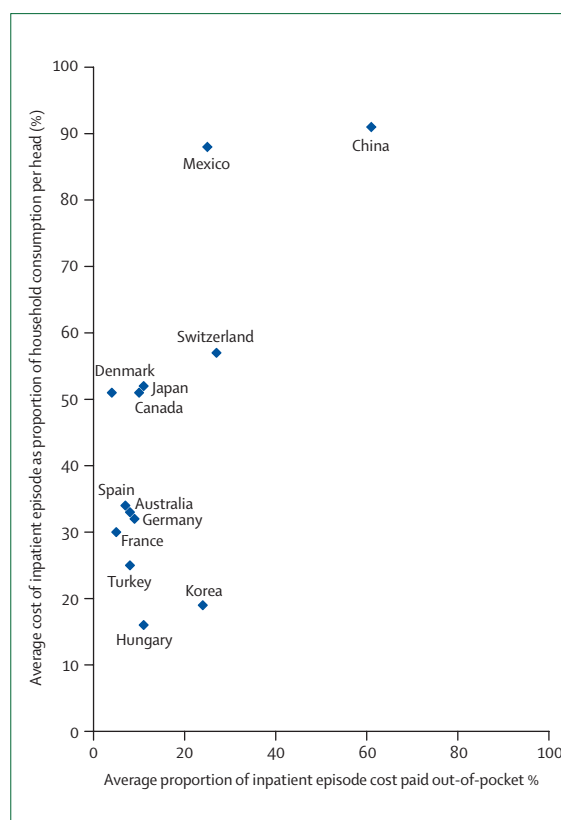


Figure 2: Share of inpatient costs paid out-of-pocket

Data from China National Health Accounts, Chinese Ministry of Health.

in some studies,<sup>23</sup> and from 5·8 to 15·3 in Ministry of Health statistics<sup>24</sup>—have been documented. The same studies show that inpatient bed-days are also very low. Moreover, excessive spending on drugs and overlong hospital stays further raise costs.

Resources are not well allocated to where they would have the greatest health benefit (figure 4). Secondary and tertiary hospitals receive a much larger share—609 billion Renminbi (65%) of a total health expenditure of 937·4 billion Renminbi, in 2005—than do primary health and preventive or promotional services.<sup>11</sup> Only 10·8% of health expenditure in 2005 went to the enormous number of urban community health centres and rural township health centres.<sup>25</sup> Almost no government funding is budgeted for village health stations despite their importance as first-line providers of outpatient services for the rural population. Although the data on allocation shares reflect multiple factors and not just allocative efficiency, differences of this magnitude in other countries often reflect skewing of resources toward higher level care.

Inefficiency also arises when patients who could be appropriately seen on an outpatient basis are hospitalised

for inpatient care, which is not uncommon, because the government's main insurance schemes commonly cover only inpatient services. Furthermore, the rapid adoption of high-tech equipment in hospitals creates even more pressure to channel funds to higher-level facilities.

#### **Misaligned incentives in the provider payment system and the purchasing of services**

A contributing factor to many of the above problems is the fact that providers receive over 90% of their income<sup>24</sup> from fees for medical services and medicines, particularly from dispensing drugs and doing procedures that require high-tech equipment. High deductibles and co-insurance payments have been introduced to reduce unnecessary services. But providers still have strong incentives to overuse some services. Worse, some families with low income can no longer afford to get services they truly need because of the increases in deductibles and co-payments.

The arrangements for the purchasing of services are also outdated. For decades, the government-run health system under the aegis of the Ministry of Health was seen as the principal provider, financier, and purchaser, all rolled into one. More recently, the Ministry of Human Resources and Social Security has been assigned a significant leadership role for government-sponsored urban insurance programmes, and accordingly has become a major purchaser. Other options that make purchasing more independent of government, providers, and patients have been considered in other countries, but have not been thought acceptable in China. Whatever arrangements are chosen, the agencies charged with purchasing need to do their role better.

#### **Other problems**

Disparities between and within regions and provinces raise further concerns and are getting worse in some cases.<sup>26</sup> In the urban employee basic health-insurance scheme, the per-person financial contributions from government and beneficiaries are equivalent to 14% of annual salary in Shanghai, but only 8% in most of the western provinces, and there is a large difference in salaries between the most and the least developed regions in China. Until 2007, in Shanghai, the government's and beneficiaries' financial contribution per person in the rural cooperative medical scheme was around 450 Renminbi per person compared with only 50 Renminbi per person in most provinces in central and western China.<sup>27,28</sup>

In the rural cooperative medical scheme and in the urban resident health-insurance schemes, provisions for cost-matching do not sufficiently take account of the constrained fiscal status of many local governments in central and western China. Lower rates for cost-matching in poorer provinces would help reduce disparities and improve health equity.

Finally, the quality of health care is greatly in need of improvement, as is reflected in the slowing of progress in life expectancy and in the persistent inequality in

#### **Panel: China's main medical insurance schemes**

Every citizen of China is supposed to be insured by no later than 2010, according to current policy. The exact nature of the coverage—which services and what proportion of the total cost—is still evolving and varies widely across provinces and municipalities, both within and among four schemes.

##### **Basic medical insurance scheme**

Urban workers are covered by the employment-based basic medical insurance scheme, which was established by the Chinese State Council at the end of 1998. The scheme consists of a pooled fund for inpatient stays and individual medical savings accounts for outpatient visits. Basic medical insurance is financed by payroll taxes paid by employers (6%) and employees (2%). About 160 million people, about 28% of total urban population, were covered by the the scheme in 2006.

##### **Urban-resident scheme**

For the rest of the urban population, an urban-resident scheme was started in 2007, targeted for those not covered by other schemes, including, in particular, children, students, and migrants. Some 79 pilot-study cities were launched. Coverage is supposed to be available in half of all cities by the end of 2008 and 100% by the end of 2010. The State Council has established an intersectoral coordination system to guide the rollout. Financing is to come a half each from the participating urban residents and the local government authorities.

##### **Rural cooperative medical system**

For the rural population, a rural cooperative medical system began in 2003, replacing older arrangements. Rapid expansion has resulted in coverage of 720 million agricultural households (85·9% of the total rural population) by the end of 2007 (figure 3). In the western and middle regions of China, central and local governments contribute 40 Renminbi (about £3) for each participant each year, and participants contribute the remaining 20 Renminbi. About 67–79% of the risk pooling funds are used for paying less than 5% beneficiaries.

##### **Medical assistance programme**

In addition, a medical assistance programme for poor people has been set up, jointly funded by the central and provincial governments, working through the Civil Affairs Administration.

health outcomes between richer and poorer provinces.<sup>26</sup> A shortage of qualified staff, particularly in remote areas or at primary-level facilities, is a major part of the problem. Filling the staffing gap will be a lengthy and expensive process.<sup>29</sup>

### Lessons from other countries

What does the evidence from elsewhere in the world say about the challenges described above? Although much more needs to be done to assess the experiences of other countries, several lessons can be learned from other countries and insurance schemes.<sup>22,30–37</sup>

### Out-of-pocket payments should and can be reduced

Countries that China commonly uses as comparators (ie, with similar or higher gross domestic product per person, including the highly developed countries in the OECD) depend less—typically much less—on out-of-pocket payments than does China. Such payments account for an average of less than 20% of health spending in high-income countries, and less than 35% in upper-middle-income countries, but, until recently, they have accounted for more than 60% in China, and were 50% of health spending in 2006.<sup>3</sup> The proportion of health spending that is out-of-pocket is, for example, about 45% in South Korea, 16% in Sweden, 15% in Japan, and 11% in France.<sup>22,38</sup> OECD nations have been striving to reduce the role of out-of-pocket payments even further.<sup>22,38</sup> Thus, the oft-heard comment that China needs to reduce its high dependence on user fees is consistent with trends in countries to which China compares itself.

### Insurance coverage should and can be expanded

Many OECD countries provide more comprehensive coverage in terms of the services covered and the portion of the costs than China does. Exactly how much China lags behind is less obvious because country coverage data count participants but not the extent of their coverage. In China, a much larger proportion of the population have excessively high health-care expenses relative to their annual disposable income than in OECD countries, which gives an indirect indication of the differences in coverage. These differences in coverage need to be better studied, as outlined by Xu and colleagues.<sup>39</sup>

The clearest message that emerges from other countries' experiences of alternative systems of insurance (eg, employer-based, tax-funded) is that the devil is in the detail: much depends on the specific variants and particulars adopted.<sup>30</sup> The country's context—economic, social, political, historical—is key too, including the distinctive attributes of urban and rural settings.<sup>40–42</sup>

But there are other messages. Unless China changes it will head in a direction that the very countries with which it compares itself have rejected, in some cases after painful trial and error. Almost no OECD countries have opted for systems that allow providers to obtain so

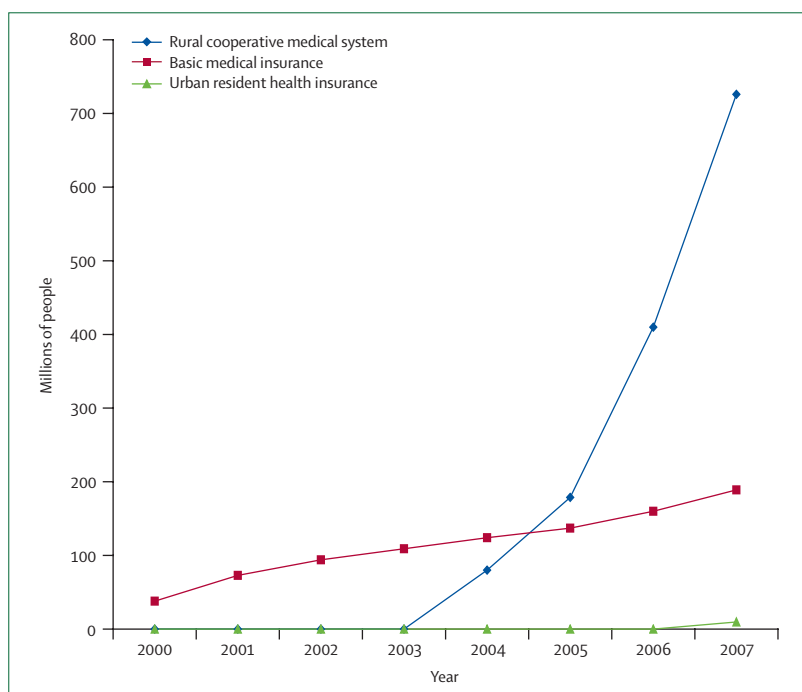
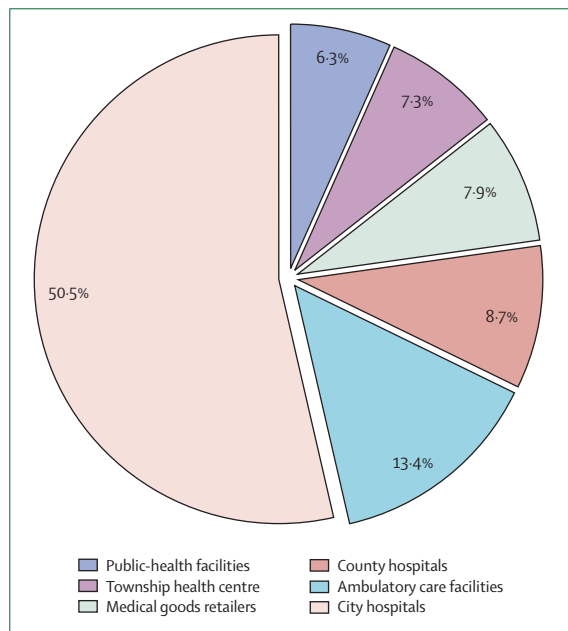


Figure 3: Expanding enrolment in health insurance schemes in China  
Data from China National Health Accounts, Chinese Ministry of Health.

much of their income from fees for services as China's system does today. Even the USA, despite many other problems, has seen its providers' incomes reconfigured in the past decade, as purchasers, both public (eg, Medicare) and private (eg, insurers, preferred provider organisations), have asserted more influence on pricing and payment decisions. Furthermore, almost no OECD countries have opted for monolithic public systems (where governments seek to directly operate as much of the provision of services as possible, allowing little autonomy for providers at the local level). If China were to head that way, it would do so in the face of much experience to the contrary. Even the UK has moved away from earlier versions of its National Health Service and has multiple types of providers with varying degrees of autonomy.

### Escalating costs can be partly contained

The experience of cost escalation from other countries emphasises the points already noted about provider payment systems, the role of purchasers, out-of-pocket payments, and rapid adoption of high-tech equipment. Costs rise faster when providers get paid on a fee-for-service basis, especially when they also have a say in determining prices. Costs also increase when purchasers do not have a strong bargaining position (or have not used it) to press providers for lower rates, or if they align themselves with providers' interests. Costs also rise as life expectancy increases and populations age. Additionally, costs can rise when removal of barriers to access involves shifting more



**Figure 4: Distribution of health spending**  
Data from China National Health Accounts, Chinese Ministry of Health.

costs to third-party payers, because providers and patients have less incentive to avoid excessive tests and medication. Furthermore, other countries have found that as coverage is increased, quality is upgraded, and newer technologies are introduced, health services inevitably cost more.

#### Inefficiencies can be corrected

Two causes of China's inefficient allocation of resources are common in other countries moving up the income scale. First, high-level facilities—most notably, top-tier hospitals and the most powerful providers—receive inordinately large shares of health budgets, while low-level provision of care—especially the village clinics and community health centres, which offer the most cost-effective services—get very little. Countries that have consciously sought to shift more funding to clinics, such as Thailand, are showing encouraging results in terms of improving health outcomes while controlling costs.

The most developed regions of countries—capital cities, other major urban areas, and most economically dynamic regions—get large budget shares, and poorer and more remote areas get disproportionately less. Countries that have adopted special initiatives to reverse longstanding neglect of their less advantaged areas (such as Mexico) have found the going tough but have succeeded in improving the distribution of resources to get better health outcomes and improve equity.

#### Provider payment systems can be improved

In some countries, providers are paid not on a fee-for-service basis, as in China, but on a per-patient-episode basis. This system entails the use of diagnosis-related

grouping of services to determine how much providers are paid for particular episodes. Substantial efficiency gains are possible with this approach, compared with fee-for-service systems. Facilities in South Korea's diagnosis-related-grouping programme had 14% lower costs, 6% shorter stays in hospital, and shifted some care from inpatient to outpatient services compared with facilities that were not in the programme.<sup>31–33</sup>

Providers who are paid on the basis of the size—and sometimes certain characteristics—of the population in a catchment area have incentives to keep that population as healthy as possible. This approach—called capitation—is not without its critics. Some people worry that, under capitation, providers might be insufficiently responsive to households' needs and might not provide some services in the interests of cutting their costs. Others note that appropriately taking into account all the relevant factors for calculating suitable population-based subsidies can be difficult.

Diagnosis-related-grouping systems, which have been more widely preferred than capitation in practice, have been introduced in the USA (in its Medicare programme since 1983), Sweden (1985), Portugal (1989), Canada (1990), the UK (since 1992), Australia (1993), Ireland (1993), Belgium (1995), Germany (partly from 1995, modified in 2003), Italy (1995), Austria (1997), France (1997), Switzerland (1997), Spain (in Catalonia since 1998), Denmark (1999), Norway (1999), and the Netherlands (2003), although many countries have elements of other systems as well.<sup>22</sup> And middle-income countries, such as Brazil and Chile, have been using diagnosis-related-groupings for over a decade.

#### How three countries fared when they undertook major reforms

In addition to the issues noted above, the process of bringing about substantial reform can be important. Although every country is unique, the experiences of arduous reforms in Colombia, Mexico, and Thailand are illuminating for China because of the transitions that those countries embarked upon (eg, to make coverage universal) and the problems they had to resolve along the way.

All three countries have persisted with reforms that have succeeded in increasing coverage significantly, and have done some reallocation of public resources to reduce disparities across population groups. Colombia now has 83% of its population insured, and Thailand, 95%. In Mexico, an additional 11 million people, most of whom are from low-income groups, have been insured under their Seguro Popular programme.<sup>43–46</sup> Catastrophic spending has declined in all three countries, particularly among the insured poor,<sup>43,47</sup> and the government's stewardship role has been strengthened while the provision of care responds to priorities set by the benefits packages.

Subsidising of insurance for poor people in Colombia, Mexico, and Thailand required a substantial injection of public resources. In Colombia, 10 years after the reform,

total health spending grew to 1.4% of gross domestic product,<sup>48</sup> with public expenditure representing the greatest increase (0.8% of gross domestic product). Out-of-pocket expenditures were reduced by 78% in real terms. In Mexico, total health expenditure increased by 0.8% of gross domestic product from 2000 to 2004 and public expenditure in health had increased to 0.4% of gross domestic product by 2005. Spending by Mexico's federal government rose by 38% in real terms from 2000–05 and inequality in the allocation of public resources across states decreased.<sup>43,49</sup>

Access to and use of health services has improved, and the insured are now more likely than the uninsured to seek care when needed. In Colombia, the poorest and those living in rural areas have benefited the most from reform, because insurance has substantially increased their access to care.<sup>47,50–52</sup> In Mexico, there have been substantial increases in the treatment of hypertension, mammography, cervical cancer screening, skilled birth attendance, and management of premature births.<sup>43,53</sup>

Public hospitals have presented difficult challenges. In Thailand, where hospital services are now purchased by specialised entities (called contracting care units) under a capitation system, some hospitals have suffered financially as output-driven budgets have been applied.<sup>44</sup> In Colombia, the gradual transformation of hospital financing into subsidised insurance premiums for the poor has been completely achieved in four states, but only partly in the rest.<sup>54</sup>

The power of medical groups and their resistance to change was not fully anticipated by policy makers.<sup>44,54</sup> In the Thai and Colombian cases, where many public hospitals had their historical budgets reduced under the new schemes, governments responded by introducing measures to allow them a more gradual pace of change. The Thai reform introduced a contingency fund that served as a cushion for hospital bail-outs. Political pressure in Colombia slowed down the pace of the transformation of supply-side subsidies into subsidised insurance, and many public hospitals continued to receive, after the reform, additional resources from the central government to ease financial hardship during the early 1990s. As a result, the expansion of coverage for poor people slowed down in the late 1990s. Hospital bail-outs were abolished in 2000 and replaced by a government-supported process of hospital reform, in parallel with tight fiscal discipline measures for local governments, the owners of the facilities. A gradual and costly process is still underway.

Transforming the financing of public hospitals while reshaping their location, volume, and service mix to meet actual demand, has proven costly and challenging. Neither the all-at-once approach of Thailand, nor the paced transformation of supply to demand subsidies in Colombia is free of limitations. In the Thai case, some facilities ended up with shortages, whereas others were overfinanced due to registered patients' low compliance

and possible differences between cost of care and the capitation transferred.<sup>55–58</sup> In Colombia, regulation of contracts with public hospitals and the design of the subsidised benefits package are still major bottlenecks for a full transformation of supply to demand subsidies and the expected attainment of efficiency gains.

## Conclusions

China has already taken significant steps to correct one problem: government spending on health is now on the rise sharply, after years at extraordinarily low levels relative to other countries. Further increases may be needed in the years ahead, and pressures to allow spending to stagnate or decrease—as other issues compete for attention—will need to be resisted. Fortunately, China's strong economic growth, fiscal position, and huge financial reserves make it one of the few countries in the world that will be able to provide substantial further increases in the level of health financing while addressing other priorities.

Chinese authorities are also well aware that a second problem—high reliance of out-of-pocket payments—needs attention, but thus far the major changes that are required to reduce dependence on patient payments at the point of service, and replace them with prepaid coverage, have yet to gather steam. It is urgent to push forward on this front with high priority, and to recognise that getting to the end of this difficult transition is a long and sometimes difficult process, as other countries have learned. Government leaders need to ensure that expectations (their own and the public's) don't run ahead of what is realistically achievable.

One practical step that would help redress imbalances in allocations is to target some of the increased spending on improved essential health services, including public health, with attention to the needs of rural areas, community services, and poor sectors of the population. As the central authorities do this, they need to keep in mind that lower levels of government are unable, because of their very limited financial situations, to provide increasing matching fund contributions as are required now under the current tax system. The current matching arrangements in health-care financing need to be reconsidered to allow for preferential treatment of less-developed regions.

Making all this work and sustaining it long term will be possible only if the problem of runaway cost escalation is brought under control. China needs to develop and put in place stronger measures to contain costs. And to succeed, those measures need to include a fundamental restructuring of the provider payment system, as demonstrated by international experience. As long as providers in China continue to be paid on the current fee-for-service basis, escalating costs will undermine even the best-conceived reforms.

Transitions to a better provider-payment system based on diagnosis related groupings or capitation and a larger

role for third-party purchasers of services on behalf of patients have been fiercely resisted in other countries, especially by high-tier hospitals that have the most to lose and the most powerful influence on government policy choices. There is no reason to expect that China will not have a similar struggle to work through. Will the resistance paralyse China's health improvement? This will be a core question in the years ahead.

Improvements in the allocation of resources, including better targeting of public funds to where they are needed most, need to be a central part of China's forward-looking strategy as well. Simply increasing spending, without fixing the shortcomings in how funds are used, would not result in lasting change for the better, and could actually make matters worse to the extent that costs are driven up, adding to the expense of solving problems later. Increased spending needs to result in benefits for people not just providers. Policy makers must strike a delicate balance between adequately compensating health providers, most of whom work for the public sector, and making health care affordable for all.<sup>2</sup>

Many other issues will need to be tackled. Improving the quality of care, as noted above, is urgent. Also, the urban and rural health systems in China will need eventually to be less disconnected from one another. For rural areas, government provision of services will remain key, especially in remoter areas where more sophisticated alternatives are not possible or not more effective. Options for closer links with urban centres need to be pursued vigorously: for example, methods for encouraging municipal hospitals to assume more responsibility for the rural clinics and practitioners in their catchment area need to be explored.

Pilot and demonstration projects, and other forms of experiments that test an idea in limited areas for later scale-up elsewhere if successful, have been useful in many countries, including China.<sup>31–33</sup> Several such trials have been underway on Chinese health policy options in recent years. One obvious issue for pilot-testing is provider payments—ie, how they are determined. Another is how the ownership or degree of autonomy of hospitals, which is currently an area of much confusion and concern, should be resolved. According to one view, some hospitals with roles that have strong public-good features (eg, public-health functions, preventive services, or specialty hospitals for treatment of infectious or rare catastrophic conditions) should remain government-run facilities, while hospitals that handle more routine patient care might become more autonomous entities than they are at present. The latter need not mean for-profit: not-for-profit autonomous hospitals are also an option.

Redoubled attention to capacity building throughout the health system also is needed. Simple, but crucial, support systems urgently need upgrading: cost accounting, medical record keeping, quality control procedures, and so on.

The challenges are daunting, but China has enormous strengths it can bring to bear, while drawing on relevant international experience and lessons. Its ability to design, develop, and implement new policies and programmes, once its leadership puts full support behind a change in direction, is impressive, far surpassing that of many other nations. With concerted effort in the years ahead, China is well placed to bring about the changes that will enable it to take its place among the nations that have completed the third great transition in health.

#### Conflict of interest statement

We declare that we have no conflict of interest.

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