



## Health Service Delivery in China: A Review



### Backdrop to the review

How do China's health care providers perform? What determines their performance? How can the government improve it? These were the questions addressed by a critical review of the Chinese-language and English-language literatures on service delivery in China and abroad.\* The review comes at a key moment in China's health reform process. There is broad agreement that the health service delivery system is not functioning well, but there is considerable disagreement about how to fix it. Some argue for turning over the entire system to a free market. Others recall the benefits of a centrally planned health system. The truth—this critical review argues—lies somewhere between these two extreme views.

### Provider performance in China's health sector

*Quality* is a key dimension of any provider's performance. Like many countries, China does not have a strong system for monitoring the quality of care. But several indicators suggest challenges ahead. The skill of providers is low, especially at the village level. A large-scale study of 46 counties and 781 village doctors in 9 western provinces conducted in 2001 found that

70% of village doctors had no more than a high school education and had received an average of only 20 months of medical training.<sup>1</sup>

There is widespread evidence of unnecessary care being provided in China, especially in the case of drugs. In 1998-99, a study conducted in 4 township health centers and 8 village clinics in Wuxi County of Chongqing and Min County of Gansu concluded that less than 2% of drug prescriptions were 'rational'. In the case of village clinics, only 0.06% of drug prescriptions were deemed reasonable.<sup>2</sup> Unnecessary care contributes to inefficiency in the health system. For example, one study found that 20% of all expenditure associated with appendicitis and pneumonia treatment was clinically unnecessary.<sup>3</sup> In the study, as much as one third of drug expenditures were considered to be unnecessary by a panel of reviewing physicians. The panel concluded that, for both conditions, length of stay (LOS) could be reduced by 10-15% without any adverse effects on health outcomes.

There is some evidence that health care quality in China has improved over time, but these improvements seem to be confined primarily to urban areas.<sup>4</sup> For patients—especially poor ones—unnecessary expenses associated with low quality can make the difference between health care being affordable and being unaffordable. In some situations, unnecessary care may also have adverse health consequences.

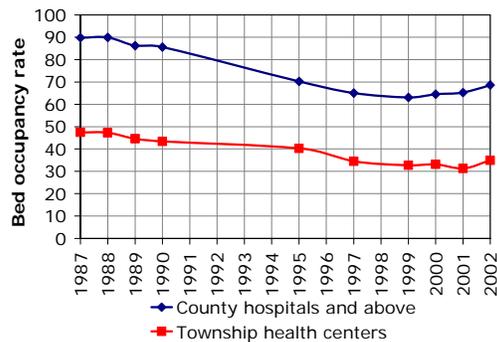
Beyond the apparently low technical quality of care, patients have expressed dissatisfaction about providers' *responsiveness*. For example, in a recent sample interview with 642 urban residents, roughly 70% expressed satisfaction with health care services, and 65% were satisfied with the attitudes of the health providers.<sup>5</sup> However, 54% complained that their doctors were not clear about their disease status, and 4% said that they or their relatives had open conflict with the health providers (*yiliao jiu fen*).

The *efficiency* of China's health care providers is also a matter of concern. In recent years, the number of providers has increased while caseload has been falling. Bed-occupancy rates

\* This briefing note was prepared as part of the World Bank's (WB) ongoing study on China's rural health sector. The study—referred to as the *China Rural Health AAA* (Analytical and Advisory Activities)—is being undertaken in collaboration with the Ministry of Health (MOH) and other government agencies, as well as with selected international partners. The review upon which this briefing note is based was prepared by a team that consisted of Professors Meng Qingyue of Shandong University, Li Ling of Peking University, and Karen Eggleston of Tufts University (USA). The team benefited from the comments of Mr Fei Zhaohui of the Ministry of Finance, who was the discussant for this critical review at the AAA workshop in July 2004. The briefing note was prepared by the World Bank AAA team. The findings, interpretations, and conclusions expressed herein are those of the authors, and do not necessarily reflect the views of the World Bank or those of its Executive Directors or the governments they represent, or the Government of China. For further information on the China Rural Health AAA and related activities, contact L. Richard Meyers ([lmeyers@worldbank.org](mailto:lmeyers@worldbank.org)).

are, as a result, falling, especially in township hospitals where bed occupancy was low to start with (see Figure 1). Provider productivity—measured in terms of patients per provider per day—is also falling in rural areas, from a relatively low base. There is also evidence of waste in the use of high-tech equipment.

**Figure 1: Declining bed occupancy rates**



A further concern as far as provider performance is concerned is the *rapid cost escalation* that China’s health sector has witnessed in recent years. Costs have risen much faster than per capita income and prices generally. This reflects in part a more complex caseload (less infectious diseases, more non-communicable diseases) and the adoption of new technology. Whether costs have risen ‘too’ fast is not clear-cut. But what *is* clear is that the extensive overuse of drugs and high-tech medical procedures is a matter for concern. Rapidly rising health care costs in China have probably been one of the factors behind the fall in demand for health care over the last 10 years. And they have made health care increasingly unaffordable for China’s poor families.

China’s health system also displays considerable *inequities* in, for example, utilization and outcomes between rural and urban areas, and across income groups. How far these can be blamed on providers is unclear—utilization and outcomes reflect both demand-side and supply-side factors. What *can* be said, however, is that in recent years—in contrast to the 1960s—the health service delivery system in urban areas has developed much faster than in rural areas, and there is a growing gap in quality of care between rural and urban areas.

All in all, the performance of China’s health care providers—like providers in many countries—shows considerable room for improvement. What explains this weak

performance? And how can the government improve it?

**Does ownership make a difference?**

One hypothesis—often expressed in China—is that poor provider performance reflects the heavy emphasis on public ownership above village level. The international evidence on whether ownership matters—mostly from the United States—is mixed. Some studies suggest ownership and profit-status of providers do *not* make a difference—that ultimately it is other factors that determine performance.<sup>6</sup> Other authors disagree and conclude that technical quality is lower and mortality higher in for-profit hospitals.<sup>7</sup> While many studies focus on the difference between for-profit and non-profit hospitals, there is less evidence on the differences related specifically to ownership. Some studies suggest that public hospitals perform worse than private ones, but this may simply reflect their status as “providers of last resort”, whereby they are forced to handle more complex cases.

The limited evidence available from the Chinese health sector is consistent with the international literature: it suggests that ownership probably matters less than people often think. For-profit and public providers are just as likely as one another to over-prescribe drugs, and for-profit providers are just as likely to deliver preventive activities as public ones, provided they are paid properly to do so.<sup>8</sup> Patients often express a high level of satisfaction with the responsiveness of private providers, but also express some concern about their qualifications and motivations.<sup>9</sup> There is some evidence that for-profit providers in China have a more efficient management. However, this reflects at least in part the fact that public providers are constrained by the relevant stakeholders in a way that private providers are not. It may not be ownership per se that makes the difference, but rather the willingness of stakeholders to stay at arm’s length from day-to-day decision-making.

All of this has important implications for the reform agenda in China’s health sector. Provider behavior is influenced by a wide range of factors—financing, autonomy, market structure, accountability arrangements, etc. Ownership may be related with these factors, but often it is

not the primary determinant. As a consequence, *privatization is not likely to be the panacea that some in China believe it to be.*

### Is competition the answer?

Another commonly heard view in China is that the health sector needs more competition. The international literature suggests extreme caution on this point, and is very clear on one key point: *competition for individual patients is not the answer.* Patients lack the knowledge to be informed consumers as in a typical market. This blunts competitive pressures, and makes patients vulnerable to exploitation by providers who take advantage of their superior knowledge of medical matters.

What can be potentially useful, however, is competition among providers *for contracts* from purchasers (e.g. insurers). The evidence is limited, mostly coming again from the U.S., where, for example, competition for Medicare contracts appears to have improved patient outcomes and lowered costs.<sup>10</sup> Elsewhere in the OECD, several other countries—including the Czech Republic, New Zealand, Sweden and the United Kingdom—have experimented with having hospitals compete for contracts. But as a recent OECD report put it, “[these initiatives] have not achieved the expected results and have run into considerable patient and provider opposition. However, as these experiments were discontinued after a relatively short period, more time may have been needed for positive results to appear”.<sup>11</sup>

Contracting is likely to work better when the contract can specify quantity and quality clearly, both can be monitored easily, and contracts can be enforced.<sup>12,13</sup> There has been some success with contracting public health interventions, such as malaria control programs, nutrition programs (Senegal) and reproductive health programs (Bangladesh).<sup>14</sup> These services are relatively straightforward for contractual specification. Contracting for appropriate clinical care, by contrast, is often more challenging.<sup>15</sup> An area where health care sector competition may prove more straightforward is in input markets. For example, in many countries there is a competitive labor market for hospital managers, who attract similar compensation packages from both for-profit and

non-profit hospitals. Similarly, competition in the markets for physicians, nurses, and medical equipment and materials, and support services such as maintenance, catering, cleaning, and laundry can help to allocate resources in a way that rewards, and thus stimulates, improved performance. Input markets are generally less prone to ‘market failure’, since they often feature organized purchasers and suppliers with similar information and market power.

The evidence to date from China on the benefits of competition—be it competition between providers or in markets for inputs—is very limited and research on this topic would be useful. In the meantime, policy reform in China could usefully learn from the lessons of international experience. The performance of China’s health sector will almost certainly *not* be improved by encouraging competition between providers *for individual patients*. In fact, such a policy is likely to exacerbate existing problems. Where competition *could* be useful is in a market for purchaser contracts, and in input markets. That would mean developing the purchasing capacity in insurance schemes such as the Basic Medical Insurance and the New Cooperative Medical Scheme—an issue we will return to later. Careful monitoring will be vital, not least to ensure there are no unwanted side-effects. In order to realize the potential benefits of competition in input markets, providers would need to be given more autonomy to make decisions about what inputs and services should be contracted for, and from whom to contract. Again, careful monitoring would be vital.

### Paying providers

The evidence is not at all clear, then, on how ownership and competition impacts on provider performance. By contrast, what *is* clear from studies to date is that how providers are paid matters in health care. Furthermore, payment-related incentives can be improved *without changing ownership, and without introducing competition.*

The long-standing emphasis on fee-for-service (FFS) in China, coupled with the fact that a sizeable fraction of the population has a ‘third-party payer’, results in care that is profitable at the margin being over-provided. It also

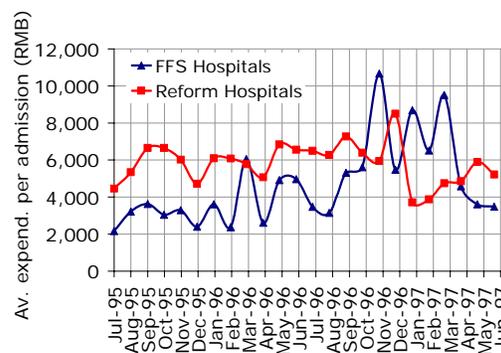
discourages cost-consciousness among providers. The way fees are set does not help matters. They are often set below cost for simple and non-invasive care, and above cost for high-tech diagnostics (see Box 1). As a result, the former tend to be under-provided, leading to concerns about low—and in some cases—falling coverage of key public health interventions, while the latter are over-provided. The price structure has also resulted in a rapid adoption of new technology, which in turn has helped fuel the escalation of costs in China's health sector. Because of the markup pricing scheme that has long been in force, drugs are also profitable—hence their over-prescription. China's high average LOS is another example of incentives at work—because hospitals that are paid on a FFS basis can claim reimbursement for the additional day, they have an incentive to keep patients in hospital.

**Box 1: Price-regulation—in need of reform**

*Liu, Liu and Chen provide an overview of the Chinese experience with hospital price regulation.<sup>16</sup> They compare fees to average costs derived from a study of recurrent and capital costs for 130 service items in 17 hospitals in Shandong province. The ratio of fee to average cost is well below 1 for simple and non-invasive services. For example, their results include registration (0.16), checking blood sugar levels (0.2) and the base charge for a hospital day (0.25). This also holds for more clinically complicated but long-standing services such as appendectomies (0.48) and normal delivery (0.3). In contrast, regulated fees for some new high-technology diagnostics are set well above average cost. In the Shandong sample, the ratio of fee to average cost was 180 to 110 RMB for CT scans and 50 to 35 RMB for remote control x-ray scans (ibid, p.158). Although there are ongoing attempts to reform price regulation, the problems of misalignment of fees and costs persist in many parts of the country.*

Evidence from China—as from other countries—suggests that providers' performance changes in response to changes in payment arrangements. For example, Hainan Province implemented prospective payment for six key hospitals in January 1997. Average expenditure per admission fell below that of the other hospitals that had continued to be paid FFS, and the growth in spending on high-tech services was reduced (see Figure 2).<sup>17</sup> Whether there was any adverse effect on quality is not known.

**Figure 2: Provider payment reform at work in Hainan Province**



Shanghai switched to a capitation based payment for outpatient care for the government insurance program.<sup>18</sup> While findings indicate a slow-down in cost-escalation, reform design and available data do not permit a rigorous assessment—a problem that arises with many payment reforms in China as well as in other countries.

In many cases, provider payment reforms have been introduced in conjunction with other health system reforms. For example, Meng *et al.* report on a comparison between Nantong, an urban health insurance pilot city that implemented both provider payment reforms and new forms of contracting, and Zibo, a city that did not implement reforms.<sup>19</sup> They find a smaller cost-increase in Nantong, without measurable impact on quality. Similar results have been found in other studies.<sup>20</sup>

Moving completely away from FFS to a fully prospective payment system can be risky—providers may skimp on quality unless the payer quality thresholds are laid down, and unless quality and quantity can be monitored effectively. Some prospective payment systems also create incentives for risk selection.<sup>21</sup> A mixed prospective payment-FFS system offers a potential solution to this, and has become popular across OECD countries.

The implication for policy reform? *There seems to be considerable scope for improving provider performance in China through carefully designed and phased payment reform.* This would most likely be done through strengthened purchasing organizations, but must also include a reform of price regulation. On the pharmaceutical side, separation of the prescribing and dispensing functions has the potential of reducing adverse provider

incentives. Experience from Taiwan and elsewhere has, however, shown that such reforms have to reconcile many strong interests, making effective reform difficult.<sup>22</sup>

### Organization matters

The performance of any delivery system reflects a number of *organizational choices*. For example, a well-functioning referral system lowers costs and enhances equity.<sup>23</sup> In its transition from the old system, China lost this: patients now choose whichever level of provider they can afford, so the higher-level (e.g. provincial and county) hospitals are overloaded with higher-income patients, and the lower-level hospitals (e.g. township) are underutilized and patronized by mostly low-income patients.

But other aspects of how the delivery of health care services is organized also matter. Overlapping functions and fragmented service delivery responsibilities need attention. For example, family planning institutions, township health centers, and maternal and child health facilities in China have overlapping functions. MOH, military, SOE and other enterprise hospitals all provide similar services in an uncoordinated manner. And there are also questions about the roles and responsibilities of different levels of government in service delivery. Several studies have found that decentralization in China has had a negative impact on delivery, especially equity of services between richer and poorer regions.<sup>24</sup>

Finally, quality and efficiency are also affected by the internal structure and management of delivery organizations. Many hospitals lack effective quality control system, with supervision responsibilities scattered across different departments and agencies. Moreover, financial management systems and personnel policies—e.g. in relation to compensation— affect incentives and provider performance. The study in Zibo and Nantong found that the main factors influencing unit cost, LOS, and other efficiency indicators were the bonus system, competition for hospital positions, selection of staff, and the accountability system.

### Implications for government?

This briefing note has highlighted some important areas of concern. Current performance by Chinese health care providers leaves room for improvement, in terms of quality, responsiveness to patients, efficiency, cost escalation, and equity. It also suggests that these problems will *not* be solved by simply shifting ownership to the private sector, or by simply encouraging providers—public and private—to compete with one another for individual patients.

But the review also contains some important *positive* messages. Active purchasing by organized purchasers can be an effective way to affect system incentives. In both the urban and rural areas, social insurers—e.g. BMI and NCMS—and other purchasers can promote improvement in service delivery through selective contracting, mixed payment methods with quality bonuses, drug use monitoring and formularies, and effective gate-keeping.

While some of the problems observed in the Chinese health sector today are due to excessive or inappropriate government intervention, other problems arise from the government doing too little. Information asymmetries and other market failures call for effective government regulation in the health sector. Regulation of advertising can play an important role in protecting population health and reducing information asymmetries—e.g. in relation to tobacco. There is also an important place for regulation of behavior in insurance and health care markets, such as preventing price collusion and “cream-skimming”, controlling quality, protecting patient privacy, and providing information. In health systems that allow a prominent role for markets in shaping the delivery system, antitrust policy is a crucial tool for establishing a “fair playing field”.

In most health systems, governments also play an important role in relation to the health workforce. China clearly has major challenges in this area. One challenge, already noted, lies with the quality of its medical personnel. So far, the focus has been largely on increasing the *quantity* of health workers. A clear challenge now is to increase *quality*, and to ensure that the distribution of health workers reflects need. But

it is not just China's *medical* skills that need improving. The health sector lacks managers, quality assurance personnel, and other key groups. For example, whatever the role of the market and government in service delivery, a credible system of supervision and certification of provider competence is necessary.

In summary, Chinese experience matches theory and global evidence, namely that system-wide incentives shape provider performance. Fortunately, both Chinese and international experience offer some clear lessons on how these incentives can best be harnessed. Unfortunately, there are no quick fixes. The interaction of incentives calls for a package of complementary reforms, including strengthened purchasing and provider-payment reforms, effective sector-neutral regulation, appropriate vertical and horizontal integration of healthcare institutions, and improved provider management. As the AAA moves ahead, these and other challenges will be explored further.

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