The Health Care Systems Of China And India: Performance And Future Challenges

Both health systems need considerable reform to reap the benefits of their governments’ additional funding.

by Winnie Yip and Ajay Mahal

ABSTRACT: Both China and India have recently committed to injecting new public funds into health care. Both countries are now deciding how best to channel the additional funds to produce benefits for their populations. In this paper we analyze how well the health care systems of China and India have performed and what determines their performance. Based on the analysis, we suggest that money alone, channelled through insurance and infrastructure strengthening, is inadequate to address the current problems of unaffordable health care and heavy financial risk, and the future challenges posed by aging populations that are increasingly affected by noncommunicable diseases. [Health Affairs 27, no. 4 (2008): 921–932; 10.1377/hlthaff.27.4.921]

China and India have attracted much global attention in recent years because of their rapid economic growth. Indeed, between 1994 and 2004, real per capita gross domestic product (GDP) for China and India grew at an average annual rate of 7.8 percent and 4.4 percent, respectively. Both countries also face similar external forces that challenge their health care systems. Major income growth has created new consumer expectations and demands for higher-quality services and advanced technology. An aging population accompanied by an epidemiological transition necessitates restructuring the health care system to fund and provide care for a population increasingly affected by noncommunicable diseases. At the same time, an ever-widening socioeconomic gap between high- and low-income households poses challenges to achieving the societal goal of equal health status and access to health care.

In recent years, both the Chinese and Indian governments have committed to injecting substantial new public funds, as much as 1–2 percent of their GDPs, into health care. Both countries now have to decide how best to channel the additional funds and which services to use them for. In this paper, we take a step back and...
ask how well the health care systems of China and India perform and what determines their performance. We use the insights of this analysis to highlight priority concerns that these two countries should pay attention to as they undertake health system reform.

A Framework For Comparing Health Care Systems

To facilitate comparisons between China and India, we adopt an analytical approach that is commonly used in evaluating health systems and designing health care reform. This approach conceives of a health system as a set of relationships in which the structural elements of the system are causally connected to the goals of the system. It identifies the following goals: health status, financial risk protection, and public satisfaction, and the equitable distribution of each of these. How well these goals are achieved is affected by the structural elements of the system—financing, payment incentives, organization, and regulation—which influence the end goals directly or indirectly by affecting intermediate goals such as access to care, quality, and efficiency. Using this framework, we diagnose the health systems of China and India and compare the different policy instruments that logically determine how well the end goals are achieved.

Performance Of The Health Care Systems

In presenting evidence on the extent to which China and India achieve their health care system goals, we primarily draw upon existing data and focus on those outcomes for which data are more complete and available. We made our best effort to ensure comparability of the data between the two countries.

Financial risk protection. How well a health system provides financial risk protection can be assessed by two metrics. The first measures the percentage of households in a population that are pushed below the poverty level as a result of out-of-pocket payments for health care. Existing evidence suggests that households in both China and India are vulnerable to financial shocks associated with ill health. A recent study shows that out-of-pocket health spending increases the percentage of people below the poverty level (US$1.08 per day) by nearly 20 percent in China, from 13.7 percent to 16.2 percent. In India, out-of-pocket spending increases the already high poverty rate of 31.1 percent to 34.8 percent, despite a smaller proportional increase compared to China.

Another metric for assessing whether the health system provides households with adequate financial risk protection is by calculating out-of-pocket spending on health care as a share of income. In China, the distribution of financial risk protection as measured by this metric is highly unequal between high- and low-income households, and between urban and rural households. In 2003, urban residents in the lowest income quintile spent about 11 percent of their income on health care, compared to 5.6 percent for those in the highest income quintile. In rural areas, those in the lowest quintile spent a startling 27 percent, compared to
11.4 percent for the middle income quintile and 7.7 percent for the highest income quintile. Comparatively, in India in 2004, everyone except those in the highest quintile in urban areas spent more than 10 percent of their income on health, representing a twofold increase during 1995–96, although unlike in China, both high- and low-income individuals face similar financial risk.

Also, in China, a hospitalization can cost as much as 6.7 times the annual income of a low-income person in rural areas and four times that of a low-income person in urban areas. Hospitalization expenses in India are not as high as in China, at least relative to income. Nonetheless, Indians of all income levels, and especially the poorest, face quite prohibitive costs, with one hospital stay costing more than a year’s worth of income.

Affordable and equal access to care. Prima facie, the situation in China appears worse than that in India. Data from the National Health Services Survey show that in China, nearly 50 percent of those reporting an illness did not seek outpatient care in 2003, up from 36 percent in 1993. Of those who did not seek care, 38 percent reported financial difficulties as their primary reason for not doing so, up from 33 percent in 1993. Notably, the proportion of ill people not seeking care because of financial hardship varies considerably by income level, with 30 percent of the richest people reporting financial hardship as their primary reason for not seeking care, compared with nearly 50 percent of the poorest. In terms of inpatient care, 30 percent of respondents reported that they did not get hospitalized despite being advised by a physician to do so, and 70 percent of those respondents cited financial hardship as their primary reason for not being hospitalized. The same survey also found that 36 percent of hospitalized patients requested early discharge from the hospital because they could not afford to pay for any more days.

In India, the share of ill people not seeking outpatient care is lower than in China. However, compared with high-income people, low-income people are much more likely not to see care because of financial reasons. A full 37.6 percent of low-income urban residents and 43.3 percent of low-income rural residents who did not seek care when ill listed financial hardship as the number-one reason. By comparison, only 1.9 percent of the richest Indian urban residents and 21.1 percent of the richest rural residents who did not seek care when ill reported income as their primary constraint. Although no similar statistics on inpatient care exist for India, qualitative reports suggest that early discharge from hospitals because of financial hardship is prevalent there as well. Moreover, requirements for sizable payments prior to hospital admission likely restrict low-income people’s access to inpatient care in private hospitals.

Health outcomes. Both China and India achieved major gains in life expec-
tancy at birth during the past few decades, with China’s life expectancy increasing from sixty-three years in the early 1970s to seventy-two years in 2000, and India’s increasing from fifty years to sixty-three years over the same period (Exhibit 1). Similarly large reductions have occurred in the infant mortality rate. These gains in the aggregate, however, mask considerable inequalities across regions. Provinces and states with high per capita GDPs tend to have much better health outcomes than provinces and states with low per capita GDPs in both countries (Exhibits 2 and 3).

How have these inequalities changed over time? The evidence available for China suggests that raw measures of interprovincial inequality in life expectancy at birth and infant mortality (such as the coefficient of variation) increased from 1980 to 2000, whereas in India, these measures have remained unchanged.13

Health spending inflation. Existing evidence shows that both countries have experienced major increases in health spending over the course of the past two decades, although China’s appears to have increased at a slightly faster rate than India’s. From 1988 to 2002, China’s total health spending as a share of GDP increased from 3.3 percent to nearly 5.5 percent, while India’s increased from about 3.5 percent to 5.0 percent over roughly the same period (Exhibit 4).14 These trends also appear in the growth of real per capita health spending. In China, this spending grew at an annual rate of 11.3 percent from 1990 to 2004—more than two percentage points faster than the growth of real per capita GDP (9.2 percent). In India, estimated real per capita health spending increased by nearly 6.2 percent per year from 1988 to 2002. Such rapid health spending growth is another factor behind the large financial risk that households in these two countries face in the event of illness.

Although data are limited, it is widely known that the rapid health spending growth in both countries is at least partly a reflection of waste and inefficiencies

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**EXHIBIT 1**

**Trends In Life Expectancy At Birth And Infant Mortality In India And China, 1960–2005**

<table>
<thead>
<tr>
<th>Year</th>
<th>Life expectancy (years)</th>
<th>Infant deaths per 1,000 live births</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>70</td>
<td>150</td>
</tr>
<tr>
<td>1965</td>
<td>60</td>
<td>120</td>
</tr>
<tr>
<td>1970</td>
<td>50</td>
<td>90</td>
</tr>
<tr>
<td>1975</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>1980</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

**Source:** World Bank, World Development Indicators, various years.

**Notes:** Infant mortality rates in both countries (dotted lines) relate to the left-hand y axis; life expectancy at birth for both countries (solid lines) relates to the right-hand y axis. Data for infant mortality for both countries are for every five years, and data for life expectancy for both countries are for selected years, as indicated by square marks.
in their health care systems. In China, providers overprescribe drugs and tests.\textsuperscript{15} Counterfeit drugs are often used, especially in rural areas. Urban hospitals race to introduce high-tech services and expensive imported drugs that give them higher profit margins.\textsuperscript{16} In India, studies have shown that even licensed doctors provide poor-quality services, such as overprescribing drugs, and smaller private hospitals
lack basic medical equipment and trained personnel. The public sector, too, is inefficient, with shortages of drugs and consumables and frequent absenteeism.\textsuperscript{17}

In summary, although China and India have made improvements in outcome indicators such as life expectancy and infant mortality, major challenges still exist, in the form of disparities in health outcomes, unaffordable and unequal access to care, household impoverishment due to medical expenses, and rapid health spending growth.

**Explaining Poor Health System Performance**

- **Health care financing.** Until recently, government spending on health as a proportion of GDP has been declining in both China and India. This, combined with limited health insurance coverage, has meant increasingly heavy reliance on out-of-pocket payments.

- **Government spending on health.** Between the late 1980s and 2002–03, government spending on health as a proportion of total health spending decreased from nearly 30 percent to just over 15 percent in both countries.\textsuperscript{18} In China, this was attributable in part to the transition from a centrally planned economy to a market economy. The shrinkage of the state sector during the economic transition led to a drastic fall in government revenue as a share of GDP—from just over 30 percent in 1978 to around 10 percent in 1996—forcing the government to reduce its total spending.\textsuperscript{19} However, it is also likely that reduced government spending on health reflected the policy priorities of the government. Throughout the economic transition, health was viewed as a consumption activity rather than a productive good and therefore was given lower priority in government funding.\textsuperscript{20} As a result, government spending on health as a share of total government spending fell from more than 6

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**EXHIBIT 4**

Total Health Spending As Percentage Of Gross Domestic Product (GDP) In India And China, 1988–2004

<table>
<thead>
<tr>
<th>Year</th>
<th>India</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>3.0</td>
<td>3.5</td>
</tr>
<tr>
<td>1990</td>
<td>3.5</td>
<td>4.0</td>
</tr>
<tr>
<td>1992</td>
<td>4.0</td>
<td>4.5</td>
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<tr>
<td>1994</td>
<td>4.5</td>
<td>5.0</td>
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<tr>
<td>1996</td>
<td>5.0</td>
<td>5.5</td>
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<tr>
<td>1998</td>
<td>5.5</td>
<td>6.0</td>
</tr>
<tr>
<td>2000</td>
<td>6.0</td>
<td>6.5</td>
</tr>
<tr>
<td>2002</td>
<td>6.5</td>
<td>7.0</td>
</tr>
<tr>
<td>2004</td>
<td>7.0</td>
<td>7.5</td>
</tr>
</tbody>
</table>

**SOURCES:** Data on India are based on the authors’ calculations. Data on China are from Ministry of Health, China Health Statistical Yearbook, 2006.
percent in the early 1990s to less than 4 percent in 2002.21

In India, government spending as a proportion of GDP has hovered around 20–25 percent during the past two decades; however, interest payments and pension liabilities have greatly constrained the government’s fiscal capacity to fund social programs such as health care. In addition, wage increases for all public-sector employees at the central and state levels have further constrained the government’s course of action.22 The economic crises India faced in the early 1990s also led Indian policymakers to place a high priority on economic growth, just as China did. Health spending as a proportion of total government recurrent spending fell from 4.5 percent in 1985–86 to 3.3 percent in 2004–05.

■ Health insurance coverage. Both China and India have limited insurance coverage, and low-income and rural households are the least protected. In pre-1979 China, near-universal insurance coverage was provided by the Cooperative Medical Scheme (CMS) in rural areas and by the Government Insurance Scheme (GIS) and Labor Insurance Scheme (LIS) in urban areas. When China reformed its rural economy in 1979 and introduced the Household Responsibility System, the communes, which had financed the CMS, disappeared. Without its funding base, the CMS collapsed, leaving 90 percent of all peasants uninsured. In cities, the GIS and LIS were replaced by a city-based social health insurance scheme that covers only workers in the formal sector, leaving their dependents, informal-sector workers, and migrant workers uninsured.23

China’s 2003 National Health Services Survey shows that only 55.9 percent of urban residents and 21.4 percent of rural residents have insurance coverage. There is also wide variation in insurance coverage across income levels. Within the urban areas, 80.5 percent of people in the highest income quintile have insurance, compared with only 24.0 percent in the lowest income quintile. Within rural areas, 31.9 percent of people in the highest income quintile have insurance, compared with 20.1 percent in the lowest income quintile. In addition, the depth of coverage also varies greatly with the socioeconomic conditions of the city/county—the unit of risk pooling.

In India, only around 15 percent of the population has any type of health insurance, primarily through employers.24 In 1999 the Indian government opened the insurance market up to private insurers; however, their market share is still quite small, barely covering 1 percent of the population.25 Similarly, although no official numbers exist as to coverage by income level, since insurance is primarily offered through a person’s employer, higher-income people, urban area–based workers, and government employees are the predominant recipients, and low-income farmers, agricultural laborers, unskilled employees in the informal sector, and entrepreneurs are less likely to be covered.

■ Out-of-pocket spending on health. Low government health spending together with limited insurance coverage have led both China and India to rely heavily on out-of-pocket payments. Although the share of out-of-pocket spending in total
health spending is higher in India than in China, the rate at which out-of-pocket spending has been increasing relative to total health spending over the past decade is higher in China. As recently as 1990, out-of-pocket payments made up just over 21 percent of China’s total health spending; by 2002, they had risen to 58 percent. In India, the share is even higher, increasing from about 70 percent in 1987–88 to more than 80 percent in 2002–03.

■ Health care delivery. A more fundamental, but often neglected, cause of medical impoverishment and unaffordable access is the rapidly rising cost of health care that stems from the organization and incentives built into the delivery system. Limited government funding has left a vacuum in the provision of health care services in both China and India. The pathways that they have taken to fill this gap are different. China has maintained public ownership over most health facilities, making public provision of care the dominant mode for the majority of services while legitimizing profit-seeking behavior at public facilities through a set of perverse incentives. In contrast, India has followed a policy of benign neglect and allowed entrance into and expansion of the private sector to fill in the gaps, with little effective regulation or enforcement.

In China, the reduction in government revenue as a result of the economic transition has drastically reduced government subsidies to public facilities. Government subsidies for public health facilities fell to a mere 10 percent of the facilities’ total revenues by the early 1990s. To keep health care affordable, the government sets prices for basic health care below cost, but because it also wants facilities to survive financially, it sets prices for high-tech diagnostic services above cost and allows a 15 percent profit margin on drugs. These seemingly sensible cross-subsidies have created perverse incentives for providers, who now have to generate 90 percent of their budget from revenue-generating activities, turning hospitals, township health centers, and village doctors alike into profit-seeking entities. As a result, even though structurally the delivery system of China is public, the behavior of public facilities is consistent with that of for-profit private providers. This behavior has led to serious waste and inefficiencies in the system and is a major cause of cost increases that exacerbate the problem of affordability.

In India, public facilities receive the bulk of their revenues from government subsidies and provide services at low cost to those who cannot afford the more expensive private care. At the same time, the government allows private hospitals and practices to flourish, but with little regulation. In fact, many public practitioners also run private practices on the side in an attempt to supplement their government salaries. This large and unregulated private sector is plagued with the consequences of market failures that have contributed to India’s health spending.
inflation. In particular, supplier-induced demand is prevalent, as reflected in the rapid growth of modern medical practitioners who seek to practice in the private sector, where they can charge high prices with no regulation, and the proliferation of commission-based referrals to diagnostic centers and adoption of high-end medical technologies, especially in urban areas.\textsuperscript{29} Rising consumer expectations as a result of income growth have provided further opportunities for providers to induce demand, particularly for the latest technologies.

Interestingly, although both the Chinese and Indian governments started with the good intention of assuring affordable access to basic health care for low-income populations, their chosen strategies have been largely ineffective in achieving this goal. In China, when the government adopted a price schedule that sets prices for basic services below cost, the intention was to assure access to basic health care even for the poor. However, the same distorted price schedule has led to perverse incentives to overprescribe drugs and high-tech diagnostic services and procedures. These, in turn, have led to cost inflation and have rendered health services largely unaffordable for the poor and rural populations who have no insurance coverage and whose income growth lags far behind the growth of health spending. In India, the government almost fully subsidized services provided by the public sector, to ensure access for low-income people. However, poor supervision has led to poor quality, unavailability of drugs, and high levels of absenteeism in the public sector, by default pushing patients to the private sector and subjecting them to uncertain and relatively high health care costs.\textsuperscript{30}

**Latest Reform Initiatives And Future Challenges**

Both China and India are likely to face even greater health policy challenges related to financial risk protection and affordable access to care in future years, particularly with the aging of their populations. The percentage of the population age sixty and older is projected to increase from 10.2 percent in 2000 to 29.9 percent by 2050 in China and from 7.6 percent to 20.6 percent in India.\textsuperscript{31} Both countries face major disease burden from noncommunicable conditions that are expensive to treat, such as diabetes, heart disease, and cancer.\textsuperscript{32} Communicable conditions such as HIV/AIDS are likely to impose additional financial burdens.\textsuperscript{33}

The Chinese and Indian governments have recognized the fundamental problem of insufficient government funding for health. With their thriving economies, both governments have committed to infusing additional funds into health care. The Chinese government has committed to increasing government funding for health care by as much as 1–1.5 percent of its GDP (about US$25–US$38 billion) over the next several years.\textsuperscript{34} The National Rural Health Mission (NRHM) in India plans to more than double Indian government spending on health, to about 2 percent of GDP.\textsuperscript{35}

China’s new government investment is directed to providing universal basic health care. Specifically, China has established the New Cooperative Medical Systems.
Scheme (NCMS)—a government-run, voluntary insurance program that aims to insure rural residents against catastrophic health expenses. The central and local governments each subsidize 40 yuan (US$5) per farmer (for a total of US$10) in the western and central provinces (expected to be doubled by 2010), with the farmer paying an additional 10 yuan (US$1.25) as an annual premium to enroll in the program. By the end of 2007, the NCMS covered 86 percent of the rural population; it is targeted to reach 100 percent by the end of 2008. In urban areas, the government will increase subsidies to expand social health insurance to the uninsured, particularly to those who work in the informal sector and to migrant workers. In addition, China will make a substantial investment toward building a primary care system, including establishing community health centers in every urban neighborhood and strengthening township health centers in the rural areas to provide prevention, primary care, home care, and rehabilitative services.

In India, the NRHM aims to increase access to care for the rural populations, particularly the poor, by establishing and expanding risk-pooling schemes and also by strengthening public facilities that rural populations generally access: adding personnel, strengthening infrastructure, and supporting community oversight of public health functionaries. In addition, the Indian government, beginning in 2003, introduced an insurance scheme, heavily subsidized by the central government budget and targeted to the poor. Enrollment is voluntary, and to date the take-up rate is low. India also has a number of local experiments and interventions under way. For instance, the state of Andhra Pradesh provides subsidized insurance coverage to low-income pregnant women who give birth in modern medical facilities, to promote institutional births. The provincial government of Karnataka has subsidized insurance coverage provided by nonprofit groups for school children, farmers, and the poor. However, the scale of such schemes is still small, and the extent of financial coverage is limited.

After many years of government underfunding, both China and India have committed to sizable increases in government investment in health. Both countries have also recognized that the poor and rural populations are particularly disadvantaged in obtaining access to health care and face major financial risk in the event of illness. Thus, explicit policies are being developed to target the governments’ funding toward the poor and rural populations. To date, however, neither country has a systematic policy for reducing inefficiencies in service provision and managing health spending inflation—a fundamental cause of unaffordable health care and heavy financial risk. It is still too soon to know whether the additional government investment, channeled through insurance coverage and health facility infrastructure strengthening, will produce benefits for the people, in terms of increasing access to health care, reducing financial risk, improving health status, and reducing inequalities in health and health care. However, our view is that without companion policies to reform the delivery sys-
tem and payment incentives and to strengthen regulation, the potential benefits of additional resources will not be fully realized. Money alone will not be sufficient to deliver effective, high-quality care for these two countries.

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NOTES
4. See Appendix Exhibit IA online at http://content.healthaffairs.org/cgi/content/full/27/4/921/DC1.
5. For the urban poorest, the burden fell in 2003, although the burden per visit or admission rose. This was due to a fall in the utilization rate, which might be due to reduced access to care among this group, who were largely not covered by any insurance during 1993–2003. Data for these years are available in Appendix Exhibit IA online, as in Note 4.
6. For these data and additional data for 1995–96, see Appendix Exhibit IB online, as in Note 4.
7. See Appendix Exhibits IA and IB online; ibid.
8. See Appendix Exhibits 2A and 2B online; ibid.
10. See Appendix Exhibit 2B online, as in Note 4.
11. Authors' communication with Abhay Bang, SEARCH, Maharashtra, October 2006; and Pradeep Singh, Coney Island Hospital, New York City, November 2007.
14. P. Smith, C. Wong, and Y. Zhao, “Public Expenditure and Resource Allocation in the Health Sector in China” (Washington: World Bank, 2004). Estimates of health expenditures for India were constructed as the sum of out-of-pocket spending on health using consumer expenditure surveys undertaken by the National Sample Survey in India (upwardly adjusted to take account of the well-known discrepancy between consumption expenditure from surveys and National Health Accounts statistics in India) and public-sector spending on health. Detailed estimates of health spending based on the National Health Accounts are available only for 2001–02 in India. A comparison of the two sets of estimates suggests that any error resulting from omitting other categories of spending is small.
18. See Appendix Exhibits 3A and 3B, as in Note 4.
20. Blumenthal and Hsiao, “Privatization and Its Discontents.”
22. Rising salaries might have induced public-sector employees to work harder. However, this appears unlikely, given the serious organizational issues that continue to plague public-sector functioning in India, as well as the continued income differentials between the public and private sectors in India.
34. Yip and Hsiao, “The Chinese Health System at a Crossroads.”