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**Health Care for 1.3 Billion:
An Overview of China's Health System**

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Health Care for 1.3 Billion:
An Overview of China's Health System

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Abstract. What kind of a health care system do China's 1.3 billion turn to when ill, injured, or in need of care? This article provides a brief overview of how China's health system has transformed alongside China's society and economy since the Mao era, including how the current system is financed, organized, regulated, and being reformed. I first provide a brief description of the Mao-era health system and China's demographic and epidemiologic transitions. Then I overview China's contemporary health care system, including the dramatic expansion of health insurance over the last eight years and the progress of national health system reforms initiated in 2009.

A condensed and revised version of this paper will be published in *The Milken Institute Review*.

¹ I am grateful to Shannon Davidson and Rong Li for excellent research assistance. A condensed and revised version of this paper will be published in *The Milken Institute Review*.

A half century ago, in the early Mao era, China's population of half a billion people was young (36% age less than 15), 80 percent rural, one-third illiterate, and living in absolute poverty. By 2010, China's 6th population census – the largest social survey ever conducted – revealed a population of 1.3397 billion that was fundamentally different: ageing (13.3% over age 60 and only 16.6% below age 15); half (49.7%) urban; 96% literate, with 23% attaining a high school or college education; and the second largest economy in the world, with per capita income over US\$4000 (over \$7000 per capita GDP in purchasing power parity terms).² Life expectancy has increased from less than 40 in 1949 to 72.5 for men and 76.8 for women in 2010.³

What kind of a health care system do China's 1.3 billion turn to when ill, injured, or in need of care? This article provides a brief overview of how China's health system has transformed alongside China's society and economy, including how the current system is financed, organized, regulated, and being reformed. I first provide a brief background on the Mao-era health system and China's demographic and epidemiologic transitions. Then I describe China's contemporary health care system, including the dramatic expansion of health insurance over the last eight years and the progress of national health system reforms initiated in 2009.

Background: The Mao-Era Health System

During the Mao era (the 1950s through 1970s), China's mostly rural population had access to basic health services under cooperative medical schemes managed by agricultural communes. The small but growing urban population was largely covered by work-unit-based health insurance either through the Labor Insurance System or the Government Insurance System. The famous "barefoot doctors" of the late 1960s and 1970s provided basic medical services and health promotion such as immunizations to China's vast rural population. Although the standards of care were minimal (village doctors usually had only a few months training after secondary school), widespread availability and use of basic medicines, including traditional Chinese medicines, and active emphasis on control of infectious disease contributed to dramatic health improvements. Indeed, the increase in life expectancy at birth from 35~40 in 1949 to 65.5 in 1980 represents the most rapid sustained increase in documented global history (Miller, Eggleston, and Zhang, 2011).

² For the 2010 census results, see Peng (2011) and "Charts of Major Figures from Population Censuses" (*Quanguo Renkou Pucha Zhuyao Shuju Tubiao*), National Bureau of Statistics of China, 2011; the latter includes comparisons to the first two censuses in 1953 and 1964.

³ See discussion and sources in Miller, Eggleston and Zhang (2011) and in Eggleston (2011).

Recent empirical analysis suggests that in addition to China's return to stability after decades of war and better nutrition, significant determinants of this health improvement included widespread public health interventions and increasing levels of educational attainment (ibid).

Although China's development strategy had always relied on significant decentralization, decentralization of financial management to local governments and individual enterprises was a defining feature of the 1980s and 1990s. Urban areas saw the implementation of user fees as public funding declined, and the dissolution of rural cooperatives and association of cooperative medical schemes with the radicalism of the Cultural Revolution (Duckett 2011) caused insurance coverage levels in rural areas to drop to 7% of counties by 1999 (Tam, 2010; Manning, 2011; Barber and Yao, 2011), with village doctors becoming fee-for-service private providers. The majority of China's population did not have health insurance between 1980 and 2000. Supply-side subsidies typically covered less than 10% of provider expenses, with the remainder earned through fee-for-service payment from uninsured patients.

China's Demographic and Epidemiologic Transitions

In addition to China's economic transition from central planning to a market-based economy, China's health system has had to adapt to large changes in the population and disease burden. Demographic transition from high mortality and high fertility to relatively low mortality and low fertility occurred quite rapidly. The total fertility rate declined from around 6 in 1950-55 to around 2 in 1990-95, with the most rapid decline in the 1970s prior to the beginning of the one-child policy. The total fertility rate is now below replacement level (Peng, 2011). As a result of reduced mortality and increased human capital investment per child, by 1980 at the beginning of the reform era China had already attained better health and higher educational attainment than other countries of similar per capita income (Eggleston 2011). Although health progress in the early reform era was less dramatic (life expectancy had reached 69.9 for women and 66.9 for men by 1990), by 2010 life expectancy was 76.8 for women and 72.5 for men.

Over the past quarter century, China's primary burden of disease has shifted definitively from infectious to chronic non-communicable disease, although the burden of some infectious diseases such as tuberculosis remains large.⁴ In both urban and rural areas, cancer, heart conditions, and cerebrovascular diseases are now top killers. Jiang He and colleagues (2009) show that

⁴ Noncommunicable diseases accounted for over 70% of China's disease burden by 2001, a rise of 20% in its relative share since 1990, according to the NIH/WB/WHO Disease Control Priorities Project; see Lopez et al. 2006 and "Burden of disease in China in 2001," Disease Control Priorities Project, April 2006, available at www.dcp2.org.

hypertension is the leading preventable risk factor for premature mortality in China, accounting for 2.33 deaths in 2005. Most blood pressure-related deaths were caused by cerebrovascular diseases (ibid). By in 2007-2008, the age-standardized prevalence of diabetes among adults in China was 9.7 percent (Yang et al. 2010), with the majority of patients undiagnosed and untreated.⁵ China's health system faces the challenge of transitioning from focus on acute care and control of communicable disease to a system supporting prevention and cost-effective management of chronic disease.

Health Care Financing in the Reform Era: A Renewed Role for Public Finance

Spending on health represents a relatively modest share of China's GDP (5.01% in 2010) -- a higher share than India or Indonesia, a little less than Russia or Turkey, and far less than the OECD average of 9.5%.⁶ However, since the pace of GDP growth has been unprecedentedly rapid, and health spending has increased as a share of GDP (from 3.65% in 1994), the growth of China's health spending has been one of the most rapid in world history.⁷

At first, this growth of spending came primarily from increases in out-of-pocket spending, but more recently China has greatly increased government funding, mostly through public subsidies for voluntary enrollment in social insurance programs in rural and urban areas. Private spending as a share of total spending initially increased during the reform era, reaching almost two-thirds of spending (64.43%) in 2001. In 2002, with the beginning of government-subsidized health insurance for rural Chinese, the private share of health spending started a gradual decline, reaching 45.94% by 2010.⁸ Thus, public spending now constitutes a little over half of China's total health spending, much higher than many low- and middle-income countries and a similar proportion as in the US and South Korea, but significantly lower than the average of 72% for OECD countries.

Given the relatively small market for commercial insurance in China, private spending is overwhelmingly "out-of-pocket" spending by patients and their families (i.e., direct payment for

⁵ These trends are closely related to changes in diets, urbanization and more sedentary lifestyles. Ng and Popkin (2010) highlight China as one of 4 countries with the steepest increased in prevalence of overweight and obesity in the past 20 years (alongside Nicaragua, Peru, and Indonesia). Data from the China Health and Nutrition Survey shows that the prevalence of overweight increased from 12.8% in 1991 to 27.2% in 2006, with the steepest increase among the poorest (as measured by the poorest income tertile: 8% to 23.3%; Du, Wang, and Popkin 2009).

⁶ All health expenditure data is from the National Health Account estimates of the China National Health Development Research Center (2011). The modest share of GDP spent on health care partly reflects China's overall low consumption share of GDP. China's extraordinarily high savings rate is itself linked to the lack of a comprehensive safety net, and the population's precautionary savings for medical expenditures as well as old-age support, housing, children's education, and other major expenses.

⁷ Per capita health spending grew more than ten-fold between 1994 and 2010 (from 146 to 1,487 RMB per person in nominal terms).

⁸ China National Health Development Research Center, 2011, Table 5, p.9.

services at the moment of need). Out-of-pocket spending as a share of total health spending increased from 20.43% in 1978 to a peak of 59.97% in 2001 and then declined to 35.52% in 2010.⁹

This significant decline in out-of-pocket spending as a share of the total, while total spending has continued to grow rapidly, reflects the impact of China's dramatic expansion of social health insurance over the last eight years. Government financing has transformed from direct subsidies of government-run providers to subsidies for households to enroll in social health insurance. This financing change, often called "moving from subsidizing the supply side to subsidizing the demand side," has been most dramatic in rural areas, where as recently as 2001 government subsidies were almost exclusively in the form of supply-side budgetary support of healthcare providers. Only 8 years later, over half (54.8%) of government spending for rural health took the form of demand-side subsidies (subsidies for NCMS).¹⁰ This change in financing strategy has introduced a purchaser-provider split in China, especially in urban areas where the Ministry of Human Resources and Social Security now functions as purchaser. (In rural areas both the insurance (NCMS) and the provision are managed through the Ministry of Health).

China's spending on pharmaceuticals as a share of total expenditures on health has been persistently high by international standards (though not so atypical for low income countries or for East Asia); drug spending was about half of all health expenditures in 1992, subsequently declining somewhat to 40% by 2010.

These aggregate statistics can only portray a rough picture of China's health system, since China is a large and diverse country, with regions varying significantly in economic development and socio-demographic profiles. Moreover, China's system of health financing, like the financing of many public services, is quite decentralized, exacerbating rather than mitigating regional and urban-rural disparities. Poorer provinces receive some financial support from central government, but such redistribution is rather limited and large differences in spending persist. For example, the ratio of urban to rural per capita health spending was less than 2 in the early 1990s, increased to 3.63 in 2000, and then declined somewhat since the implementation of NCMS and the recent reforms, to 2.67 in 2010. This large urban-rural gap arose not because the health spending in rural areas stagnated; indeed, rural per capita health spending increased 17-fold over the last two decades (in nominal terms); but urban spending, like urban incomes, increased even faster: *33-fold* during those same two decades (China National Health Development Research Center, 2011). The

⁹ China National Health Development Research Center, 2011, Table 3, p.6.

¹⁰ Gonggong Caizheng Zhuanxing, Yiliao Tizhi Gaige yu Zhengfu Weisheng Chouzi Zeren de Huigui, Zhongguo Jingji Tizhi Gaige Yanjiuhui Gonggong Zhengce Yanjiu Zhongxin, 2011, p.18.

almost three-fold greater per capita health spending in urban areas compared to rural ones is actually lower than the four-fold difference in urban-rural per capita incomes.¹¹

Organization of health service delivery

In terms of the locus of service provision, China has inherited a largely hospital-based delivery system managed through the Ministry of Health and local governments, supplemented by a vast cadre of village doctors and a newly developed system of grassroots providers in urban areas. Like many other health systems in Asia (including Japan and Korea), a large share of outpatient visits, even for relatively minor conditions and first-contact care, is to secondary and tertiary hospital outpatient departments. Unsurprisingly, spending on inpatient services represents the largest category of provision, increasing in the reform era to reach a peak of 68.88% of total health spending in 2003 and then declining slightly to 61.61% in 2010.¹²

China's recent reforms promote development of a primary health care system of "grassroots providers," strengthening the quality and funding for village clinics, township health centers, urban community health centers, and launching a new program for GPs designed to bring "barefoot doctors" into the 21st century in terms of training and quality.¹³ The effort to build up a reliable network of non-hospital-based primary care providers is a difficult and long-term process, since patients have a well-founded distrust of the quality of primary care providers. Unlike in some other developing countries, however, China does not face the same challenges of rampant absenteeism and crumbling infrastructure. But the ubiquitous slogan "*kan bing nan, kan bing gui*" (getting health care is difficult and expensive) captures the average Chinese patient's concern about access to appropriate and high-quality care.

China has never imposed gatekeeping requirements; patients traditionally have been free to self-refer to any provider, although social health insurance programs limit coverage for providers outside the given locality (county or municipality). Again, this tradition of patient choice is quite similar to other health systems in East Asia (Japan, South Korea, Taiwan), where gatekeeping is virtually nonexistent.

¹¹ The 4-fold difference in urban and rural per capita income is estimated by Li Shi, Terry Sicular and colleagues based on detailed data from the China Household Income Project, a collaborative survey research project monitoring changes in incomes and inequality.

¹² China National Health Development Research Center, 2011, Table 9, p.66.

¹³ The official definition of "grass-roots health care institution" includes community health centers, community health stations, sub-district health centers, village clinics, freestanding outpatient departments, and other clinics.

China's hospitals, and a large share of its grassroots providers, are government owned and managed. The latest available statistics, covering January through October 2011, show that private hospitals accounted for 6.1% of discharges and 8.2% of outpatient visits.¹⁴ The private sector accounts for a larger share of services at the grassroots level, including 18.6% of visits to community health centers and stations. Although most township health centers are government-run, almost half of all visits to grassroots providers were to village clinics, most of which are private. It is difficult to document precisely how much China's private sector delivery has grown during the reform era because China's official statistics only recently began separately categorizing public and private delivery.¹⁵ Health service providers also include specialized public health organizations such as the China Center for Disease Control (CDC), specialized disease prevention and treatment organizations, health education centers, maternal and child health centers, and family planning service centers.

Some national health reform goals are defined in terms of the future ecology of providers. Specifically, authorities call for rejuvenating the three-tier network of providers, with a goal of each county having at least one "Grade 2B" hospital (secondary "medium-level" hospital) and several central township hospitals; each administrative village having a clinic; and each [urban] neighborhood having a community health facility.

China's 21st Century Health System

As noted earlier, out-of-pocket spending increased to 60% of total health spending in the reform era (even without including the ubiquitous informal "red packet" payments to doctors), despite efforts to try to revive risk pooling. In 1996, the Central Government convened a national meeting on health reform and issued a policy document encouraging local governments to experiment with the re-establishment of cooperative medical schemes (CMS) in rural areas. However, significant coverage expansion did not occur until the government announced direct budgetary support for the new CMS (NCMS) in 2002, with matching contributions from local

¹⁴ See the Ministry of Health website for current statistics, available at <http://www.moh.gov.cn/publicfiles/business/htmlfiles/mohwsbwstjxxzx/s7967/201112/53508.htm>.

¹⁵ According to the official definition, public (*gongli*) hospitals include state-owned and collective-owned hospitals. Non-public (*minyong*) hospitals include joint ventures, cooperatives, purely private, and hospitals funded from sources in Hong Kong, Macao, Taiwan, or foreign countries. Prior to 2009, delivery organizations were categorized as for-profit or not-for-profit, but not by public and private ownership. In 2008, for-profit hospitals accounted for 4.0% of discharges and 4.4% of visits. For-profit providers account for a larger, albeit still minor, share of specialized inpatient services (13.7% of visits and 14.9% of discharges in 2008).

governments and households (CCCPC, 2002, cited by Bloom, 2011). NCMS risk pooling is at the county level, and it was implemented as a voluntary health insurance program with household-based annual enrollment. By 2009, 94% of rural counties offered NCMS (Barber and Yao, 2011). Between 2003 and 2008, premium subsidies increased fourfold from 20 RMB per capita per year to 80 RMB per capita (Wang, 2009), and are slated to further increase, with wealthier regions able to offer more generous benefit packages.

In urban areas, the Urban Employees' Basic Medical Insurance system (UEBMI) was established in 1998 to replace work-unit-based coverage with municipality-level risk pooling (Liu, 2011). By the end of 2006, UEBMI covered 64% of the urban employed population but only 31% of the total urban population (Wang et al., 2011). To expand insurance coverage further, in 2007 the government launched pilot programs of the Urban Residents' Basic Medical Insurance program (URBMI) in several cities, and rapidly rolled out the program to all municipalities nationwide. This insurance program provides voluntary coverage for urban residents not enrolled in the employee insurance program, including students, retirees, and other dependents. The government subsidy under this program in 2009 ranged from 40 RMB to 80 RMB per capita, depending on the region's economic status and the social vulnerability of population groups (Lin et al. 2009; Wang et al. 2011). Migrant workers can obtain insurance through NCMS, URBMI, or in some cities, programs specifically designed for migrant workers.

The government emphatically reasserted its role in the health sector with major programs of health reform announced in 2009, backed with funding estimated at 850 billion RMB, or roughly US \$124 billion (Yip et al. 2009; Tam 2010; Eggleston 2010; Manning 2011). The first of the five priorities announced in 2009 was further expansion of social health insurance coverage. Currently, 95% of Chinese have health insurance.¹⁶ The voluntary government-subsidized programs of NCMS and URBMI have lower premiums and less generous benefit packages than the mandatory and longer-standing insurance programs for urban employees and government workers. China has expanded risk pooling through "wide but shallow coverage" that is gradually deepened over time to achieve universal coverage with a robust benefit package; this approach is sometime called "equal access by 2012 and universal coverage by 2020" (Yip, Wagstaff et al. 2009).

Commercial insurance companies' involvement in the reforms has been mostly as supplementary insurance coverage for the wealthy or for specific dread diseases, or in providing

¹⁶ According to Li Keqiang at a national meeting on health reform on November 29, 2011 in Beijing; see <http://sub.ldws.gov.cn/xhx/ReadNews.asp?NewsId=617>.

administrative-services for social health insurance plans (经办 *jingban*).¹⁷ The percentage of social health insurance funds involved in contracting out to commercial insurers for administrative services remains limited, though it might expand in the future.¹⁸

China overall achieved its five articulated goals for 2009-2011: extending basic health insurance coverage to 90% of the population, expanding the public health service benefit package, strengthening primary care, implementing an essential drug list for all grass-roots service providers (including separation of prescribing from dispensing in primary care), and experimenting with reforms of government-owned hospitals.¹⁹

In July 2011, the State Council issued a document entitled “Directions on the Establishment of the General Practitioner System,”²⁰ announcing that a general practitioner (GP) system will be implemented throughout China by 2020. The document lists principles for establishing the new system to ensure the quality of GPs, with a focus on improving their capabilities in clinical practice, standardizing criteria for training, and creating strict requirements for licensure and certification. The plan calls for two or three GPs in practice for every 10,000 urban and rural residents. The government will provide subsidies to GPs who are willing to work in remote areas in the central and western parts of the country. The initiative also envisions enabling local residents to establish stable contract-based ties with GPs to receive appropriate and coordinated services.

In sum, China has achieved wide, shallow coverage, and is proceeding to deepen coverage while putting in places additional mechanisms to try to assure that the additional health spending achieves “value for money spent,” including improvements in personnel training, provider organization governance, clinical service delivery, payment and contracting, and population health services. The next phase of reforms, to be announced in detail in 2012, appear to be intended to further deepen the 2009 reforms: enriching insurance benefits, improving portability, encouraging

¹⁷ Also using CHNS data, Liu and colleagues (2009) used a difference-in-difference approach to analyze effects of the NCMS on private health insurance purchasing decisions in rural China. Their primary findings suggested that adults were 2.1 percent more likely to purchase private health insurance when NCMS became available, and that the effect of NCMS on adult private coverage was larger in higher income groups and in communities that previously had CMS.

¹⁸ From Jan-Sep 2010, commercial insurers were involved in NCMS in 128 counties. They insured 345.5 million rural citizens and covered health payment of 1,820 million RMB (or \$266 million) during the period. (<http://www.moh.gov.cn/publicfiles/business/htmlfiles/mohncwsgls/s3582/201012/50149.htm>) Also see MOH, Q&A about commercial insurers’ role in health reform, available at <http://www.moh.gov.cn/publicfiles/business/htmlfiles/mohzcfgs/s9664/200904/40043.htm> [accessed 1 January 2012].

¹⁹ For more detail on the five priority areas of the 2009 national reforms and the explicit targets set for the 2009-2011 period, please see the appendix.

²⁰See “Directions on the Establishment of the General Practitioner System”(国务院关于建立全科医生制度的指导意见), July 1, 2011. http://www.ndrc.gov.cn/shfz/yywstzgg/ygzc/t20110707_421847.htm.

private sector delivery, reforming county-level hospitals, extending the essential medications system to private primary care providers, and further strengthening population health initiatives.²¹

The Political Economy of Health System Reform with Chinese Characteristics

As I have argued elsewhere (Eggleston 2010), only in the early years of the twenty-first century, almost thirty years into China's reforms, did the political economy of the severe acute respiratory syndrome (SARS) crisis and other links to social instability drive policymakers to reassess the problems in China's health-care system as a whole. The government has raised expectations that it will redress the problem of "*kan bing nan, kan bing gui*" (medical care being difficult to access and expensive). The credibility of its promises are now on the line as it moves past the initial stage of insurance expansion and grapples with how to deliver high quality care at reasonable cost to its 1.3 billion citizens.

Since health reforms impinge upon the jurisdictions and interests of multiple government ministries and agencies, the reform process since 2009 has been coordinated not from the Ministry of Health directly, but rather from a special unit directly under the State Council (the Health Reform Office of the State Council). The National Development and Reform Commission and the Ministry of Finance are key players in almost all aspects of reform. The Ministry of Human Resources and Social Security is in charge of the urban insurance plans. The Ministry of Civil Affairs runs the Medical Aid program, providing financial aid to the poor to be able to afford basic health insurance coverage. The China Insurance Regulatory Commission has played a strong role in encouraging commercial health insurance. Streamlining drug manufacturing and distribution and provincial-level drug procurement for all government-run primary care providers involves coordination with the Ministry of Industry and Information Technology, the Ministry of Commerce, and the State Food and Drug Administration. Questions of personnel and staffing, such as the reform toward allowing health workers to practice anywhere within the same locality (rather than only have a license to practice at a given hospital or clinic), requires involvement of the Office of Central Institutional Organization. The Ministry of Education becomes involved in revamping educational requirements, such as the new GP system (or efforts to improve health education and mental health services in schools).

Health system reforms in China not only constitute an important chapter of global health system improvement, but also embody and illustrate China's broader economic and social reform

²¹ See the summary of the national meeting on health reform on November 29, 2011 in Beijing, available at <http://sub.ldws.gov.cn/xhx/ReadNews.asp?NewsId=617>.

process, including the style and management of reforms through what Chenggang Xu calls “regionally decentralized authoritarianism” (Xu 2011). Reform proposals and guidelines set parameters and goals for reforms, but delegate to local authorities – at the provincial, and then lower levels – the autonomy and accountability for implementing reforms. The Health Reform Office of the State Council signs “accountability forms” with provincial governments, who delegate tasks through contracts with local governments down to the county level. Moreover, officials’ evaluation criteria for promotions have been expanded to include some targets of health reform, such as over 90% enrollment in the voluntary social health insurance programs (NCMS and URBMI).²² Not achieving these targets reflects poorly on local officials’ leadership skills and impacts future promotion, so they spend considerable time and resources to encourage enrollment. Keeping enrollment voluntary, in turn, gives higher-level authorities an important signal about whether the populace perceives the new insurance programs to be worthwhile and effective.

Unfortunately, many characteristics of a modern, equitable, and efficient health system are not so easily defined by objective, easily observable and quantifiable targets for local authorities. One particular quandary for China is how best to improve governance of health service providers, especially government-owned urban hospitals, the “commanding heights” of China’s health service delivery system. Numerous Chinese authors describe the formidable difficulties of public hospital reform and propose dramatically different approaches (Li 2010; Gu and Yu 2011; Xiong 2010; Zhou 2011; Yu 2011; Cai 2011). Official government reform documents since 2009 have called for “bold and innovative” local experiments, including ownership restructuring. However, the political stakes are high, the interest groups strong, the financial flows large, and the risk of mismanagement appear to outweigh the rewards from such bold reforms. Many analysts and officials privately express doubts that much will really happen until the central authorities articulate a clear policy regarding hospital reform.

Improved Access and Risk Protection

Of the five priorities announced in 2009, expansion of health insurance coverage has almost surely been the most successful. The central role of health insurance is to protect enrollees from the risk of high medical expenditures. Protection from risk is also likely to support better access and utilization of “needed” services. However, insurance may also induce over-use (moral hazard) on

²² Although it is not entirely clear which health system-related objectives are included in the assessment criteria for promotions, it is clear that officials do respond to those incentives. Three of the better-known components of the cadre evaluation system are local economic growth, social stability, and meeting family planning goals.

both the demand side and the supply side. Moreover, with voluntary coverage (as for NCMS and URBMI), adverse selection could cause unraveling of coverage if enrollment rates are low.

An increasing number of empirical studies confirm that China's recent expansion of insurance has achieved relatively high enrollment, avoided significant adverse selection, improved access to care, and reduced catastrophic spending -- albeit with wide regional and sub-population disparities and some anomalies (Liu et al. 2009; Gu 2010; Song 2011). For example, Wagstaff and Lindelow (2008) use three surveys from the early years of China's insurance expansion to show that after accounting for the endogeneity of insurance, health insurance coverage *increases* the risk of high and catastrophic spending. Their analyses probing this pattern suggest that the early limited insurance coverage had this impact because it encouraged access to care and use of higher-level providers, without benefit packages rich enough to offset the overall increase in medical expenditures. Similarly, Wagstaff and colleagues (2009) find that NCMS boosted access to care (in terms of higher outpatient and inpatient utilization) and township health centers' revenues, but did not decrease out-of-pocket spending or expenditures per case at township health centers.

One of the first economic analyses of the new URBMI by Lin and colleagues (2009) used household survey data to show that participation was highest among the very rich or the very poor, and that the most significant benefits and satisfaction were experienced by the poor and those who had previously utilized inpatient services. Those patients with previous inpatient care were more likely to enroll in the program, as were those with chronic disease, suggesting some adverse selection into participation. The poorest patients reported the highest satisfaction (Lin et al. 2009). Coverage for migrant workers has been especially problematic, but localities have made some progress in integrating migrants into the existing patchwork of social insurance funds. For example, Qing and Liu (2011) find that the Urban Employee Basic Medical Insurance has been effective in lowering the out-of-pocket inpatient cost, increasing the number of physical exams, and improving the self-rated-health for migrant workers enrolled in that program. Studies of the elderly (e.g. Liu et al. 2011) find that insurance has increased access and reduced financial burdens for family members.

Lei and Lin (2009) find that while NCMS has increased preventive care, it has not improved overall health status, decreased out-of-pocket expenditure, or increased utilization of formal medical services. Babiarz and colleagues (2011) find that NCMS did significantly reduce the risk of catastrophic medical expenditures for rural residents. NCMS also appeared to encourage utilization at the grassroots level (village and township providers rather than urban hospitals) to a mild extent.

Grassroots providers benefited from greater revenues, and since the NCMS was implemented under the existing system of incentives, it had little impact on revenue from drugs. Using a difference-in-difference analysis for 100 villages within 25 rural counties across five Chinese provinces in 2004 and 2007, Babiarz and colleagues find a 19% decrease in out of pocket medical spending and a 24-63% decrease in financial risk, as measured by the probability of borrowing or selling assets to finance medical care or the probability of incurring out-of-pocket health expenditure above the 90th percentile of spending among the uninsured. Other studies also show that NCMS is associated with improvements in THCs' financial situation and some evidence of improved risk protection.

Yan and colleagues (2010) use a mix of qualitative and quantitative data from six rural counties to show that local governments experience problems in managerial capacity that affect the ability to manage NCMS, particularly in the areas of inadequate staffing, poor organizational resources and conflicting responsibilities. Yu and colleagues (2010) used cross-sectional household data from Shandong and Ningxia provinces to show that NCMS only increased inpatient service utilization for high-income groups, and there was no significant change in outpatient service utilization for any income groups. For poor patients, NCMS appears to have helped to some degree with catastrophic inpatient expenses (Sun, 2009; Yi et al., 2009; Zhang, 2010). Dai and colleagues (2011) found that rural elders were the most satisfied with the NCMS, but that while NCMS has improved health-care utilization for some, there still remain impoverished rural elders with poor physical health and functional limitations that lack sufficient access to basic health care services.

Serious challenges to access remain, such as lack of portability of benefits, reliance on local government capacity and voluntary contributions, relatively low reimbursement ceilings and rates, inadequate catastrophic coverage, and incentives for unnecessary care and waste (Wang et al., 2011; Bloom, 2011; Barber and Yao, 2011).

Strategies to control cost and improve quality include strengthening the quality of primary-care provision, developing mixed provider payment mechanisms, and implementing essential medicines policies (Barber and Yao, 2011).²³

²³ Dai and colleagues (2011) suggest that stricter regulation for doctors' prescriptions, clinical practice and disease management is needed to promote rural elders' access to health-care services. A qualitative study by Bloom (2011) suggests that trust-based relationships between users, providers and funders of health services are essential for the development of an effective health sector. Blomqvist (2009) argues for a compromise model in which competing private providers have a role in both the production of health services and in the provision of health insurance, but in which the government intervenes to promote equity through regulation and direct provision to correct for market failure. On the other hand, Wang (2009) argues that effective reforms will depend on reevaluating the historically ambiguous role of the government in health care, as the

Distorted Incentives

China's recent health reforms also recognize the need to improve incentives throughout the system. For example, a key component of plans to strengthen primary care is improving the performance appraisal system for health workers in government-owned primary care organizations. Trends in government subsidies for disease control organizations provide another example. Government subsidies as a share of total revenues for disease control organizations declined in the 1990s to only 38.66% by 2000, before increasing to 57.8% in 2010. Nevertheless, more than 40% of the revenue of organizations tasked with almost a pure public good – disease control – still comes from sources other than government budgets.²⁴

Similarly, the essential medications system aims to reduce the distorted incentives created by high provider profits from dispensing medications, a feature with deep historical and cultural roots in the health systems of East Asia (Eggleston 2011). For example, Currie and colleagues (2011) employ an audit study to show that Chinese physicians over-prescribe antibiotics: 62 percent of 'simulated' patients were prescribed antibiotics even when the patients reported symptoms that did not warrant antibiotics; and 39 percent of physicians still prescribed antibiotics when the simulated patients signaled to doctors that they knew that taking antibiotics would be inappropriate.

However, removing half or more of provider revenue—as the essential medication system has for grassroots providers—causes major disruptions, and localities differ in their ability to manage and finance viable alternatives. In some areas, grassroots providers have borrowed and accumulated substantial debt. In July 2011, the State Council, National Development and Reform Commission, and Ministry of Health jointly issued an official notice to provincial and local authorities launching a two-year plan for getting rid of the debts accumulated by government-run primary care providers. Providers who do not borrow or make up revenue from services other than drug dispensing might be supported through pure salary payment. However, providers who revert to salary-based positions reminiscent of pre-reform “iron rice bowl” employment also lack

“administered market mechanism” has created problems through permitting state-owned hospitals' profit-seeking behavior and increasing the vulnerability of the uninsured. Yip and colleagues (2009) propose that the roots of the problems in China's healthcare sector will be best addressed by changing the provider payment method to a prospective payment method such as DRG or capitation with pay-for-performance, and developing purchasing agencies to represent public interests and enhance competition. Yip, Wagstaff and colleagues (2009) call upon economic researchers to turn a new page and focus on rigorous and evidence-based evaluation of the impacts of the current reform, along with critical and theory-based analyses of the underlying mechanisms.

²⁴ China National Health Development Research Center, 2011, Table 10, p.18.

incentive to provide quality services, instead referring patients to higher-level providers and exacerbating the crowding in China's urban hospitals.

I have argued elsewhere (Eggleston 2010) that effectively expanding China's health care coverage and redressing problems in service delivery will require difficult and thorough restructuring of the distorted incentives embedded in the current system, which arose early in the reform era. Following the success of dual-track reforms in other sectors of its economy, China enacted health policies intended to protect a "plan track" of access to basic health care even for the poorest patient while at the same time encouraging a "market track" for providers offering new, high-tech, more discretionary services to patients able to pay for them. The plan for basic access was neither defined nor protected in terms of risk pooling, so when organized financing largely collapsed (because it was linked to agricultural communes and soft-budget constraints for state-owned enterprises before the 1980s), little was put in its place. For two decades, the majority of Chinese were uninsured and paid for care directly at time of use. Over the past decade, however, China's top leadership has devoted considerable attention to health sector reforms, with encouraging results. To a considerable extent, future success will depend on remedying the distorted incentives in the current fee-for-service system to make quality care accessible and expanded insurance sustainable.

A national-level policy document issued in April 2011 urges localities to continue to experiment with case-based payment methods, focusing on medical conditions that have clearly defined clinical pathways and health outcomes. The document explicitly mentions the problems arising in pilot implementation, calling for better supervision and oversight: "health service providers cannot turn away [refuse to treat] high-cost patients, or without cause reduce length of stay or split treatment across multiple admissions."²⁵ Clearly, at least some providers have responded to the incentives of case payment in the pilots by actively selecting profitable patients, discharging "quicker and sicker," and/or discharging and re-admitting patients so that they can bill for multiple admissions within the fixed case payment ceiling per admission.²⁶ Although complicated, these problems are not insurmountable, and as implementation experience accumulates, the necessary regulatory context will gradually lay the foundation for mixed provider payment methods to spur better quality care with greater efficiency.

The Path toward Universal Coverage

²⁵ See <http://www.moh.gov.cn/publicfiles/business/htmlfiles/mohbgt/s7692/201104/51217.htm>.

²⁶ See <http://www.moh.gov.cn/publicfiles/business/htmlfiles/mohbgt/s7692/201104/51217.htm>.

In the historical saga of achieving “universal coverage” around the world, most nations have chosen a system that is either predominantly based on health insurance (a Bismarkian or National Health Insurance model) or a national health service (Beveridge model). Among nations choosing insurance, most have tread the path of gradually expanding a solid insurance package to a larger and larger share of the population, so that when coverage reaches the final segments of the population (typically self-employed and informal sector workers and their dependents), the nation achieves universal coverage. Although some “underinsurance” may remain, out-of-pocket payments rarely account for a large share of total medical spending when universal coverage has been achieved.

In a meaningful sense, China has pioneered a different approach. On the one hand, the primary care system is organized and financed increasingly like a national health service, while the broader array of services is financed through a patchwork of voluntary (NCMS, URBMI) and mandatory (UEBMI) social health insurance programs. Second, the expansion of social health insurance started by putting in place risk pooling mechanisms to enroll a large share of the population but only cover a small share of expenditures. (Even “underinsured” was a generous term for NCMS in 2003, when premiums were only 50 RMB -- about USD\$8 -- per year). Subsequently, China has built on that institutional foundation to enrich the financing and benefit package so that insured patients and their families will incur less financial hardship in paying for higher-quality health services.

A defensible definition of universal coverage including both breadth and depth of coverage might be as follows: more than 90% of the population has health insurance/coverage, and more than 60% of health care spending is through insurance or other risk pooling (i.e., out-of-pocket spending is 40% or lower). By this definition, China has now achieved universal coverage, since 1.295 out of 1.3397 billion people – fully 95% of the population – have health insurance, and out-of-pocket spending is 35.5% of total expenditures on health. However, the government hails this triumph of risk pooling not as universal coverage but as achieving the interim goal (*jieduanxing chengguo*) of expanding basic coverage articulated in the 2009 reform plan. The system continues to have many weaknesses in providing access to quality services. The challenge is to continue to deepen risk pooling, strengthen primary care, raise clinical quality, improve incentives, and re-engineer service delivery to better fit the needs of China’s increasingly urban, affluent, and aging society.

Appendix. China's 2009 Healthcare Reform and the 2009-11 Workplan

In April 2009, the China Central Communist Party along with the China State Council announced a comprehensive healthcare reform initiative²⁷ and issued a new healthcare reform plan named “Implementation Plan for Deepening Pharmaceutical and Health System Reform 2009-2011”. The government adopted five key reform priorities for the first three years of reform: accelerating the expansion of the basic health insurance system; establishing a national essential drug list system (including removal of drug dispensing revenues from government-run primary care providers); improving primary health care services through a renewed system of grassroots providers; promoting the equalization of basic public health services; and facilitating pilot reform programs in public hospitals.²⁸

In February, 2011, the General Office of the State Council issued “Major Work Plan for Five Key Reforms to the Pharmaceutical and Health Care System in 2011” (2011 Work Plan)²⁹ and the 2011 Work Plan, followed by a host of implementation rules and policy documents in each of the priority areas.

1) Expand the basic medical insurance coverage

According to the 2011 Work Plan, the government aims to enroll a combined 440 million urban employees and residents in Urban Resident Basic Medical Insurance (URBMI) (城镇居民基本医疗保险) and the Urban Employee Basic Medical Insurance (UEBMI) (职工基本医疗保险) programs and to achieve the coverage of medical insurance through the existing health coverage programs (URBMI, UEBMI, New Cooperative Rural Medical Scheme (NCRMS) (新型农村合作医疗) for more than 90% of the population. Under URBMI and NCRMS, the patients are reimbursed for about 70% of their inpatient expenditures. The subsidy on URBMI and NCRMS by government budgets at various levels will be increased to 200 Yuan per person per annum, from 120 Yuan previously. The

²⁷ See “Opinions of the CPC Central Committee and the State Council on Deepening the Health Care System Reform” (中共中央 国务院关于深化医药卫生体制改革的意见), April 6, 2009.

http://www.ndrc.gov.cn/shfz/yywstzgg/ygzc/t20090407_359819.htm

²⁸ See “Implementation Plan for Deepening Pharmaceutical and Health System Reform 2009-2011” (医药卫生体制改革近期重点实施方案2009—2011年), April 8, 2009. http://www.ndrc.gov.cn/shfz/yywstzgg/ygzc/t20090408_359820.htm

²⁹ See “Major Work Plan for Five Key Reforms to the Pharmaceutical and Health Care System in 2011” (国务院办公厅关于印发医药卫生体制五项重点改革2011年度主要工作安排的通知), February 13, 2011.

http://www.ndrc.gov.cn/shfz/yywstzgg/ygzc/t20110217_395635.htm

2011 Work Plan also requires expanding the overall scope of outpatient medical care and upgrading the insurance level of major diseases.

In April 2011, a document titled “Implementation Plan for New Cooperative Rural Medical Scheme in 2011”³⁰ was issued by MOH and two other ministries. The document details the implementation policies on increasing the subsidies and improving the insurance level for rural residents in the New Cooperative Rural Medical Scheme. The plan also suggests a commitment to establishing third-party purchasing, creating a social health insurance program as an alternative to continuing to subsidize providers directly.

2) Establish the national Essential Drug System (基本药物制度) at all local levels

With regard to relevant policies, the government issued “Regulations on National Essential Drug List”³¹, “Implementation Opinions on establishing the National Essential Drug System”³², “Opinions on Strengthening the Governance of the Quality of Drugs”³³, defined price guides for retail drugs and issued a guideline on the essential clinical drugs.

According to the 2011 Work Plan, the essential drug system will cover all government funded health institutions at the grassroots level and these government-directed grassroots level medical and health institutions shall follow the principle of a “zero percent mark-up” (零差价). The government also aims to establish a standard essential drugs procurement mechanism and rebuild the drug supply system at the grassroots level. The provincial governments should be responsible for holding public bidding, purchasing, and delivering the drugs to hospitals directly.

3) Upgrade the primary health care services at the grass-roots level

³⁰ See “Implementation Plan for New Cooperative Rural Medical Scheme in 2011” (卫生部关于2011做好新型农村医疗合作的工作通知), April 6, 2011. http://www.ndrc.gov.cn/shfz/yywstzgg/ygzc/t20110420_406542.htm

³¹ See “Regulations on National Essential Drug List” (国家基本药物目录管理办法), August 18, 2009. http://www.ndrc.gov.cn/shfz/yywstzgg/ygzc/t20090819_359834.htm

³² See “Implementation Opinions on establishing the National Essential Drug System” (关于建立国家基本药物制度的实施意见), August 18, 2009. http://www.ndrc.gov.cn/shfz/yywstzgg/ygzc/t20090819_359835.htm

³³ See “Opinions on Strengthening the Governance of the Quality of Drugs” (关于加强基本药物质量监督管理的规定), September 22, 2009. http://www.ndrc.gov.cn/shfz/yywstzgg/ygzc/t20091016_359838.htm

According to the 2011 Work Plan, the central government will give financial support to build or renovate 300 county-level hospitals, 1,000 township hospitals, and 13,000 local health care facilities. A goal is that in each county, at least one hospital reaches Tier 2 level (二甲医院), and 1-3 township hospitals reach the level of a standard hospital. More than 5,000 medical school students will be subsidized to work for township hospitals and army units at grassroots level in the central and western parts of the country. The plan is to provide general practitioner training for 15,000 doctors at health care institutions at grassroots level and to train 120,000 health care professionals at township health centers and 460,000 health care professionals at village clinics.

In January, 2010, the MOH and NDRC issued the “Opinions on Strengthening Rural Medical Team Building”³⁴ to strengthen the capacity building of local health professionals in rural areas.

4) Expand the coverage of basic public health services

According to the 2011 Work Plan, the subsidy for each resident’s basic public health services should be increased from 15 Yuan to 25 Yuan to cover nine categories of services, including planned immunization, maternal and child health care, folic acid supplements for rural women, mass screening for breast cancer and cervical cancer, physical examination for elders, and the establishment of health records. 50 percent of urban and township residents should have health records. The plan is to continue expanding the coverage of regular checkups for children, senior citizens and pregnant women, as well as to continue implementing major public health programs such as supplementary vaccination against Hepatitis B and prevention and control of HIV/AIDs.

5) Advance pilot public hospital reform

The MOH and four other ministries jointly issued the “Guidelines for Pilot Public Hospital Reforms”³⁵ on February, 2010, which marked the official start of pilot reforms of government-owned hospitals. The central government selected 16 representative cities to implement the pilot reform, and each province was authorized to select 1 to 2 additional pilot cities.

³⁴ See “Opinions on Strengthening Rural Medical Team Building” (关于加强乡村医生队伍建设的意见), January 10, 2010. http://www.ndrc.gov.cn/shfz/ywstzgg/ygzc/t20100119_359846.htm

³⁵ See “Guidelines for Pilot Public Hospital Reforms” (关于公立医院改革试点的指导意见), February 11, 2010. <http://61.49.18.65/publicfiles/business/htmlfiles/mohylfwjgs/s3585/201002/46062.htm>

Vice Premier Li Keqiang emphasized that the public hospital reform in 2011 will be particularly focused on county-level hospitals. In February, 2011, The General Office of State Council issued a document titled “2011 Work Plan for Pilot Public Hospital Reforms”³⁶, discussing hospital operations, governance, payment and incentives systems, and other related issues. The work plan pointed out that the pilot cities should promote the separation of regulation and management (管办分开), the separation of government ownership and party leadership from day-to-day operations (政事分开), the separation of medical services and pharmaceutical sales (医药分开), and distinguish for-profit from not-for-profit (营利性与非营利性分开).

To address the problem of imbalanced medical resources, the plan suggests “optimizing the structure of public hospitals,” prioritizing development township hospitals, establishing a cooperation mechanism between public hospitals and rural primary health care institutions, and upgrading the information infrastructure in the health sector. According to the plan, several measures will be taken to provide appropriate incentives for medical staff, such as improving the public hospital personnel and income distribution system, creating a favorable environment for medical practice, providing good conditions for professional development, and so on.

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³⁶ See “2011 Work Plan for Pilot Public Hospital Reforms” (2011年公立医院改革试点工作安排), February 28, 2011. http://www.ndrc.gov.cn/shfz/ywstzgg/ygzc/t20110310_399264.htm

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