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Financial protection in health in rural China, 1978-2005

Trends and current status

Rong Yang; Xiaoxiao Tian; Hugh Waters; Guang Shi

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Introduction

Amid public health sector reforms, China's health care system is currently at a critical point, encountering unprecedented opportunities as well as challenges as a result of recent rapid economic development. The World Bank report identified acute serious illnesses to be the major risk factor for 30% of Chinese people who live below the official poverty line; other research studies have also indicated that chronic illnesses are major contributing factors for financial impoverishment in China. (World Bank, 1993; J. Chen, Lucas, & Gong, 2004) Unfortunately, the burden of health payment in China has been enormous and, according to the World Health Report 2000, China ranks 188 out of 191 countries in "fairness of financial contribution" in terms of health spending relative to income.

In this paper, we focus on financial protection in rural China, where 745 million—57% of the Chinese people—reside (National Bureau of Statistics of China, 2006). First, we illustrate the degree of financial protection that rural residents have after a series of reforms and changes since 1978. Then we review the current rural health insurance reforms as well as the results from the pilot programs. We conclude with recommendations for future policies and programs.

Background – Rapid Changes since 1978

Changes in socioeconomic circumstances in rural China

The transition from a planned economy to a market economy began in 1978 in rural China. Agricultural production in unit of household taking place of people's communes solved food-and-clothing problems. The experience of rural reform has been scaled up in other domains. In urban areas, the reform and opening up policy promoted sustainable and rapid development in the Chinese economy and enhanced living standards. The annual GDP growth rate averaged 9.67% from 1978 to 2006; per capita annual disposable income of urban dwellers increased from US\$45.73 in 1978 to US\$1567.87 in 2006; net income per capita of rural residents increased from US\$17.87 in 1978 to US\$478.27 in 2006 (Z. Liu, 2007). The number of people living below the poverty line decreased to 21.48 million by 2006, compared with 250 million in 1978 (L. F. Wang, 2007). At the same time, China has seen rapid industrialization and urbanization and the share of gross agriculture production in GDP decreased from 27.9% in 1978 to 11.8% in 2006 (Research Office of the State Council, 2007).

The economic reforms have generally brought significant benefits to Chinese people, but there have also been negative side-effects. (Smith, 1998) For example, the national Gini coefficient for income distribution rose from 0.3 in 1982 to 0.45 in 2002 (United Nations, 2005). Meanwhile, there has been no entirely change of dualistic society; that is, the social and economic development of rural area lagged behind that of urban areas; there are still 745 million people living in rural area. Net income per capita of rural residents in 2006 was 3,587 Yuan—30.5% that of urban dwellers. Infrastructure facilities and social development are in the same situation, drinking water diffusion rate in 2006 was only

61.1% in rural China. Sanitary-latrine diffusion rate was 55.3%, which hinder the development of health status in rural china (Ministry of Health, 2007).

Changes in population growth, disease patterns, and health service demand

There has been acceleration in aging of Chinese society since 1978. The number of elders above the age of 65 reached 7% of the total population in 2000, which is a mark of an aging society. It is predicted that in the year 2050, the percentage will be at the peak, when there will be 400 million people above age 60 (Z. Li, 2006). The two-week morbidity rate of this group above 65 is 33.8%—3 times higher than the group under 65 years, suggesting that the aging group will have increasing health care demand (Ministry of Health Center for Health Statistics and Information, 2004b). Meanwhile, a lot of migrations have emerged in the process of industrialization and urbanization, and the number of migrant population reached 150-200 million in 2006. Most of them are young and healthy, and migrated to urban areas to earn money for the old and the children whom they have left at home in rural areas, however, need special health care services. The improvement of income and living standards induced the increase of noncommunicable diseases, for example, the hypertension prevalence rate was 3 times more in 2003 than in 1993. On the other hand, communicable diseases of the respiratory, digestive, and urological systems have still been the main causes of death. This leaves the rural China to face dual challenges of communicable and non-communicable diseases (Ministry of Health Center for Health Statistics and Information, 2004a).

Changes in the rural health insurance system

The Cooperative Medical Scheme (CMS) was established on the basis of people's communes in rural China in the planned economy period, which is a kind of cooperative but low-level mutual aid scheme. At the same time, the 3-tier health insurance network had been established, including county hospitals, township hospitals, and village clinics, training lots of barefoot doctors who provided primary health care services and worked on farms simultaneously. In 1978, the coverage of CMS was 90%. But after that, the rural people commune system and CMS broke down and the coverage was less than 10% in 1990. The insurance coverage in rural area was 12.6%, and the CMS coverage was 9.5%. The coverage had remained low until the effort to establish a New Cooperative Medical Scheme (NCMS) started.

Defining Financial Protection

The most overarching goals of a health system are to ensure that the population is provided health services and to protect the population from financial burdens due to health expenditures (Rivera, Xu, & Carrin, 2006). The latter goal, or “financial protection,” means that “no family or household should contribute any more than a reasonable proportion of their income to finance a system of social protection in health and/or specific health services” (ILO, 2002). The proportion (including direct and indirect spending) should not lead to a family's impoverishment or keep a poor household in poverty (ILO-STEP/ILO-Universitas, 2002).

There is no single gold standard to measure the degree of financial protection. To estimate the degree of financial protection, the World Health Organization (WHO) uses

the ratio of two numbers: the numerator includes all out-of-pocket health expenditures, health insurance premiums, and the portion of households' paid income tax and sales taxes going to public health expenditures; and the denominator is the capacity to pay as total non-food spending.

In the literature, there are a variety of approaches that have been employed to measure the degree of financial protection, which can be summarized as follows:

1. Define specific and arbitrary limits on health expenditures as thresholds;
2. Set one or multiple thresholds on health expenditures as a proportion of disposable or total income;
3. Measure the share of health bills paid out of pocket;
4. Assess excessive health expenditures as the level of expenditures that would reduce other household consumption to a level of consumption corresponding to households below the poverty line;
5. Take an individual's probability of visiting a health care provider into consideration in addition to out-of-pocket payment;
6. Compare the difference in the out-of-pocket payment between health insurance scheme members and non-members in similar economic situations;
7. "Experiential measures," i.e., by surveying populations on their access to care and actual problems paying medical bills.

We rarely read papers on methods of financial protection evaluation in Chinese journals as of the end of 2006. Until now, most Chinese researchers focused on the epidemiological impact when studying public health interventions; however, some

researchers in China have recently begun to make use of some financial and economic indicators, such as catastrophic health expenditure and degree of household financial risk, to measure the effect of interventions on financial protection.

Evolution of Financial Risk Protection System for Rural Health Care in China since 1978

The financial risk protection systems in health in both rural and urban China experienced two major stages in development—before 1978 and after 1978—corresponding to the major economic reforms started in the same year (Table 1).

Table 1 Development of financial risk protection system in health in China

	Rural	Urban
Before 1978	<ul style="list-style-type: none"> • 1940s. Rural Cooperative Medical Scheme (CMS), a community based health financing scheme, established under the Shan-Gan-Ning Border Government during Anti-Japanese War • 1950s. CMS re-established nationwide during the Great Leap Movement • 1968. RCMS advocated by Chairman Mao • 1970s. CMS covered >90% of rural residents 	<ul style="list-style-type: none"> • 1952. Labor Health Insurance Scheme (LIS) initiated, covering the workers & their dependency of State-Owned-Enterprises (SOE) & big Collective-owned-enterprises • 1952. Government Health Insurance Scheme (GIS) established
After 1978	<ul style="list-style-type: none"> • 1980s. CMS began to collapse after the agriculture production transformed from collective unit to household production 	
	<ul style="list-style-type: none"> • 1985. Decentralization of decision rights to hospital directors. Hospitals are allowed to keep the profit of the operation & provide bonus to the health workers. New pricing policy favored high-tech lab tests & advanced operational procedures which generate more profit for hospitals • 1989. New Ministry of Health (MOH) policy on the capacity of medical care & allowing the part-time job of health workers in public health facilities 	
	<ul style="list-style-type: none"> • Mid-1990s, coverage of RCMS declined to less than 10% 	<p><i>Piecemeal reform in LIS & GIS--</i></p> <ul style="list-style-type: none"> • Cost control measures introduced • In some cities & areas, social pooling tested for catastrophic diseases of the urban employees • 1994, pilot projects on Basic Medical Insurance Scheme for urban employees with Social Health Pooling & Individual Saving Accounts in Zhenjiang & Jiujiang
	<ul style="list-style-type: none"> • 1997. Comprehensive health reform initiated. <ul style="list-style-type: none"> ○ A policy framework in the context of socialist market system enacted, focusing on the establishment of health security system, the delivery system & supervision & regulation system ○ Preventive care, rural health & traditional Chinese medicine are set as the priorities ○ Regional health planning conducted to reallocate the health resources according to the health needs rather than the health demands ○ The fiscal subsidy policy to the health facilities are clarified focusing on the responsibility of the government 	
<ul style="list-style-type: none"> • 2001. "Guideline on the Health Reform & Development in Rural Areas," re-addressing the commitment of the government on the funding, delivery & regulation of the healthcare services in rural areas • 2002. New Cooperative Medical Scheme (NCMS) initiated, aiming to cover all the rural residents by 2010 • 2003. Medical Financial Assistance Scheme initiated in rural China, targeting poor rural residents • 2006. NCMS pilot counties increased to 50.1% of all counties, & 42.25% of all rural residents, with the enrollment rate 80.5% in pilot counties 	<p><i>Comprehensive Reform in LIS & GIS--</i></p> <ul style="list-style-type: none"> • 1998. LIS & GIS started to integrate into the Basic Health Insurance Scheme for the Urban Employees • 2000. Health policies on the reconstruction of the health delivery system, & the pharmaceutical manufacture & distribution system • 2005. 150 million urban employees enrolled in the new scheme • 2005. Medical Financial Assistance Scheme initiated in urban China, targeting poor urban residents • 2006. Reform initiated, focusing on the infrastructure, manpower & capacity of public healthcare & basic health care at the community level; budgetary management mechanism & capitation payment system introduced in some cities 	

CMS after 1978

The old CMS system in rural China collapsed after the economic reform in the late 1970s. There were efforts to restore the CMS in order to provide financial and social protection against ill health. Numerous experiments to re-establish CMS or variations of CMS were carried out, supported by the government and international organizations (Carrin et al., 1999; State Council, 1994; Bloom & Shenglan, 1999; G. Henderson et al., 1995; Sine, 1994; Carrin et al., 1999; H. Wang, Zhang, Yip, & Hsiao, 2006; and Wagstaff & Yu, 2005).

However, none of the efforts were sustained (Hu, 2004). Reviews of CMS in China identified a number of challenges common to community financing schemes in other countries: adverse selection, service and management inefficiency, cost escalation, and failure to provide enough benefits to members (Bloom et al., 1995; Hsiao, 1995). Other factors contributing to the low sustainability of former CMS experiments are: (a) insufficient support from the local government or from the Central People's Government of the People's Republic of China (central government), (b) low quality of services at village and township health facilities, and (c) a sense of mistrust of the scheme management among rural residents (Hu, 2004). There are also weaknesses in the CMS design; for example, most schemes still reimburse costs on a fee-for-service basis (Xueshan, Shenglan, Bloom, Segall, & Xingyuan, 1995). In addition, it has been found that the influence of any single purchaser has been limited because funding for health facilities comes from multiple sources (Bloom & Xingyuan, 1997).

NCMS

The year 2002 was a pivotal year for the development of CMS in rural China. A national conference on rural health was held, with the attention of China's key leaders (Y. Liu & Rao, 2006). It was the first such national conference in China's modern history, which clearly conveys the nation's high officials' intention and commitment to improve rural health. The government decided to establish a new system of cooperative medical schemes (NCMS) which would provide insurance coverage for all rural populations. A significant change was that the central government decided to be actively involved in providing financial and organizational support for NCMS, in contrast to the past when CMS totally relied on local resources.

Three major factors have been reported to trigger this decision: (a) the publication of studies on fair health financing and equity in China, including the World Health Report 2000 and other studies which shocked central government officials; (b) the Chinese economy grew stronger; (c) the government's financial ability to provide better social services had significantly increased compared with decades before (Y. Liu & Rao, 2006); and (d) the central government realized that lack of financial protection in health had undermined other government efforts to alleviate poverty in rural China (Blumenthal & Hsiao, 2005).

Since 2002, the central government has contributed significant political commitment as well as resources to support the establishment of NCMS. In 2004 "three rural matters"—rural areas, rural agriculture, and rural population—were made the country's highest priority by the People's Congress, and rural health care was considered an important

component of it (Dong, Hoven, & Rosenfield, 2005). In 2006, the state council made the development of rural health services one of the top priorities and ordered local governments to do the same (Watts, 2006). Prime Minister Wen Jiabao announced a doubling of the central government's contribution to NCMS by 2008, covering all provinces (Watts, 2006).

NCMS is “a government-organized and conducted scheme of mutual assistance among voluntary participating farmers against serious diseases” which is also considered a primary medical security system in rural China, providing financial protection against catastrophic illness. A major characteristic of all NCMS designs is that they must be based on voluntary enrollment. The Chinese government believes that voluntary schemes have a better acceptance among rural populations than an increase in taxes. The risk pooling unit under NCMS is the county—200 thousand population on average (Mao, 2005). The scheme is administered by either NCMS centers affiliated with health facilities (94%), by balancing centers of social security departments (2%), or by commercial insurance companies (4%) (Z. Zhang, 2006). NCMS is financed through three sources: individual premium (10 Yuan [US\$1.2] per year), central government subsidy (20 Yuan [US\$2.4] per year), and local government subsidy (20 Yuan [US\$2.4] per year) (Z. Zhang, 2006). The central government planned to spend US\$627 million on NCMS in 2007 (Watts, 2006). Local governments have been granted the autonomy to design their own NCMS in order to better adapt local realities and to test out various designs of the scheme.

Demand for voluntary NCMS

Lack of demand for voluntary community financing schemes has been found to be a major hindrance to the establishment of NCMS covering all rural populations (Y. Liu, 2004). More direct evidence comes from a willingness-to-join household survey conducted in 2002 in Fengsan Township, Guizhou Province. The study was conducted before the central government doubled its financial input into NCMS. Under the insurance plan at that time, the willingness-to-join was only about 50%. But under a hypothesized situation, where government subsidizes US\$2.7 for community health insurance premiums and each individual contributes US\$1.3, a large proportion (75.9%) of rural residents would like to join the plan (L. Zhang, Wang, Wang, & Hsiao, 2006). Now that the government subsidies have been increased to US\$5.3 in total (from both local and central government), it is reasonable to expect an even higher willingness-to-join among target populations under such an arrangement. The same study also found that higher levels of trust and reciprocity are significantly positively associated with higher willingness-to-join.

Development of public social and medical relief in China

Social relief (including medical relief) is provided by the government to people who are eligible. However, the relief system achieved less than expected. The coverage of the system is much less than ideal. During 1990, less than a third of the 97 million rural population living below the official poverty line received any relief (State Statistical Bureau of China (SSB), 1993), of which only a small fraction went to health care (X. Y. Gu, Tang, & Cao, 1995). Another mechanism to fund health care for the poor is the village welfare funds, which works in relatively developed areas where government and

local administrations can raise adequate revenue to finance a safety net. Not surprisingly, it hardly functions in poor localities (Bloom, 1998).

Medical relief practices

Medical relief practices were generally intended to improve access for the poor, as seen by the government. Examples of medical relief practices in China include a system of phased payment and a “green channel” which does not require payment before treatment. Unfortunately, almost all hospitals have abandoned them because both payment systems were abused (Hesketh & Zhu, 1997). Furthermore, some hospital managers perceive exemption and discount for the poor primarily as marketing tools to maximize hospital revenue. They offer little benefit to indigents but are abused by the non-poor (Meng, Sun, & Hearst, 2002).

Medical Financial Assistance (MFA) & Medical Assistance (MA)

The concept of Medical Financial Assistance (MFA) was introduced to China in the 1990s with World Bank Health VI, a program in rural China. In November 2003, the MOCA, the MOH, and the MOF jointly announced their decision to implement Medical Assistance (MA) in rural China.

MA combined with NCMS

The new system of MA was initiated to prevent the poor from being left out of NCMS and to minimize the inequity in the implementation of NCMS. However, unlike NCMS, there are no uniform measures to implement MA across the country. The scope and setup

of MA are left to the local governments to decide. For example, in Hubei Province, in order to better meet the needs of the poor, 2% of the NCMS budget is set aside as a fund to release the financial burden of the poor who face catastrophic health expenses. The Department of Civil Affairs arranged US\$4 million to provide medical financial aid to the extreme poor (Xu et al., 2004).

Methods

This paper is a comprehensive review of journal articles as well as grey literature. PubMed, CINAHL, and EMBASE were searched on November 16, 2006, using the key words listed in Appendix 1. No limitation on language or year of publication was used when conducting literature search with these three databases. The databases cover literature published as early as 1950s; 1301 articles were retrieved. A second round of search within the retrieved articles was conducted by reading the titles and abstracts; 186 articles were selected to be reviewed and attempts were made to acquire the full text of these articles through the Johns Hopkins library and interlibrary system, as well as the Internet. The full text of 137 articles out of the 186 were successfully retrieved and reviewed.

The next step in the literature search was to identify grey literature. Thirty-five relevant publications were retrieved from the WHO website and 48 from the World Bank website, covering a period from as far back as 1985 to 2006. All of these publications have full text available and have been reviewed and some were selected to be included in this paper.

An additional step in the literature search and review process was to identify relevant secondary literature—those listed as references by the literature already identified from the two steps mentioned above. However, the effort of identifying secondary literature was not systematic because of the large amount of literature already identified, which should be sufficient for the purpose and scope of this review.

In order to get information from the Chinese literature, the National Knowledge Infrastructure database (CNKI), a major database of journal articles of Mainland China, was searched on November 20, 2006. The period covered in the search was from January 1, 1999 to January 1, 2007, using the following keywords: risk protection, financial protection, financial risk, disease risk, catastrophic disease, NCMS and protection, insurance scheme, health expenditure; 2619 articles were retrieved. After screening the titles and abstracts, 136 full-text articles were selected to be reviewed. Grey literature in Chinese was also identified. The data and government report and documents from 2004 till now can be searched on the Ministry of Health website, and the menu was retrieved to be read.

Results

Trends in financial protection

Insurance coverage

Health insurance coverage has generally been falling during 1980-2002, except for that in 2003 the coverage in rural China rose as a result of increased private insurance (World Bank, 2005). A significant drop in health insurance has been observed in rural areas since the collapse of the Rural Cooperative Medical System (CMS) in the early 1980s. The coverage was once nearly universal in the 1970s but was only 12.8% in 1993 and 9.5% in

1998 (Y. Liu & Rao, 2006). The percentage remained below 10% in 2000 and the majority of Chinese rural residents had to pay completely out-of-pocket for health care (Tang & Squire, 2005). By 1997, the following groups were found to be the least covered by health insurance: those who live in certain provinces, rural residents, farmers and fishermen, private farm employees, children of all age groups, the less educated, and those in the two poorest quartiles in terms of wealth. Senior and managerial professionals, state employees, and the highly educated are the ones who have the highest insurance coverage (Akin, Dow, & Lance, 2004).

Health expenditure & out-of-pocket spending

The cost of care continues to rise in both urban and rural China, particularly for increasingly common chronic conditions during the epidemiological transition. This had led to increased financial vulnerability among those living in less developed areas and in poverty (G. Henderson et al., 1995). During 1983-1993, inflation-adjusted health care costs increased at a rate twice as much as the average growth rate of farmers' disposable income (China National Statistics Bureau, 1994; Ministry of Health, 1994).

Out-of-pocket spending has been growing rapidly during the past two decades as a share of household living expenditures in China. In rural areas, it increased three fold, from 2% in 1980 to nearly 6% in 2002 (World Bank, 2005). In the 1990s, it was reported that over 90% of rural residents in China had to pay for health care out of pocket (X. Y. Gu & Tang, 1995; Y. Liu, Hu, Fu, & Hsiao, 1996). In 2002, 64% of health care expenditures of the rural residents was out-of-pocket; government paid for only 15% (Z. Zhang, 2006).

Trends in service access and utilization

It is likely that as the physical access to health care personnel and facilities improves, financial factors, or ability to pay, have become the bottleneck in determining overall access to and utilization of health care. During 1989-1993, the percentage of the ill seeking care rose slightly from 75.6% to 79.7%, which held true after adjusting for illness severity (G. E. Henderson et al., 1998). At the same time period, the China Health and Nutrition Survey concluded that a very wide distribution of clinics and other services had been achieved in China and were widely used by people who identified needs for them (G. Henderson et al., 1994). However, various studies later reported that financial barriers had limited access to and utilization of health care services in rural China (X. Y. Gu & Tang, 1995; Y. Liu et al., 1996; Y. L. Liu et al., 2006; Xingyuan et al., 1993; Hillier & Zheng, 1990; Meng et al., 2002). Recent evidence from rural Shaanxi Province shows that 64.2% of those who reported ill in the previous 2 weeks could not afford to visit a doctor (Y. L. Liu et al., 2006). On the other hand, the non-use of health care services despite having a need is related to income, and poorer people are less likely to use services (J. Gao, Tang, Tolhurst, & Rao, 2001). This has also been found true in other developing countries and countries in transition (Makinen et al., 2000).

Trends in health equity

Before 1990, there was little research on health equity in China; and before 1994 China had no national health statistics by socioeconomic groups (Y. Liu & Rao, 2006). The rapid increase in the number of studies on health equity since then have not only provided valuable information on health inequity in China, but also have reflected an increasingly

open attitude of the central government towards current health and social problems, and its increased commitment to well-functioning and equitable health systems that serve all.

Disparities exist between different regions (rural vs. urban, poor vs. rich counties) in terms of health care expenditures and out-of-pocket spending on health. In the early 1980s, the urban per capita health expenditure was already about 3 times the rural level (World Bank, 1984). The ratio increased to 5:1 as reported in more recent studies (D. Yu, 1992). Urban residents (about 20% of China's population) enjoy approximately 80% of the national health care resources (C. Li, 2001). When looking at the relationship between health expenditure as a proportion of household income, it has been found that rural households in relatively developed counties spend less than 3% of their average per capita income on health care; in contrast, those living in the least developed counties, whose per capita income are only one-fifth of that of relatively developed counties, spend almost 5% of their income to get care, even though the hospitalization rate is low (Xingyuan et al., 1993).

Inequity in health care expenditures and out-of-pocket spending on health also exist between households with different levels of income. The healthcare expenditure among the richest quartile of the rural Chinese population is 3.2 times that of the poorest quartile (World Bank, 1997). The poor spend less on health care compared with the better-off, because they get less qualified services from informal health sectors, such as services from unqualified providers, tend to use health facilities that provide low-cost services, or ask for early discharge from the hospital (Xiao-ming, Hong, Yuan, & Wen-Hua, 2002) (J. Gao et al., 2001; X.Y. Gu, Tang, Bloom, & Lucas, 1995). However, low-income people

shoulder a heavier financial burden as a result of the spending. At household level, shares of income spent on health care are higher for the lowest income quintile households than the highest ones, and people with higher income do not shoulder a burden of financing health services commensurate with their ability to pay (J. Gao, Qian, Tang, Eriksson, & Blas, 2002). It has been found that an average hospital admission costs up to 30% of the total annual household income for low-income families (Bloom et al., 1995). Another study reported that poor households spent nearly 60% of their annual net income on an average hospitalization (H. Yu, Cao, & Lucas, 1997).

Disparities in health status are discussed in the following section.

Trends in health status

Changes in health status have been observed over the past decades. For example, reduction in child mortality, a widely accepted summary indicator for population health, failed to meet expectations in the 1980s and 1990s, even though there was dramatic success in reducing child mortality in 1960s and 1970s (World Bank staff, 2005). However, the national level statistics sometimes do not depict the whole picture. There is significant disparity across the country. In the 1980s, infant mortality, maternal mortality, crude death rate, and crude birth rate were all higher in poorer regions of China (Young, 1990). The gap in health status between urban and rural residents was widening in the transitional period, correlated with an increasing gap in income and health care utilization (Y. Liu, Hsiao, & Eggleston, 1999). A baby born in a city was three times more likely to survive than one born in the countryside (Watts, 2006). Under 5 child mortality and maternal mortality rates were 2.8 and 1.3 times higher in rural areas than in urban areas in

2002. And despite the continuous decline of infant mortality observed in urban centers, it has increased recently in some poor rural areas (Blumenthal & Hsiao, 2005). Among rural residents, the quartile with the highest income enjoy better health status compared with the lowest quartile. For example, the infant mortality per thousand is 29 among the former group and 72 among the latter, and life expectancy was 71 and 64 years, respectively (Z. Zhang, 2006).

Discussion—How successful have programs and policies been so far?

WHO advocates that a well-functioning prepayment system coupled with cross-subsidization and/or exemption should provide financial protection against catastrophic health expenditures. It can be in the form of insurance, taxes, or social security (WHO, 2005). In China, most research and practice have focused on providing financial protection through health care insurance.

Nationwide, during recent years (1999-2003), private expenditure on health as a percentage of total health expenditure has fluctuated around 60%. Although out-of-pocket expenditure still accounts for a very large proportion of total private health expenditure, a continuous decrease in out-of-pocket expenditure as a proportion of private expenditure on health was observed during 2000-2003, dropping from 95.6% to 87.6% (WHO, 2006). This trend probably reflects the impact of a series of efforts to relieve the financial burden of health care expenditure, especially during recent years. The results of recent efforts to provide financial protection to rural populations in China are reviewed in the following section.

Preliminary results from NCMS pilot counties

By the end of 2006, there were 406 million people (45% rural residents) enrolled in the New Cooperative Medical Scheme (NCMS) (Bu, 2006). Most recent research has found that NCMS provides a certain level of financial protection against the risk of illness (Mao, 2005). However, in terms of equity, it has been found that wealthy enrollees generally benefit more from the scheme than the poor (Chang, 2004; M. Gao, 2005; Mao, 2005; H. Wang et al., 2005).

It has been shown that NCMS protects enrollees against impoverishment due to healthcare expenditures. The overall impoverishment rates for enrollees of NCMS before and after their enrollment were 1.8% and 1.5%, respectively, accounting for 16.5% of reduction. As for the lowest and the second lowest quartile of enrollees of NCMS after hospitalization due to serious diseases, the impoverishment rates were 44.5% and 18.8%, which are quite high, although a little lower compared with those for rural residents without NCMS coverage (54.2% and 21.6% respectively). For the lowest quartile rural residents enrolled in NCMS, without NCMS and those in the Control counties, the unmet needs in terms of the consultancy for general practitioners because of self-report illness were 45.41%, 53.38% and 49.58%, respectively. Meanwhile, the unmet needs in terms of non-hospitalization due to serious illness were 40.89%, 46.26%, and 43.33%, respectively. This illustrates that the NCMS has improved access to healthcare and reduced illness-induced impoverishment to some extent, although the benefits of NCMS is limited (Ministry of Health Center for Health Statistics and Information, 2007). A 2005 investigation in 22 townships and 45 villages in 7 counties showed that the illness-induced poverty rates were higher in the counties that implemented out-of-pocket

payment, varying from 1% to 5%, while for the counties that implemented NCMS, the rates were under 1% (Y. J. Liu, 2005). The investigation in Shandong Province showed that illness-induced poverty rate was 20% for those covered by insurance, compared to 60% for those not covered by insurance (Ma & Meng, 2004). Chen et al. found that after the NCMS reimbursement, 20% of households can be prevented from falling into illness-induced poverty. The calculation showed that 49% of reimbursement was distributed to aid the poor and reduce illness-induced poverty (Y. Chen & al., 2005).

NCMS also increased utilization of health services. A research in Shangluo, Shanxi Province, showed that in the year following implementation of NCMS, the number of inpatients was 20% more than that of the year before NCMS, and the bed utilization rate increased by 16% (W. X. Chen, 2006).

Adverse selection is an inherent problem of voluntary NCMS. Research has shown that adverse selection would be severe in the voluntary NCMS, as farmers have high expectation of benefit return from the plan (L. Zhang et al., 2006). The voluntary basis of NCMS limits risk-sharing and cross-subsidization (Bloom & Shenglan, 1999). Recent research on NCMS has shown that adverse selection exists despite efforts to reduce it by mandating households as the minimal enrollment unit (He, 2005; Q. Liu, 2005; Shen, 2004). Voluntary schemes are not financially sustainable if adverse selection is not properly addressed (H. Wang et al., 2006); however, it is not clear how this problem would be effectively addressed (Y. Liu, 2004).

Research on NCMS pilot programs in Zhejiang Province among counties of 3 different economy levels showed that the benefit rate of the counties enjoying a high economic development level was 18.39%, while that of the counties with poor economic development was 7.76%.

Challenges faced by NCMS

Although pilot NCMS experiments have generated encouraging results, the scheme has several major problems or risks: (a) inadequate coverage of the poor, (b) difficulties in cost recovery because of weak monitoring of provider behavior, (c) suboptimal cost control measures, and (d) uncertain financial sustainability in an aging society (Z. Zhang, 2006). Also, concerns have been raised regarding NCMS to include the capacity of managing NCMS at the county level, in which China does not have much experience (Y. Liu, 2004; Y. Liu & Rao, 2006). Internationally, although there are studies reporting that community financing and voluntary community health insurance schemes provide financial protection for their members (Ekman, 2004; Preker et al., 2002), there have been few successful examples of development of a nationwide voluntary community financing system with a comprehensive benefit package (Bennett, Creese, & Roeland, 1998; Bogg, Hengjin, Keli, Wenwei, & Diwan, 1996; Commission on Macroeconomics and Health (CMH), 2002). Misconduct of some local governments undermines the future development of NCMS. For instance, some local governments in the poorest areas made fraud claims and reported false numbers of scheme participants, trying to cover their failure in providing their share of subsidies (Dong et al., 2005). Unattractive benefit packages or packages that do not match people's willingness and ability to pay may deter the participation of NCMS as well (Y. Liu et al., 1996). It has also been reported that

enterprises and workers were reluctant to have their funds pooled with those from the farmers (Carrin et al., 1999). Therefore, an issue for long-term concern is how to increase the pooling of resources and risks by integrating both rural and urban health insurance systems into a national health insurance system.

Government support

Many researchers have advocated that strong government support would be essential for the success of NCMS in terms of coverage, operation, and sustainability (Y. Liu, 2004; Y. Liu et al., 1996). Strong government support proved to be an important factor that contributed to the success of public health in China before the 1980s. (Bloom & Xingyuan, 1997) International experience suggests that a narrow view of prepayment schemes as simply a mechanism for mobilizing additional resources would not work well (Creese & Bennett, 1997). The government has to be actively involved in policy formulation, NCMS promotion (Y. Liu et al., 1996), financial support (Tang & Bloom, 2000), human resource development (Y. Liu et al., 1996), and supervision of NCMS (Bloom & Shenglan, 1999).

Arguments for the need of central government support for NCMS have been made: (a) poor rural areas in China do not have adequate financial or human resources at the local level to provide a comprehensive NCMS package; and (b) local governments in middle- and low-income regions do not have strong incentive nor sufficient resources to promote NCMS. (Y. Liu, 2004) Equity considerations also require the active involvement of government. (Y. Liu, Hsiao, Li, Liu, & Ren, 1995) However, emphasizing the central government's role in rural health care does not imply that government bureaucracies

should strictly control the health insurance schemes. Public participation and control by local residents are also essential to the success of NCMS (Y. Liu et al., 1995).

Take local realities into account

Another lesson learned from the past that would be of value to future NCMS is that local realities must be taken into account. For example, an in-depth case study of Donglan County in Guangxi Autonomous Region found that the health sector performance deteriorated because rapid decentralization was implemented but the preconditions for successful devolution were not present at that time. (Tang & Bloom, 2000) This is a warning sign that when implementing NCMS, it must consider local realities and subsequently develop plans to implement the right design of NCMS at the right time.

MA

Little information on the results of recent rural MA efforts has been found. The MA experience so far suggests that MA can have a significant impact on access to health care but its future is not clear because of the ambiguity in policy direction on rural safety net development. (X. Liu & Yi, 2004) Meanwhile, emerging evidence indicates that at least two areas in MA should be improved (a) identification of the poor or people eligible for MA in rural areas has always been challenging—even before the establishment of a new MA system (Meng et al., 2002); (b) in the pilot counties where NCMS and MA were combined, the complex process to enroll in MA deferred and even impeded eligible households from receiving their reimbursement (Lu, 2006).

Under the current institutional arrangement, NCMS and MA are not well coordinated. NCMS is administered by the MOH while MA falls under the responsibility of the Ministry of Labor and Social Security. How NCMS and MA systems can be coordinated is an important issue that the Chinese health system has to deal with. The China Health Economics Institute is currently conducting research on this topic.

Other studies have proposed that central government should assume the burden of identifying the poor; ideally this effort should cooperate with government departments outside the health sector. Research has already shown that relying solely on health facilities to provide medical relief does not work, and access to health care for the poor is unlikely to be truly improved without strong financial and regulatory support from the government. (Meng et al., 2002) Government needs to work on providing sufficient support to increase medical relief coverage and coordinating medical relief policies with other policies (Xiao-ming et al., 2002). In addition, it has been suggested that the Bamako Initiative in Africa shares many similarities with the Chinese rural health system. The failure of exemption mechanisms to protect vulnerable groups in all Bamako countries is both a warning and a lesson for China as it works to improve its health systems (Bogg et al., 1996).

Equity

Inequity in financial protection in health has emerged as a serious problem facing the rural health system in China. This change should be interpreted with caution. The view seeing the transition as a shift from the old emphasis on equality to a new emphasis on inequality is oversimplified. The old systems are not egalitarian, and the recent trend toward rising inequity in the transition period should not be considered as a sheer reversal (Smith, 1998). Equity cannot be taken as an isolated indicator of health systems—it has to be evaluated in a broad context. Decreased disparity is not necessarily good news by itself. For example, after analyzing a series of household surveys conducted during 1989-1997, Akin and colleagues found that disparities across socioeconomic groups in health insurance coverage had been reduced as the market-oriented changes occurred (Akin et al., 2004). This finding is contradictory to the general presumption that market-oriented reform would lead to increased disparities in insurance coverage among those groups. However, the reduced disparities were observed in the context where insurance coverage declined in most socioeconomic groups, with the coverage declining more rapidly among those who used to have higher coverage. An increased “equity” achieved in this way is more a warning sign than a relieving message. On the other hand, a decrease in equity may not be as bad as it appears if it is during a transition process and if efforts are made to attenuate the negative consequences brought about by inequity.

Recommendations

It is tempting to develop a single set of recommendations that will apply to all parts of China. However, we should be very cautious in doing so given the demographic and economic diversity in China. This is not to say that each locality should develop a system

on its own—there are many valuable lessons that can be learned from the experience of different health insurance schemes and other interventions all over China and even from international experiences. It is important to always take local conditions into consideration when designing health programs. Health systems do not exist in a vacuum. The success of any health system depends on a variety of other factors such as general public service infrastructure, level of economic development, demographic characteristics of the population, and even ideology.

Also important to bear in mind is that providing financial protection against excessive health care expenditures has to be balanced with other goals of a health system, and with goals of sectors other than health care. Many of the experiences discussed above have mixed results: performing well in certain aspects or in some sub-groups of the population, but not in other aspects or sub-groups. A “good for all” solution is unlikely to exist. Therefore system designers and policy makers always face the challenge of balancing different priorities and the different needs of people.

With the long terms of evolvement for more than 5 decades, China has complicated institutional arrangements for the financial protection of different groups of people, Social Health Insurance (SHI) for urban employees in the formal sectors, the NCMS for rural residents, MA for the extremely poor, and commercial health insurance for the rich. In a long run, the gaps between different financial protection schemes should be reduced in terms of the financial level and benefit packages.

From the comprehensive review of health protection in China, we cannot see a clear vision and framework of the health security system although NCMS have been expanded rapidly in recent years. The lack of financial protection of populations, especially the poor, the rural residents, and vulnerable groups of people resulted in the inequality of health care and the vicious cycle of poverty and ill health. Noticing that China has seen the fast transition of demographic and disease pattern, the disease burden on the huge population without financial protection will be big challenges for sustainable socioeconomic development in the future. So it is urgent to formulate a vision of institutional arrangements for financial protection for the whole country. Moreover, the rapid, annual economic growth—9.4% in real terms of GDP—over the past 28 years, China has and will continue to have a sound economic basis to advance the financial protection systems in the next few decades. Furthermore, China’s central government has strong political commitment to establish a “socialist harmonious society” with balanced development of economic and social development. Equitable access to public services, including the public health services and the compulsory education for all, will be the top priority of public policy. So China faces a window of opportunity to establish universal coverage of financial protection with characteristics of equity, efficiency and sustainability.

Active participation of scholars in the research and shaping of policies

Although there are still gaps in our knowledge base, the research already done could provide valuable information to support decision makers making evidence-based decisions. Liu & Rao recently published an excellent paper on this topic, specific to the current Chinese context. Their experience demonstrated that researchers are able to draw

the attention of decision makers to the health needs of people. They advocated for an active participation of research to assist in formulating policies: scholars should not only describe how bad the problems are, but should also try to offer constructive and feasible solutions. They warned against the danger of transplanting models from one country to another without carefully examining the context and reality of the country concerned, as well as against making one-size-fits-all recommendations. Researchers should further assist policy making by involving themselves in the process of policy design and implementation to ensure that the policy design appropriately reflects the needs identified by research and that the objectives of the policies are met and upheld (Y. Liu & Rao, 2006).

Establishing and consummating a medical insurance system, perfecting a medical assistance system. It is very easy to make people expose in the risk of disease and plunge in disaster health expenditure and poverty in a community that lacks medical insurance system. In addition, it is demonstrated that there are still many people living in poverty, even in some provinces where the level of economic development is higher and the local government has taken all kinds of poverty-alleviation measures. Generally speaking, the reason for the phenomena is that some family members suffer from chronic disease or deformity, and this minority is eliminated from the medical insurance system because of unemployment or other causes. As a result, it is urgent to establish a social medical insurance system. Only by doing so, can we avoid the vicious circle of disease that causes poverty and leads to poverty and ensure the basic living security in the whole country.

Adjusting the structure of financing is an important measure to alleviate the burden of the citizen's individual hygienic expenditures and avoid the poverty caused by illness. The structure of the financing system still depends on cash spent by individual gravely now. So it is necessary to adjust the structure of financing, increase the government health input, improve the coverage of health insurance, and decrease the citizen's individual hygienic expenditure.


Ensure financing in the poor areas. The allowance that NCMS demands the local finance department should arrange is not a problem for areas enjoying a higher economic level; however, it is an intractable handicap for many poor counties in Western and middle area. On the one hand, the funds input by the central government are a solicitation for them, on the other hand, the matching funds input by themselves make them embarrassed, especially in remote areas and poorest areas that depend on the national finance input to develop fully. On the basis of intervention trials carried out in poor areas in the 1990s, in many pilots, the county level government and township level government could not match relevant funds, even the trial only demand the two level governments match US\$0.13 for the farmers joining in CMS.

The farmers in discriminating income levels are different in the demand and the sustainability of NCMS. For instance, in Shandong Province, 55.6% of the farmers whose per capita net income was below US\$133.3 (poverty standard in Shandong Province) urgently needed funds for hospitalization, 65.6% of the farmers whose per capita net income was between US\$133.4 ~420 (per capita net income of farmers in Shandong

Province in 2003) need funds for both outpatient and inpatient; (Ma & Meng, 2004) so the **schemes should meet different needs of different groups.**

Improve the utilization efficiency of the government funds for poverty alleviation.

The central government always finances an investment for poverty alleviation; this investment is about US\$2.13 billion, aside from special funds provided by the Ministry of Health and Education for the same aim. Recently, the utilization efficiency of the fund is low, so the decreasing rate of the poor population has become slow. Now three kinds of special funds for poverty alleviation were mainly put into production and infrastructure projects in respect of the economic development, much more than the food and clothing problem, human resources beneficial to intellect and health.



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