



## Rural Health Insurance—Rising to the Challenge



### Background to the Briefing Note

How can health insurance coverage in China be expanded and deepened? How can health insurers keep costs down and ensure high quality care for their members? What role should government have in health insurance in China? These were some of the questions addressed by two critical reviews of the Chinese-language and English-language literatures on rural and urban health insurance in China and abroad.\*

The reviews come at a key moment. Against a background of an almost total collapse of the old rural cooperative medical scheme (CMS) and declining coverage in urban areas, the government has started piloting a new CMS in over 300 counties and is looking to extend coverage of the newly reformed urban scheme. Both programs face challenges relating to breadth and depth of coverage, cost control, quality assurance, and so on.

This Briefing Note focuses for the most part on the rural health insurance challenge. It traces the changes in the 1990s in coverage, explores the problems that are likely to be encountered as the

\* This briefing note was prepared as part of the World Bank's (WB) ongoing study on China's rural health sector. The study—referred to as the *China Rural Health AAA* (Analytical and Advisory Activities)—is being undertaken in collaboration with the Ministry of Health (MOH) and other government agencies, as well as with selected international partners. The reviews upon which this briefing note is based were prepared by two teams, comprising Professors Wen Chen of Fudan University, Gordon Liu of Peking University, Brian Nolan of the Economic and Advisory Research Institute (Ireland), Mao Zhengzhong of China West Medical University, and Liu Yuanli of Harvard University. The team benefited from the comments of Wang Hufeng of the Ministry of Labor and Social Security and Han Jun of the State Council Development Research Center, who were the discussants for these critical reviews at the AAA workshop in July 2004. The briefing note was prepared by the World Bank AAA team. The findings, interpretations, and conclusions expressed herein are those of the authors, and do not necessarily reflect the views of the World Bank or those of its Executive Directors or the governments they represent. For further information on the China Rural Health AAA and related activities, contact L. Richard Meyers ([lmeyers@worldbank.org](mailto:lmeyers@worldbank.org)).

government's new rural health insurance program is rolled out, and suggests that the solutions to many of these problems lie in the experiences of the past—both in the rural and urban schemes.

### The legacy of economic liberalization—falling and shallower coverage

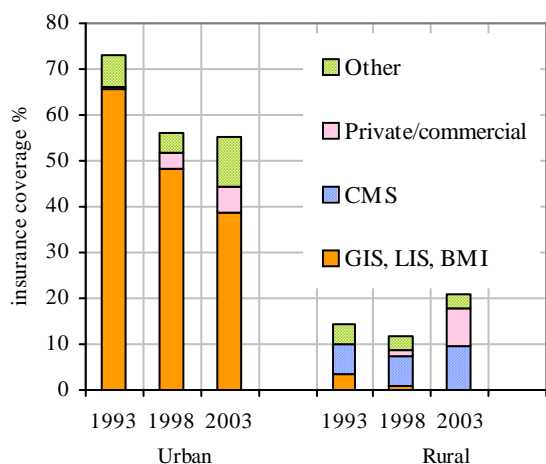
Under China's pre-reform planned economy, almost all citizens were covered by some form of health insurance. Agricultural workers were covered by the old commune-based CMS, state-owned enterprise (SOE) workers were covered by the Labor Insurance Scheme (LIS), and civil servants and other government workers were covered by the Government Insurance Scheme (GIS). There were some gaps in coverage (not all urban schemes covered dependents, for example), but the gaps were relatively small (during the 1970s the CMS covered an estimated 90% of the rural population). China's near-universal coverage is thought to have been one reason for its spectacular success in improving health outcomes during the 1970s.<sup>1</sup>

China's transition from a planned to a market economy from 1980 onwards brought dramatic reductions in health insurance coverage. The decollectivization of agriculture resulted in an almost total collapse of the CMS. By 1993 less than 10% of the rural population had health insurance (Figure 1). The mid-late 1990s saw several attempts to resuscitate the CMS.<sup>†</sup> Despite these initiatives, CMS coverage nationally remained stubbornly low. By 2003 80% of China's rural population—some 640 million people—lacked health insurance (Figure 1). Half of the rural respondents in the 2003 NHS who said they had insurance said they were covered by either private (i.e. commercial) insurance or 'other' insurance.<sup>‡</sup>

<sup>†</sup> These included the RAND Sichuan CMS experiment in mid-1990s<sup>2</sup>, the WHO 14 county study in the early 1990s<sup>3</sup>, the UNICEF 10- county study in 1997-2000, the World Bank Health VIII project in the late 1990s, and the Harvard 2-county study in 2003<sup>4</sup>.

<sup>‡</sup> Examples of schemes in these categories would include schemes intended to provide broad coverage, as well as

**Figure 1: Health insurance coverage in China has been falling**



Source: National Health Survey<sup>5,\*</sup>

Coverage in China's cities has also declined, though less dramatically than in rural areas. As China transitioned to a market economy, the SOE—the backbone of the LIS—came under increasing pressure. LIS coverage fell, as did GIS coverage. By 1998 nearly half the urban population lacked insurance coverage. A variety of reforms have been introduced, including the setting up in 1998 of a new single urban scheme known as Basic Medical Insurance (BMI), into which LIS and GIS are gradually being subsumed (Box 1). Despite these reforms, coverage by GIS/LIS/BMI continued to fall between 1998 and 2003. Had it not been for the growth of private and 'other' insurance schemes, coverage would have fallen below 40% in 2003.

**Box 1: Urban health insurance reform**

*Urban health insurance reform in China can be broken down into four phases.<sup>6-8</sup>*

*1988-94. Small-scale and preliminary reforms were introduced in a few cities, focusing primarily on the application of demand-side cost-sharing mechanisms under the existing GIS and LIS.*

*1995-98. Central government launched a formal pilot experiment of new community-based insurance models in the cities of Zhenjiang and Jiujiang. This pilot model introduced some fundamental changes in the existing GIS and LIS. The most significant changes included the socialization of financing, jointly contributed by employers and employees, to form a citywide insurance pool across all work units. The pooled funds were then distributed into individual Medical Savings Accounts (MSA) and a Social Pooling Account (SPA). In the end of 1996, the experiment reform was extended to 57 other cities.*

*1998-2003. In December 1998 a nationwide effort was called for by the State Council to reform the existing GIS and LIS in the remaining cities following the Zhenjiang and Jiujiang pilots. By the end of 2003, the vast majority of large cities had implemented the new Basic Medical Insurance (BMI) insurance program, covering over 109 million urban employees.*

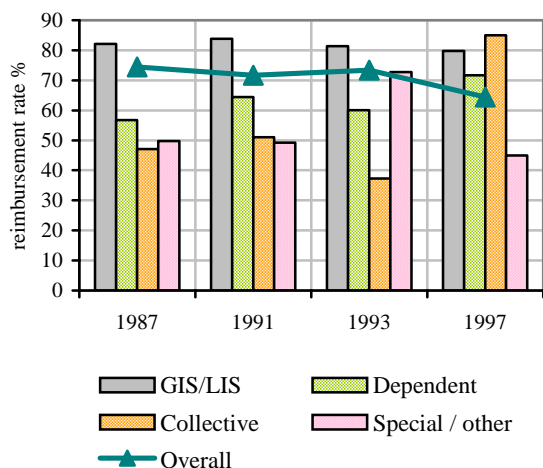
*2000-present. In parallel to the above reforms, the government started to reform the hospital and pharmacy markets in an effort to lower costs or at least reduce inflation in the health sector.*

It is not just the *number* of people covered by health insurance that has been falling. The *depth* of coverage has also been declining (Figure 2). By 1997, insured patients were paying more than *one third* of their inpatient costs out of their own pockets.<sup>9</sup> The falling depth of coverage reflected in part the introduction of formal cost containment measures (see below) but also the fact that in the transition to the market economy, many SOEs found it increasingly difficult to honor their LIS commitments. The government increasingly withdrew from its role of payer of last resort.<sup>10</sup> In Zhenjiang, for example, it was estimated that more than half of the SOEs were unable to fully reimburse the medical bills for their employees. The new schemes that have emerged also appear to be less generous than the old ones (Figure 2).

those targeted to specific groups, such as school children, where the risks covered are very limited. Little has been written about such schemes, even in the national media, and it is striking that they provide some form of coverage for as many as 10% of China's rural population.

\* Figures for urban 2003 are from Ling Xu's presentation at Dec. 2004 MOH seminar on the 2003 NHS survey. Figures for rural 2003 are from Main Findings from the 3rd NHS Survey, [www.moh.gov.cn](http://www.moh.gov.cn), accessed on April 21st, 2005.

**Figure 2: Inpatient care reimbursement rates for the insured have been falling**



Source: China Health and Nutrition Survey <sup>\*9</sup>

### Rising to the rural health insurance challenge—the government’s new CMS

While extending health insurance cover to China’s 155 million uninsured urban residents is also an important task, a larger and—in the government’s eyes—more urgent challenge is that of extending cover to China’s 640 million rural uninsured. It is this that is the main focus of the remainder of the Briefing Note.

Rising to this challenge, China’s government recently developed plans for a New Cooperative Medical Scheme (NCMS). The scheme is currently being piloted in over 300 of China’s more than 2000 counties, and will be rolled out to the rest of the country by 2010.

The NCMS differs from the old CMS in several important respects. Contributions from households—starting at 10 RMB per person, and to be paid on a voluntary basis—will be supplemented by a subsidy of 10 RMB or more from local government and a 10 RMB matching subsidy from central government in the case of households living in the poorer central and western provinces. The NCMS will operate at the county level rather than at the village or township level as was the case in the old CMS.

\* The figures refer to actual reimbursement rates, not rates promised by the schemes. The CHNS is not statistically representative of the Chinese population but does cover a broad spectrum of China’s provinces. The ‘other’ category is used in the CHNS as a catch-all for categories other than those listed explicitly in the questionnaire.

In the pilots so far, enrolment is reported to be around 70%.

As the government rolls out the NCMS, it will encounter many challenges. As it does so, the government could usefully learn from relevant experiences in China—the various attempts of the 1990s to resuscitate CMS and the reforms of China’s urban health insurance scheme—as well as experiences abroad.

### Is the new CMS affordable?

Can each of the parties realistically be expected to be able to afford their contribution of 10 RMB or more per person? Some have expressed doubts.

It would seem reasonable to expect central government to be able to afford its 10 RMB per resident of the central and western provinces. Central government spending on health is relatively small, as is total government spending on health by international standards. China’s central government has also seen increases in its tax revenues, and is committed to spending some of them on rural health in general and on the NCMS in particular.

Whether local governments can afford their 10 RMB is less clear. The bulk of health spending in China is financed by local governments who are highly dependent on their own revenues. As a result, government spending per capita varies considerably across provinces—and even more so across counties. The more of the 10 RMB that counties have to finance rather than cities/prefectures and provinces, the more regressive the local government element of the NCMS cost will be. For poor counties, even 4 RMB per person could represent a fairly large fraction of their existing health spending. And the NCMS initiative comes at a bad time for local government officials. China is in the process of abolishing several agricultural taxes, which is reducing the tax revenues of townships and counties. To some degree this is being offset by a shifting of expenditure responsibilities to higher levels and by the provision of compensating transfers, but these will go only part of the way to restoring township and county government revenues. This all assumes the 10-RMB contribution will be *additional* money—it may be that some local

governments see the NCMS as an opportunity to shift from supply-side to demand-side subsidies.

The household contribution of 10 RMB or more seems affordable at least for the average household, given that it represents just 0.4% of the rural per capita income. It will, it is true, be a much larger fraction for poor households. However, this could be tackled by having the Ministry of Civil Affairs' Medical Assistance (MA) scheme help the poorest households with their NCMS contributions and perhaps their copayments too.\*

### The benefit package of the NCMS and its effect on enrolment

The key issue from the perspective of households is not whether they are *able* to pay 10 RMB but rather whether they are *willing* to pay it. Is NCMS a good buy for Chinese households? People's willingness to participate in the new CMS is likely to depend on a number of factors. But one key one is *how the benefits offered compare to the 10-RMB contribution*.

One important number to keep in mind is that 30 RMB per capita represents less than 20% of per capita annual health spending in rural areas. So, NCMS is going to leave a lot of expenses uncovered. It is important that the actuaries developing the NCMS benefit package do their arithmetic carefully. If they promise too much, the NCMS will quickly go bankrupt.

One option is to provide generous coverage (i.e. have low coinsurance rates) on low-frequency high-cost medical events—the sort that lead to 'catastrophic' medical expenses. One risk with this is that since very few people experience such expenses, most members will receive little *direct* financial assistance from the CMS. Of course, they receive *indirect* assistance since the CMS has reduced if not eliminated their exposure to the risk of catastrophic medical costs. But they may not see it that way. Potentially this attitude could be changed through education and social marketing.

But there is a further problem with a scheme that focuses exclusively on catastrophic costs, namely that people may delay seeking medical

care until the problem becomes so severe that the care they need is serious enough for them to receive some assistance from the CMS. This happens in other countries, and there is no reason to think it wouldn't happen in China too. It may be better, therefore, to have a benefit package that covers both high-cost and low-cost events, and outpatient and inpatient care. The coinsurance rates ought to be higher for outpatient than inpatient care.

Should public health services such as immunization be covered by NCMS? There are those who say yes, on the grounds that they are under-funded and including them in the NCMS benefit package could help strengthen their provision. But there are also those who argue no, on the grounds that doing so would lead to additional claims of an already tight NCMS budget. Internationally, insurers have a mixed record on public health activities, not least because they tend to focus on their members and overlook the benefits of public health activities that accrue to non-members. The emerging practice seems to be to take public health programs and the financing of them *outside* the health insurance sector.

With less than 20% of average spending covered by NCMS, many households may feel the scheme does too little to reduce exposure to medical-expense risk. In that case, support for the NCMS may dwindle, and people will either not join or start to disenrol. If, as is likely, it is the 'better' risks (the young and healthy) who leave first, the NCMS will start making a loss, and contributions may need to be raised. This may prompt a further exodus by good risks, and a downward spiral will start, with the scheme eventually collapsing—a problem known as *adverse selection*.

The experience from other countries indicates that adverse selection can quickly undermine and ultimately precipitate the collapse of a purely voluntary scheme. *This does not depend on how sound the benefit package is from an actuarial standpoint, or on the fraction of average spending covered by the scheme*. It simply reflects the fact that in any population, there will be good risks and bad risks, and if the scheme is voluntary, the better risks will prefer to self-insure. It is for this reason that health insurance in industrialized countries is almost always compulsory.

\* The links between health safety nets and the NCMS are to be discussed in a future Briefing Note on health safety nets.

## Trustworthy and competent management—key ingredients of NCMS success

It is not just a question of getting the NCMS benefit package right. There is another important lesson from the previous attempts to resuscitate CMS, especially in the UNICEF 10-county study, namely that *people need to trust the organizers of a CMS scheme if they are to participate in it.*

Trust is partly about eliminating corruption. Many CMS schemes that have failed have done so because of corruption. Involving beneficiaries in overseeing the CMS may help reduce corruption. This is one of the ideas underlying an experiment sponsored by Harvard University in Kaiyang county (Guizhou) and Zhenan county (Shaanxi), where villagers serve on the CMS board of directors.<sup>4</sup>

Some argue that the lack of trust in the resuscitated CMS schemes was sometimes due to management team members having a dual function as manager of an insurance fund and manager of a health facility. This led CMS members to wonder whether the CMS was acting in the interests of providers or CMS members. The fact that NCMS is to be located at county level and separate from the provider network should substantially militate against this. NCMS seems set to play the role of ‘purchaser’ for its members, negotiating service delivery arrangements—cost, quality, timing and location of treatment, etc.—on behalf of its members.

This calls for a strong NCMS management—one that is not simply trustworthy but also capable of discharging the functions of an insurer-purchaser agency. This will require building up a professional staff, albeit one that is overseen by local representatives.

The task of developing competent management in NCMS is a challenging one, as comparisons with BMI indicate. BMI typically covers about 10,000 members at the county level, albeit with a more generous benefit package. Each county might have as many as 15 full-time staff. NCMS, by contrast, is expected to cover an average of 250,000 members per county, and is also more complex in many respects. Its

members are likely to be more heterogeneous in terms of their health conditions and geographical locations than BMI members. NCMS involves a more complex fund-collection process than the BMI, where contributions are collected through a payroll tax. NCMS also has to deal with a more diverse set of providers.

One question for NCMS management to answer is: Which providers will be certified to deliver care at the NCMS’s expense? This process is critical for holding down NCMS costs as well as ensuring NCMS members receive quality care. But it is also critical to ensuring access. Will village doctors be certified even though they are private? Will only public township hospitals be certified? Restricting the list to public providers may have some merit but has the disadvantage that people may find they cannot use their usual provider with their NCMS coverage. This may mean households have to travel further to see a provider than before. It may also mean that NCMS results in households simply substituting public visits for private visits, rather than increasing the overall number of visits.

Central government could play a useful role in helping develop trustworthy and competent management in the NCMS, providing technical assistance, and ensuring that there is learning from and cooperation with relevant parts of government, such as BMI, tax bureaux, and so on.

## Moral hazard and NCMS costs

In the rush to extend coverage to China’s large rural uninsured population, one further important lesson needs to be kept firmly in mind. It is a lesson that comes from China’s own experience with urban health insurance in the 1980s and 1990s. And it is one that comes through loud and clear from other countries, especially the United States. The lesson is that *health insurance is associated with a problem known as moral hazard.*

This curious term refers to the fact that with someone else picking up the bill for treatment, patients and providers alike have an incentive to increase the amount of care delivered—extra tests, more expensive medicines, a switch to

surgery even though it is not medically necessary, and so on.

China's experience with urban health insurance illustrates this nicely. LIS and GIS members paid very little out of their own pockets, and providers were paid on a fee-for-service basis. There was, in short, no or little demand-side or supply-side cost sharing. Unsurprisingly, moral hazard ensued, exacerbated by the continuous introduction of ever-more-costly medical technology. In the city of Zhenjiang between 1992 and 1995 total medical insurance expenses increased at an annual rate of 33%.<sup>11</sup>

Most of the past and many of the current CMS schemes operated or operate like the old GIS and LIS in that they passively reimburse members' medical bills. If this were to be the model of the NCMS, health care costs in China would be likely to rise quite dramatically. NCMS needs therefore to think carefully about introducing measures to contain costs. What could these be?

### Cost containment—lessons from the urban reforms

As indicated earlier in this Note, urban health insurance in China has recently been through many important reforms. These appear to have had considerable impacts on costs.

In Zhenjiang, for example, a series of reforms were introduced from the mid-1990s onwards. Initially, these involved demand-side cost-sharing only—patients being required to pay more of the cost out of their own pocket—and costs carried on rising at similar rates. So, in 1997 supply-side cost sharing was introduced—providers were required to take on more financial risk, by moving away from full-cost reimbursement towards a system where the amount paid is fixed in advance. For example, instead of being paid fee-for-service (FFS), a provider might be paid a fixed amount for a given casetype, or a budget based on expected caseload. When supply-side cost sharing was introduced in Zhenjiang, the annual rate of increase of insurance costs was brought down from 33% to 15%, where it has since stayed.<sup>11</sup>

The urban reforms in China involved a mixture of demand-side and supply-side cost sharing, and different cities tried different combinations

at different times. Furthermore, different cities tried different approaches to demand-side cost sharing. Two approaches developed in the 1995-98 pilots are often contrasted—the pathway model and the compartmental model (Box 2). Both make use of a Medical Savings Account (MSA) and a Social Pooling Account (SPA), with the employee and employer contributing to the former, and only the employer to the latter. However, the contribution rates vary across schemes as does the use to which each of the accounts is put.<sup>6,12,13</sup> The supply-side cost-sharing approaches also differ between the two models.

#### Box 2: The pathway and compartmental models of cost sharing

##### *The pathway model—Zhenjiang and Jiujiang*

*When any costs are incurred under this three-tier reimbursement system, payments are first made out of the MSAs funds. After the MSA funds are exhausted, the patient pays an out-of-pocket deductible as the second tier, up to 8-10% of the individual's annual salary (deductibles for retired members are half). After the member has reached his deductible, the third tier payment begins to pay by drawing funds from the SPA.*

*Before 1997, medical providers in Zhenjiang were paid primarily retrospectively at the patient or service level using various fee schedules that varied with the level and type of provider. In 1997, the retrospective reimbursement approach was changed to a global budget approach. Prospective payment was used to pay for all medical services out of funds in the SPA.*

##### *The Compartmental model—Hainan*

*In this approach the MSA and SPA are service-specific, with the former primarily paying for outpatient services and some small inpatient services not covered by the scheme, and the latter paying mainly for inpatient care and some large outpatient bills. Only those drugs and diseases that are included in official lists are paid by SPA, coupled with a deductible (400 RMB) and decreasing co-payment schedules, ranging from 15 percent, 9 percent, 5 percent, and 0 percent. Outpatient care services are paid by funds in MSAs on a fee-for-service basis according to a pre-determined pricing schedule.<sup>14,15</sup>*

*The SPA has paid providers primarily through a global budget. A current-year global budget is determined on the basis of the actual total medical expenditures in the previous year, adjusted for changing factors such as price inflation and*

*increased numbers of beneficiaries. The Medical Insurance Bureau generally withholds 10 percent of the total budget upfront in order to monitor and control provider behavior during the year. At the end of the budget year, the Bureau will then determine how much of the withheld amount is returned to the provider according to the performance and quality of services delivered.<sup>16</sup>*

What have been the effects of the various cost-sharing measures? And what lessons are there—if any—for the new rural CMS?

The Zhenjiang and Hainan reforms appear to have reduced costs to insurers.<sup>17-19</sup> Part of the reason seems to be that providers' unit costs fell. In part this may have been due to the introduction of drug formularies and restrictions on the use of advanced medical technology.<sup>17</sup> But cost sharing on the supply side seems likely to have played a bigger role. In Hainan hospitals shifting from FFS to global budgets reduced cost per case while hospitals that continued to be paid FFS increased theirs.<sup>20</sup> Hospitals in the first group reduced costs by spending less on expensive drugs and high technology.<sup>21</sup> And in Zhenjiang, it was not until supply-side cost sharing was introduced in 1997 that spending by insurers was successfully brought under control.<sup>11</sup>

On top of the reductions on unit costs, there is also evidence that the reforms led to patients substituting outpatient care for inpatient care, with the poor substituting the most.<sup>18,22</sup> The impacts on health outcomes are not known, although it is known that during the period in question there was a reduction in the fraction of people saying they had been told they needed hospital care but didn't seek it.<sup>18,22</sup>

While insurers saw their costs fall as the result of the reforms, out-of-pocket payments by households increased. On the positive side, they increased by the same proportion for everyone, irrespective of their income.<sup>23</sup> The reforms did not, however, eliminate inequity: the poor still pay a higher share of their income toward health care than the better off.

There is broad agreement, then, that the urban insurance reforms reduced costs. Some questions remain unanswered, however. For example, the available evidence does not provide a clear picture of the relative merits of the pathway and compartmental models. Despite

this, it has been the compartmental model that has proved most popular—only Shenzhen has adopted the pathway model.

### NCMS and the rural-urban divide

As in other countries, the urban and rural areas of China are not hermetically-sealed entities. People increasingly migrate from rural to urban areas, and this is likely to become an important engine of economic growth. Migrants from rural areas to cities may find themselves in a health insurance no-man's land—ineligible for urban health insurance because of lack of official residency, and likely to be required by their NCMS to return to their village for treatment or risk having NCMS pay only part of their medical bill if they seek treatment in the city where they are working. If the economic benefits of labor migration are to be fully harnessed, it will be important to ensure that health insurance becomes more portable—that loss of effective health insurance coverage does not become a reason to prevent people moving.

As the boundaries between urban and rural areas becomes increasingly blurred, and as the government strives to reduce rural-urban inequalities, there will be a pressure to reduce the stark divisions between the rural and urban health insurance schemes. The gap in terms of generosity of coverage is stark and unlikely to be explained by cost differences: revenue per beneficiary in the urban scheme is around RMB 400, while the proposed revenue per beneficiary in the NCMS is (a minimum of) 30 RMB.

Narrowing the rural-urban health insurance gap need not necessarily involve a merger of the rural and urban schemes, although in some provinces—periurban Shanghai is an example—this seems to be happening. It could happen through a gradual process of moving towards a more equal sharing of health risks. As in other countries, such as Colombia and The Netherlands, an equalization fund could be set up where individuals make contributions according to their per capita income, and insurers receive payments from the fund according to the risk profile of their members. In the longer-term, as the gaps are reduced, it might make sense to bring all Chinese residents into a single universal scheme, as other countries—including The Philippines, Thailand

and Vietnam—have done or are in the process of doing.

### Looking ahead, learning from the past

All told, China faces many challenges as it tries to extend cover to the 800 million uninsured Chinese, and to deepen the cover of those who do have it. A brave and historic start has been made with the piloting of the NCMS. And many important reforms have been implemented in the urban scheme. But many challenges still remain, as this Note has shown. The good news is that there is considerable scope for learning—from the urban reforms of the 1990s, from past attempts to resuscitate the CMS, and from abroad.

### References

1. Sidel V. New lessons from China: equity and economics in rural health care. *American Journal of Public Health* 1993;**83**:1665-1666.
2. Cretin S, Duan N, Albert P, Williams J, Gu X, Shi Y. Modeling the effect of insurance on health expenditures in the People's Republic of China. *Health Services Research* 1990;**25**(4):667-685.
3. Carrin G, Ron A, Yang H, et al. The Reform of the Rural Cooperative Medical System in the People's Republic of China: interim experience in 14 pilot counties. *Social Science & Medicine* 1999;**48**(7):961-972.
4. Hsiao W, et al. Rural Mutual Medical Care in China. *The Chinese Health Economics* 2004;**Forthcoming**.
5. Gao J, Qian J, Tang S, Eriksson B, Blas E. Health equity in transition from planned to market economy in China. *Health Policy and Planning* 2002;**17**(Suppl.1):20-29.
6. Wang H, Huang G. Assessing the reform models of China's urban health insurance system. *Chinese Health Policy* 2000;9-11.
7. Ma X, Zhang L, al. e. The current status of urban health insurance reform in China. *Chinese Health Economics* 2001;**3**:50-51.
8. Liu Y. Reforming China's urban health insurance system. *Health Policy* 2002;**60**(2):133-150.
9. Akin JS, William H. Dow and Peter M. Lance. Did the distribution of health insurance in China continue to grow less equitable in the nineties? Results from a longitudinal survey. *Social Science & Medicine* 2003( in press).
10. Huang M, Sun Y. Current situation, problems and reform measures of labor insurance system. *Zhejiang Social Science* 1994(5):64-67.
11. Cai L, Wan C, Wang J. Analysis on Proportion of Inpatient Expenses and the Influencing Factors. *Journal of Hospital Statistics* 1999;**6**(4):206-209.
12. Shen H, Chen X, al. e. Assessing the performance of integration of medical savings account and social pooling account in Shenzheng. *Chinese Health Service Management* 1999;**129**:123-125.
13. Wu R. Try to perfect the system. *China Medical Insurance Research* 2004;**1,2**:16-19.
14. Wang F. Some thoughts about the combination of the medical savings account and social pooling account. *Chinese Health Economics* 1998;**17**(4):34-36.
15. Wang H. Controlling for the growth of medical expenditures using the combined mechanisms of medical savings account and social pooling account. *Chinese Health Economics* 1999;**18**(4):40-42.
16. Luo L. Hainan medical insurance practice and thoughts. China Medical Insurance Association Annual Meeting 1998, Beijing.
17. Yip W, Hsiao W. Medical savings accounts: Lessons from China. *Health Affairs* 1997;**16**(6):244-251.
18. Liu G, Cai R, al. e. Urban healthcare reform initiative in China: findings from its pilot experiment in Zhenjiang City. *International Journal of Economic Development* 1999;**1**(4):504-525.
19. Zou F. A review of the pilot employee medical insurance system reform. 2002;**13**(6):66-72.
20. Yip W, Eggleston K. Provider Payment Reform in China: The Case of Hospital Reimbursement in Hainan Province. *Health Economics* 2001;**10**(4):325-339.
21. Yip W, Eggleston K. Addressing government and market failures with payment incentives: Hospital reimbursement reform in Hainan, China. *Social Science & Medicine* 2004;**58**:267-277.
22. Liu G, Cai R, al. e. China's urban health insurance experiment in Zhenjiang: cost and utilization Analyses. In: Hu T, Hsieh C, eds. Economics of Health Care Reform in Pacific Rim. England: Edward Elgar, 2001: 143-158.
23. Liu G, Zhao Z, al. e. China urban health insurance reform: equity in cost sharing. *China Economic Quarterly* 2003;**2**(2):435-452.