

Review of Health Care Provider Payment Reforms in China

Final draft, March 2005

This paper was prepared by Meng Qingyue, Shandong University as a background paper for the World Bank China Rural Health Study. The findings, interpretations and conclusions expressed in this paper are entirely those of the authors, and do not necessarily represent the views of the World Bank, its Executive Directors, or the countries they represent.

1. Introduction

Tremendous studies have been conducted internationally and in China with conclusions that provider payment systems are crucial for determining performance of health care system and institutions in terms of cost containment, efficiency and quality of health care. For the health care payers-mainly the government, health insurance schemes, and individuals, China has a long history of using fee for service (FFS) method by insurers and individuals and global budget by the government to pay health providers. Since early 1980s, alternative payment systems including diagnostic related groups (DRG), capitation and fixed charge have been introduced and experimented for insurance and individual payers. At present in China, the payment methods are mixed. How to use innovative payment methods to serve the aims of health sector reform is an important topic.

The purpose of this work is to highlight provider payment reforms and experiments and their impacts through reviewing payment-related documents and studies.

2. Review method and analytic framework

Information used for this review was derived from both published and unpublished studies, reports and documents including official documents, empirical studies, and discussion reports. Those materials were collected from database CNKI (Qinghua University Database) for empirical studies, government sector for official documents, and academic institutions for discussion reports.

Payment method in this review is defined as methods of pricing of health care services, paying of health care providers, and arrangement of payment including supplementary measures and contractual relationship between payers and providers.

Figure 1 shows the relationship between major payers and health care providers. Because business health insurance accounts for small proportion of health care market at present, this kind of insurers were not included. This review focused on direct government subsidies, individuals' out-of-pocket payment, and reimbursement from health insurers to health providers.

Given the fact that health care financing and delivering systems are basically different between rural and urban areas, summaries of the findings for those two areas are presented separately, even though there were some overlaps in payment policy and practice. For rural areas, health providers were classified into three levels of county, township, and village. For urban cities, health providers were classified into community health centers and upper level hospitals. Curative health providers (mainly hospitals) and preventive health care providers (mainly CDC and MCH institutions) were separated in presenting the findings.

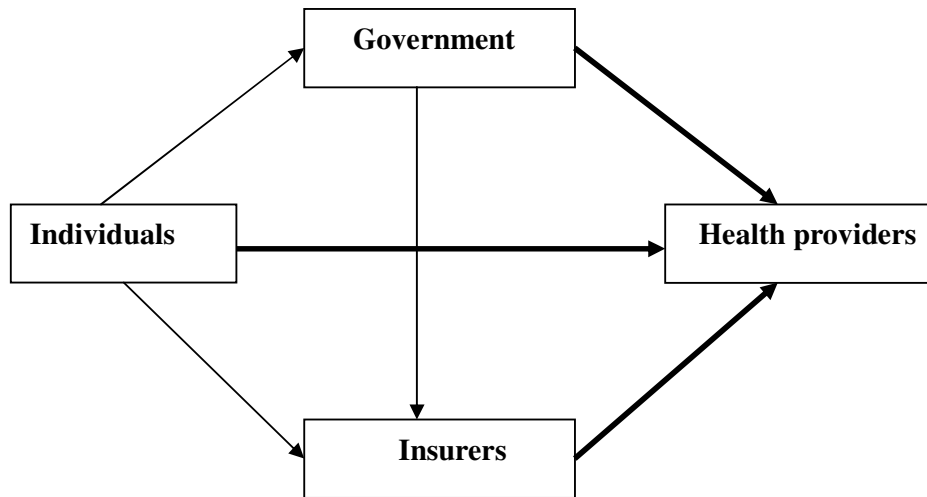


Figure 1 Payment relationship between parties

3. Provider payment reforms in rural areas

3.1 Payment of government subsidies

There are two main types of government subsidies for health providers. One is called regular health budget used to cover part of operating costs of health providers including labor and other recurrent costs. The other is called specific health budget used to support building constructions and purchase of equipment. Besides those two types of government budgets, other forms of government subsidies include program-based budget such as tuberculosis and malaria control programs. In total government subsidies for rural areas, about 70% was regular budget [1].

Payment method of government subsidies for county health providers is currently mainly based on numbers of registered health workers or/and hospital beds. For county hospitals, a fixed proportion of salaries of registered health workers or a fixed subsidies per registered bed are reimbursed by the government. This method has been criticized because it encourages unreasonable expansion of workforce and hospital beds [2]. In middle 2000, the central government reformed the method for subsidizing hospitals by defining four targeted areas, including construction of buildings and purchase of hi-tech equipment, salaries of retirees, advanced clinical research, and deficits resulting from provision of professional services [3]. The purpose of this reform was to improve efficiency of use of government subsidies by clearly targeting the items for government investment. However, no evidence was found that this policy has been actually implemented.

A number of alternative methods have been suggested for replacing existing methods of allocating government subsidies. Methods suggested include general index method, population-based method, work-volume based method, and weight-based method [4].

The key idea for those methods is to link allocation of government subsidies with output of health facilities, aiming to improve provision of health care that the government wants. Unfortunately, implementation and experiments of those suggestions were not found in practice, except one case that used idea of DRG in allocating government funding.

The DRG-based subsidy method was experimented in military hospitals from 1999 [5,6]. This method changed the traditional hospital bed-based reimbursement method for inpatient care with the aim of improving outputs of inpatient care. With this method, diseases were classified into 651 groups that accounted for 83% of the total diseases in the sample hospitals. The key parameter in determining the level of reimbursement is “consumption index”. The “consumption index” was determined by a combination of severity of the diseases, location and level of the hospitals, insurance status of the patients, and other factors. Each disease group is given a “consumption index”. The bigger the index for a specific disease group, the bigger the weight for getting more public subsidies. The number of cases provided by a hospital and the “consumption index” determine the amount of subsidies allocated for this hospital.

Government regular budget allocated to township health centers was mainly based on number of registered health workers for covering part of the salaries. In 2002, the central government issued a high level policy document [7], requesting county health authorities to take the lead and direct responsibilities for managing township health centers, and asking to increase budgets for rural health facilities including township health centers based on requirement of essential public health programs. However, it was found that allocation method of the government budgets had not been accordingly changed in poor rural areas [8].

3.2 Provider payment methods of the NCMS

By the end of June of 2004, 310 counties were involved in the new rural cooperative scheme (NCMS) pilots covering 69 million population [9]. About 1390 million yuan were spent for reimbursing NCMS curative services, 35.5% of which went to outpatient and 64.5% went to inpatient care within about one year [9].

From the existing documents, it was found that FFS payment was the dominant method for paying NCMS providers. In some counties, alternative payment methods including fixed salary, DRG, and capitation were experimented. In two counties of Xinjiang, county government through NCMS fund allocated a 40-50 yuan per month for each village practitioner as the fixed payment, plus fees charged for birth delivery and exemption of voluntary labors, a total of 2000 yuan of income per year for a village practitioner was paid. With this fixed reimbursement, the village practitioners were asked to provide free diagnostic and treatment services to the insured [10]. In Kuanyang township of Guizhou Province, all contract village clinics were represented by township health centers in purchasing drugs. Prices of drugs charged to the patients in village clinics were regulated by the township health centers. Payment to the

contract village clinics by the NCMS included three parts: basic salary, indicator-based bonus (indicators included number of home visits and patient satisfaction), and performance-based bonus (performance included cost containment). The basic salary was 300 yuan a year for each practitioner [11]. In Wushe of Henan, each household contributed 10-30 yuan to form the fund. With this global fund, village clinical practitioners were contracted to provide free physical examinations once a year. The insured could receive discounted services ranging 15-20% for defined services in village and township health facilities [12]. In Wuxue of Hubei, capitation payment method was used. Village clinics and township health centers should provide defined basic health services to the insured with the fixed allocation of the fund (10 yuan for village and 10 yuan for township a year). If the NCMS fund was not balanced, 70% of the deficits should be covered by township health centers and the rest was covered by village clinics [10, 13, 14]. In Dazhi of Hubei, 11 and 21 yuan per capita were paid for defined outpatient and inpatient services, respectively [15]. In two counties of Gansu Province and in Zheng'an of Shaanxi Province, DRG payment method was experimented for NCMS¹. DRG payment method was also found in Bing and Zhen An of Shaanxi Province [16,17]. In those two counties, the NCMS selected 38 conditions for paying contract health providers with fixed charges. The excessive expenses above the fixed amount would be born by the contract hospitals.

In most NCMS plans, contracts were arranged between insurers and health providers. Those contracts usually specified package of services, payment methods, and quality of health care [10,18-20]. Drug lists and fixed drug expenditure per prescription were implemented and regulated for some NCMS [10, 21]. Some insurance schemes set up clear rules for regulating charging behavior of contract providers. If prices charged to the insured were not consistent with the official fee schedules, the contract relationship with the insurer would be cancelled [20,22]. In Xinxiang of Henan, the NCMS fund was managed by Chinese Life Insurance Company

Based on informal discussions with national and local health officials, the understanding is that some models of payment system, for example, the DRG-based payment method experimented in Zheng'an of Shaanxi Province, has been extended for other NCMS counties in this province. However, little is known about the direct impact of payment methods on performance of health providers. It was reported in some cases that medical costs had been controlled after operation of NCMS through improving rational use of drugs [10,13,23]. On the contrast, one study indicated that irrational use of drugs and injections became more severe after NCMS was implemented [24].

3.3 Provider payment methods of out-of-pocket users

FFS payment method

FFS is the dominant payment method for out-of-pocket payers. Prices of medical services including diagnostic and non-pharmaceutical treatments are set by

¹ From an informal discussion with officials of MoH and Gansu Provincial Department of Health.

Departments of Price Administration and Health. Drug prices are set by either State Commission of Reform and Planning and provincial Department of Price Administration or the market.

For medical services, the national government provides principles for price setting. Provincial or prefecture governments set fee schedules for public hospitals. Before 1980, a lower-than-cost pricing policy was implemented in order to assure the affordability of health care users. Since early 1980s, prices of medical services were increased. During 1990s, the pricing policy featured lower prices for basic medical services and higher prices for high technologies, which was regarded as one of the causes for rapid expansion of advanced medical technologies. In 2000, the central government reformed the methods by increasing prices of professional services and by decreasing prices for high technologies. Up to middle 2003, most of the provincial governments had adjusted their fee schedules for about 4000 fee items [25].

Little is known about the impact of the recent adjustment of the fee schedules on growth and structure of medical expenditures. A study in Shaanxi indicated that after adjustment of fee schedule in 2001, expenditures had shifted from high technologies to basic professional services and growth rates of expenditures had declined for secondary and tertiary hospitals, using four diseases as tracers [26]. However, a study in four provinces of Beijing, Gansu, Shandong, and Henan, concluded the opposite findings [27]. It was found that high technologies are still much profitable, which attracts hospitals to purchase [28-29].

From 2000 on, the central government changed its drug pricing policy from controlling the entire cascade of prices for all pharmaceuticals to controlling retail prices for selected products only. The rationale for the reform included that cost effective drugs would be more utilized if prices of those drugs are reduced [30]. The government declared that retail prices had been reduced by an average of 15% before the end of 2001 after implementation of the new drug pricing policy [31]. In a study with small sample hospitals, however, it was found that the new drug pricing policy did not work effectively in controlling drug expenditures because hospitals can earn high drug revenues by increasing drug utilizations and shifting utilization from reduced-price drugs to high-price drugs [32].

DRG-based payment experiments

DRG-based payment experiments are mainly initiated by hospitals rather than government authorities. The primary purpose of adopting this payment method for hospitals is to attract more users by increasing reputation in charging.

The earliest documented experiment of DRG-based payment method was taking place in three hospitals of Ha'erbin of Heilongjiang Province, in 1994 [33]. By the end of 2000, there were 16 hospitals in Ha'erbin adopted DRG-based payment method for hospitals [34]. In recent years, hospitals located in Jining of Shandong Province,

Fouzhou of Fujian Province, Wen County of Henan Province, Tangshan of Hebei Province, Hangzhou and Leqing of Zhejiang Province, Zhenjiang of Jiangsu Province, and Hongya of Sichuan Province, were found to use DRG-based payment method [35-36].

In the pilot hospitals in Ha'erbin, the highest and lowest price limits were set according to past expenditure patterns. Fees must be charged within the limits [33-34]. Jining Medical College Hospital selected 69 frequently treated diseases for use of DRG-based payment from April of 2004 [37]. The method in this hospital was to set the highest limit for fee charge. In Renji Hospital of Leqing, all diseases treated by the Department of Surgeon were covered with DRG payment method [38]. Fixed fee rates were set for diseases treated in this department based on cost information. Contracts between hospital administrators and clinical departments, and between health care providers and users, were arranged in those hospitals. Fee rates, specifications of quality of health care, and proportion of drug expenditures in total expenditures were specified in the contracts.

From the literature available, positive impact of DRG-based payment method on cost containment was found. In the Red Cross Hospital of Ha'erbin, total expenditures for acute appendicitis decreased by 100% after implementation of DRG-based payment method and proportions of drug expenditures in total expenditures decreased from 50% to 15% [34]. In Jining Medical College Hospital, after implementation of the DRG-based payment method, total expenditure per case decreased by 30-50%, drug expenditure per case decreased by 34-64%, and length of stay decreased by 0.4-2 days, for five diseases [37]. Studies of impacts on other dimensions of health care including quality of care and "cream skimming" behavior were not found.

Prepayment schemes for child immunization and maternal care

Since middle 1980s, financing mechanism for preventive care including child immunization and maternal health care was changed from free provision to introduction of user fee. There are two main methods for the payment. One is the FFS in which the users are charged when the immunization services are provided. The other is a prepayment scheme that the users pay a fixed amount of premiums for a defined package of services and reimbursement. This prepayment mechanism was initiated from 1984 and has been widely adopted in many rural counties [39].

There are three forms for paying the prepayment: one collection for 7 years, one collection year by year, and one collection for each vaccine. The fund collected was used for covering the operating costs of immunization programs and for reimbursing medical expenditures if EPI-covered infectious diseases occur. The fund was shared by two or three level health facilities of village clinics, township and county health providers [39-42]. Proportion of the share for each health provider was closely linked to responsibilities the provider should take. Level of payment from the users varied by locations and the time for setting the prices. After 2000, a range of 28-70 yuan per

child was charged [39,42]. About 20-40% of the funds were used for covering the labor costs and 10-40% of the funds were used for covering the material costs [43-45].

With this scheme, the users were strongly encouraged to use the immunization services [39]. Implementation of the mechanisms had two main problems. First, some health providers could not deliver the services required after the funds were collected [41]. Second, the fund was misused for non-immunization activities such as spending on extra incomes of the health workers [40].

Prepayment scheme for maternal care covered nearly 50% of the rural counties in middle 19990s [46]. For a defined package of maternal services including ante natal and post natal examinations, hospital childbirth, and health educations, a range of 20-80 yuan per pregnant women were collected from the users [47-52]. Some schemes also included services for child immunizations [53]. The most frequently-mentioned advantage of this scheme compared with FFS is that it provided incentives for maternal and child health workers to deliver defined health care [54]. However, quality of care and appropriateness of the premiums were the most concerns in the operation [55].

4. Health care provider payment reforms in urban cities

Payment methods of government subsidies and user fee

Health care provider payment reform was mainly initiated for urban health insurance schemes in urban cities. Lots of discussion papers were found presenting the ideas how government subsidies to curative and preventive health facilities should be reformed. However, like the financing situation for county hospitals, those ideas are just on the paper. This means the government subsidies allocated to hospitals and preventive institutions (CDC and MCH stations) are mainly based on number of registered health workers or hospital beds.

Out-of-pocket users in urban cities pay hospitals mainly using FFS method according to fee schedules as the same as rural people. Few pay hospitals with the DRG method for some specific diseases. Prepayment schemes for child immunization programs and maternal health care are also popular in urban cities. The organization and arrangements of those schemes are much similar as that in rural areas [56].

Payment systems of the urban health insurance scheme for hospitals

From late 1980s, the Government Health Insurance (GHI) and Labor Health Insurance (LHI) schemes were reformed focusing on payment systems in some areas. Between 1994 and 1998, Jiujiang and Zhenjiang were selected by the central government to pilot the new scheme pooling the fund from individual-institution-run GHI and LHI schemes. By the end of 1998, the central government started a nation-wide urban health insurance reform based on experiences in pilot cities. In the official documents related to urban health insurance reform, various payment systems including FFS,

DRG, capitation, fixed charge, and global payment are recommended for pilot. By the end of 2003, about 110 million employees were covered by the new health insurance scheme [57]. The purposes of the reforms are to expand coverage of the basic health insurance and to control escalation of medical expenditures.

Because insurance fund allocated in the individual health account is used by the insured themselves for outpatient services (mainly FFS), payment reforms are mainly experimented for inpatient services. In most of the municipal cities, a mix of payment systems is used for inpatient services. In 1995 when Zhenjiang and Jiujiang began the pilot, Zhenjiang adopted fixed charge based on inpatient days for paying the providers and Jiujiang still used FFS [58]. From 2001, Zhenjiang started to experiment DRG payment method for 82 diseases [59]. Rates of the diseases for paying the contract providers are fixed. The hospitals can retain the savings and should bear the loss if actual expenditures exceed the rates. Rate for each disease was set according to average expenditure of the disease over the past three years subtracting unreasonable expenditures [59]. After late 1996, Jiujiang changed its payment method to fixed charge according to inpatient days, in order to control medical expenditures with FFS method [58]. From the beginning of 2001, Jiujiang adopted capitation payment method because they found that fixed charge payment cannot control the expenditures of medical services [60].

Payment method of fixed charge per inpatient is used by most of the municipal cities. For example, in Guangdong Province, 13 of the 18 municipal cities used fixed charge per inpatient payment method, 2 of them used FFS, 2 of them used capitation, and 1 used fixed charge per bed day, in 2002 [61]. In most cases, the rate per inpatient was set according to average medical expenditures over the past 2 or 3 years after abstracting some unreasonable expenditures [58-59]. However, various payment methods co-exist in the cities with fixed charge per inpatient payment method. In Guanzhou, Zhenjiang, Dalian, Liuzhou, Mudanjiang, and Xiamen, DRG and FFS were also used for some specific diseases such as TB, mental diseases, and late stage treatment of cancer [62].

In 2003, Qingdao adopted a global budget payment method for health providers [63]. The budget for each contract hospital was determined by proportion of inpatient expenditures that were allocated to this hospital in previous 2 years and the total fund available for inpatient expenditures. For use of the budget, a control indicator of number of hospital admissions was used. The minimum number of hospital admissions treated by the contract hospitals was set equal to 95% of the number of admissions in previous year. If hospitals provide inpatient care less than the minimum standard, actual payment to the hospitals would be reduced proportionally.

For supporting the implementation of payment systems, supplementary measures were made for controlling quality of care and avoiding misconduct of hospitals. For example, in use of payment method of fixed charge per inpatient, some insurers

regulated the length of interval for a same person to be admitted.

Reform of payment systems in the urban health insurance schemes has been found positive on cost containment in Nantong and Hainan [64-65]. In Jiujiang, it was found that after implementation of capitation payment method, medical expenditure per inpatient for the insured fell from 2320 yuan to 1778 yuan and proportions of drug expenditures declined from 76.5% to 59.8% [60]. In Zhenjiang in 2003, the average expenditure for diseases using DRG payment method was lower by 25% than average level of the province in the same level hospitals [59]. While evidence on cost containment of payment methods was reported, very little is known about impacts on other dimensions including quality of care and “cream skimming” behavior. In Kunming of Yunnan Province, it was reported that some patients with high medical expenditures were rejected by insurance contract hospitals because those hospitals tried to control their expenditures per inpatient with the payment method of fixed charge per case [66].

Payment for community health centers

Even though both central and local governments ask for use of community health centers as contract health providers of the urban health insurance schemes, very little spending of the insurance fund was on those facilities in practice [67]. Poor health care and lack of computerized system for making the payment were the frequently-mentioned reasons [56].

User fee with FFS method was the main source for community health providers, accounting for about 90% of the total incomes of the community health centers. Government subsidies which constituted 10% of the total incomes of the community health centers were used to cover part of salaries of the health workers [61]. Even through community health centers are asked by the government to provide “six category” services including preventive care, the program-based subsidies from government were very limited [56]. FFS payment method for paying the user fees was reformed in many cities for preventive and pre-treatment services. In a number of municipal cities located in 16 provinces, contract payment method has been used for community health services. About 10 to 30 yuan per family member a year paid to community health centers can get free access to a defined services package including home visits, physical examinations, and health education [68].

5. Conclusions and policy recommendations

Payment method of government health budgets for both curative and preventive providers based on numbers of registered health workers and hospital beds led to separation of government input and providers’ output. Public funding was not used with current payment methods to encourage health care providers to produce services for the interests of the public. Exclusion of village clinics for government regular subsidies reduced the incentive for those clinics to provide public health programs.

Design and implementation of alternative payment methods instead of FFS in developing rural NCMS have not been paid enough attentions. With the limited evidence, it seems that payment method of fixed basic salary and flexible performance-based bonus for village clinics is better than FFS in terms of cost containment and service delivery. Use of NCMS fund for preventive care helps deliver public health programs in rural areas. Reforms of payments methods for urban health insurance schemes using capitation and fixed charge per inpatient are found effective in controlling rapid growth of medical expenditures. However, it is not clear whether or not those changes in payment methods have had negative impacts on quality of care and “cream skimming” behavior of the providers. For both rural NCMS and urban health insurance scheme, besides payment methods, comprehensive contract arrangements are crucial for achieving the aims of the insurers.

FFS provider payment method for out-of-pocket users that is difficult to monitor behavior of health providers in charging the patients is closely linked to cost escalation and inefficiency of use of resources. DRG-based payment reforms implemented in some places have positive impact on expenditure control for diseases covered by the payment. However, impacts of DRG-based payment method on health care quality and expenditure patterns for all patients in the pilot hospitals are not documented.

Both government authorities and health insurance organizers have recognized the importance of provider payment system in influencing performance of health providers. Followings are the areas that can be worked further for government and social health insurers to improve the payment system.

- Increasing recognition of the payment system for local reform implementers in determining performance of health providers. At present, request of more government fund for operating health care system is very strong. How increased government health funding can be efficiently and equitably could be paid more attentions. Provider payment methods as one of the tools that can improve use of the health care resources for outputs of basic health care should be more considered. This is also important for implementation of rural NCMS that design of payment system should be regarded as crucial as design of how fund can be collected.

- Organizing and expanding experiments of DRG-based payment method for out-of-pocket health care users. Government authorities could take more active role in assessing, organizing, and scaling up DRG-based payment experiments. An official guideline based on existing successful cases using this new method could be developed for guiding payment reforms in more areas. In addition, prepayment schemes for child immunization and maternal health care could be re-examined, which is used to facilitate improving those schemes. If new financing policy for EPI with free care to users is implemented in the future, how government funding can be properly paid to the providers could be carefully designed. Due to wide use of FFS for

out-of-pocket users, a comprehensive assessment is needed for current FFS payment using thousands of fee items with which new strategies for substantially reforming the pricing and payment policies could be developed.

- Considering the possibility of subsidizing village clinics with government health budgets. Due to the nature of ownership of village clinics, those primary health units have long excluded from government regular supports. Village clinics are crucial for provision of both preventive and curative care. If government allocates budgets to village clinics based on defined responsibilities of delivering services, rural people would have more and good access to basic health care.

- Exchanging experiences in reforming payment systems between rural NCMS and urban health insurance schemes. Advanced payment methods have been more adopted and experimented by urban health insurance schemes. How both successful and failure cases can be learnt for rural NCMS could be considered by MoH. A booklet summarizing experiences of urban health insurance schemes in designing provider payment methods could be prepared for use by the rural NCMS organizers. In the training courses for NCMS managers, how payment system can be properly designed and implemented could be included.

- Exploring reasonable mechanisms for evaluating payment methods. The current assessment of the payment systems is mainly focusing on cost containment. Other dimensions of health care, especially quality of care and access to health care for the patients with high expenditures, should be appropriately assessed with more reasonable evaluation method. Evidences from those evaluation studies could be used for improving existing payment systems.

References

1. Li WP, Shi G, Zhao K. 2003. The history, present situation and problems in rural health care system. *The Management* 4:33-43
2. Na L, Ren R, and Zhao YX. 2002. Analysis of government budget allocation. *Chinese Journal of Health Resources* 6:243-245
3. The Ministry of Finance, State Commission of Health Planning and Development, and Ministry of Health. 2000. *The guideline for allocating government budget*. Beijing
4. Wang J, Feng P, Guo Z, and Jiang H. 2001. Methods of allocating government budgets for non-for-profit hospitals. *Chinese Health Economics Research* 6:16
5. Li Y, Zhang S, Wang Y, et al. 1999. Use of DRG method for budgeting public funding for hospitals. *Hosp. Admin. J Chin. PLA* 6:10-12
6. Li Y, Yin B, Wang Y, et al. Experiment of DRG-based allocation of government health budget. *Hosp. Admin. J Chin. PLA* 7:83-87 year?
7. CCCP and the State Council. 2002. *Decision about the development of rural health care*. Beijing
8. Xiang L, Fang P, and Hu Y. 2004. Reimbursing the township hospitals in poor rural areas. *Chinese Journal of Health Care Management* 4:235-237
9. MoH. 2004. *Report on NCMS pilot*. Beijing
10. Hu S. 2003. Overview of NCMS models in China. *Chinese Journal of Primary Health Care* 9:1-6.
11. Wang F. 2003. Improve rural NCMS in poor areas. *Guizhou Finance and Economics Journal* 6:62-64
12. Health Bureau of Wushe County. 2002. Serving the establishment of rural household contract system. *Chinese Rural Health Care Management* 7:28-30
13. Wang B, Wang L, Li N, and Liu X. 2004. NCMS in Wuxue for 40 years. *Chinese Rural Health Care Management* 1:10-13
14. Wang Z, He S, and Zhou D. 2003. Why NCMS in Wuxue can be sustained and developed. *Chinese Rural Health Care Management* 2:25-26
15. Deqing County NCMS Office. 2004. *The NCMS implementation plan*.
16. Bing County NCMS Office. 2004. *The NCMS implementation plan*.
17. World Bank Mission team. 2004. *Notes for BTOR: Shaanxi field visit*
18. Yang X, Wang F, Sun J, et al. 2004. The experiences of NCMS pilot in Hubei. *Chinese Rural Health Care Management* 7:5-6
19. Gong'an County NCMS Office. 2003. *The NCMS implementation plan*.
20. Yanzhou NCMS Office. 2004. *The NCMS implementation plan*.
21. Fang B. 2003. Design and implementation of NCMS in Jinhua. *Chinese Rural Health Care Management* 8:22-23
22. Yuexi County NCMS Office. 2003. *The NCMS implementation plan*.
23. Dong H, Bogg L, et al. 1999. Association between health insurance and antibiotics prescribing in four counties in rural China. *Health Policy* 18:29-45
24. Xiang L and Luo W. 2002. The Impact of NCMS on drug prescriptions. *Soft Science of Health* 3:2-4
25. Department of Health Planning and Finance, MoH. 2004. *Report on adjustment of fee schedules*, Beijing

26. Jin C, Wang L, and Peng Y. 2002. New fee schedule and the inpatient expenditures for four diseases. *Price and Market* 9:37-39
27. Meng Q, Bian Y, Sun Q, et al. 2002. Improving the pricing system for health care (I). *Chinese Journal of Health Economics* 5:31-34
28. Bian Y, Zhuang N, Meng Q, and Yu S. 2002. Cost and efficiency of use of PET. *Chinese Journal of Health Economics* 8:15-17
29. Sun Q, Ge R, Meng Q, et al. 2005. Cost and efficiency of PET/CT. *Chinese Journal of Health Economics* 2:37-41
30. China State Commission of Planning and Development. 2000. Reforms of drug pricing policy. Document Number 961.
31. China State Drug Administration. 2003. National actions in reducing drug prices. Publicity Report
32. Meng Qingyue, Cheng Gang, et al. The Impact of China's Retail Drug Price Control Policy on Hospital Expenditures: A Case Study in Two Shandong Hospitals. *Health Policy and Planning*, 2005, in press
33. Liu S, Zheng M, Yang S, and Wang S. 1999. Analysis of DRG-based charges. *Chinese Health Economics Research* 5:39-40
34. Yang Z, Zhao Z, and Liu T. 2001. The impact of DRG-based user charge on expenditure control. *Chinese Journal of Health Economics* 4:25-26
35. Jiang D. 2003. Capping the user charge for surgical operations. *The Discussant* 61
36. The Editor. 2003. About DRG payment reforms. *Operate and Stratagem* 25
37. Yin A. 2004. The impact of DRG user charge on hospital length of stay and expenditures. Discussion paper, Shandong University
38. Lu H. 2002. DRG user charge and use of antibiotics. *The Chinese Journal of Nursing Practice* 8:585-586
39. Zhang W and Meng Q. 2004. Review of prepayment schemes for child immunizations. *Chinese Journal of Health Care Management* 3:179-181
40. Guan P. 2002. The impact of prepayment scheme for child immunization. *Chinese Rural Medicine* 9:52
41. Xu Y, Cao Y, and Tian W. 1991. Use of prepayment scheme for child immunization. *Chinese Public Health Management* 7:231-232
42. Huang Y. 1993. Advantages and disadvantages of prepayment scheme for child immunization. *Hubei Preventive Crae* 4:46-47
43. Zhang M and Zhu D. 1989. Assessment of prepayment scheme for child immunization. *Chinese Journal of Health Economics* 6:52-54
44. Shen S and Zhang Z. 1999. How child immunization can be improved. *Chinese Journal of Primary Health Care* 3:31-33
45. Deng H and He Z. 1996. The use of fund of prepayment scheme for child immunization. *Chinese Journal of Primary Health Care* 10:40
46. Wang F. 1996. Pushing the prepayment scheme for maternal health forward. *Chinese Journal of MCH*, 11:2-11
47. Li K. 1992. Piloting various forms of prepayment scheme for maternal health. *Chinese Journal of MCH* 5:5-6
48. Sun G. 1992. The impact of prepayment scheme for maternal health on risk pregnant

- women. Chinese Journal of MCH 1:5-6
49. Wang F. 1988. Prepayment scheme for maternal health in Rongcheng. Chinese Journal of MCH 5:3
 50. Yan L. 1997. Improve the prepayment scheme for maternal health. Chinese Journal of MCH 6:332-334
 51. Liu P. 1997. Prepayment scheme for maternal health in Yibin. Chinese Journal of MCH 6:337
 52. Jilin Provincial Government. 1992. The guideline for prepayment scheme for maternal health. Chinese Journal of MCH 5:1-3
 53. Qiu W. Developing rural health care system by establishing prepayment scheme for maternal health. Chinese Rural Health Care Management 2:41-42 year?
 54. Xu D. 1990. User charges for preventive care. Chinese Journal of MCH 3:14-16
 55. Wang L. 1997. New pattern of MCH in rural areas. Chinese Journal of MCH 6:348
 56. Tang S, Meng Q, and Mao Z. 2003. Analysis of financing mechanism for UHPP project cities. Mission report for UHPP Project
 57. Ministry of Labor and Social Security. 2003. Publicity report on social and labor security system. Beijing
 58. Meng Q. 2002. The Impact of provider payment reforms on cost containment. Chinese Health Economics Research 9:18-20
 59. Wu A, Li Y, Zhang Y, and Cheng X. 2004. DRG-based payment reform for urban health insurance scheme. Chinese Journal of Health Economics 9:38-39
 60. Jiujiang Health Insurance Office. 2004. The “413” urban health insurance arrangement. Project Report
 61. The Project Team. 2003. Investigation of Payment methods in Guangdong. Project Report of Guangdong Provincial Department of Science and Technology
 62. Lin Q. 2004. Adjustment of payment methods for urban health insurance schemes. Chinese Advanced Hospital Management 7:23-25
 63. Qingdao Municipal Department of Labor and Social Security. 2003. Payment arrangements for contract hospitals. Policy Document No 52
 64. Meng Q, Clas Rehnberg, Zhuang N, et al. 2004. The impact of urban health insurance reform on hospital charges: A case study from two cities in China. Health Policy 68:197-209
 65. Yip, W. and K. Eggleston. 2001. Provider Payment Reform in China: The Case of Hospital Reimbursement in Hainan Province. Health Economics 10(4): 325-339
 66. Yang WY. 2005. “The game of cat and rat”: problems in Yunnan’s health insurance scheme. Hospital Leadership 4:12-16
 67. Meng Q, Tang S, and Mao Z. 2003. Financing the community health care in Shengyang and Chengdu. Chinese Journal of Health Economics 6:24-25
 68. Wu Y, Zhang X, Zhou Z, and Wang X. 2004. Contract services in community care system. Chinese Journal of Health Economics 9:44-45

Appendix 1: Provider payment reforms in urban health insurance schemes in selected cities

1. Payment methods

Various payment reforms were experimented in municipal cities with new urban health insurance schemes. Table A1 summarized the major reform in selected cities.

Table A1: Payment reforms in selected municipal cities

Cities	Payment reforms
Shenzhen	<p>1. 1992-1996: 1) for paying outpatient services, fixed charge per outpatient visit was used; 2) for paying inpatient care, fixed charge per inpatient with regulation of LOS was used; 3) for some specific diseases including TB and heart problems, DRG payment method was used; 4) for clinics, capitation method was used.</p> <p>2. 1996-1997: the inpatient care was classified into two categories: common inpatient care and special care including emergence and cancer treatment. For common diseases, fixed charge per inpatient day was still used. For special diseases, the payment was made according to actual expenditures.</p> <p>3. 1997-2000: the payment method for special diseases was terminated and fixed charge payment method was used for all inpatient care.</p>
Zhenjiang	<p>1. 1995-1996: 1) Outpatient care: fixed charge per outpatient visit; 2) for inpatient care, fixed charge per case was used.</p> <p>2. 1997-present: 1) Risk pooling fund used for catastrophic diseases was allocated to each contract hospital with a global cap. Expenditures exceeding the cap would not be reimbursed by the insure fund; 2)FFS was implemented for outpatient care and fixed charge was terminated; 3) Proportion of expenditures on drugs for the insured was controlled and evaluated for controlling irrational use of drugs.</p>
Jiujiang	<p>1. December, 1994-September 1996: For both outpatient and inpatient care, FFS was still used.</p> <p>2. Late 1996-2000: 1) Fixed charge for outpatient visits. Fixed rate was set for paying outpatient service according to actual average expenditure per outpatient visit in previous year. 2) Fixed charge per inpatient. Standard for rate per inpatient day and length of stay were made.</p> <p>3. From 2001: started to experiment capitation payment method.</p>

Hainan	The risk pooling fund was used for paying contract hospitals using a mix of DRG and FFS methods. The insurer developed three lists of essential drugs, diseases insured, and fee items. Medical services outside the lists were not reimbursed. In the disease and drug lists, 401 diseases and 1609 drugs were included.
Mudanjiang	<ol style="list-style-type: none"> 1. 1996-1997: started to experiment capitation payment method in three hospitals. In 1996, 470 yuan per head was set for the insured. The excessive expenditures over the capitation were equally born by the insurer and contract hospitals. 2. 1997-: the capitation payment method was changed to DRG payment method by selecting 662 diseases. For setting rate for each disease, average length of stay and expenditure per inpatient day were considered.

2 Contract arrangement

Besides payment system reforms, other arrangements for regulating the payment and behavior of health providers were made in the selected cities. Table A2 summarizes the major contract arrangements.

Table A2: Contract arrangements in selected cities

Cities	Contract arrangements
Shenzhen	<ol style="list-style-type: none"> 1. Specifying conditions and constraints for paying the defined rates. If hospitals splits one hospital admission into more or other similar behavior for getting more reimbursements, the contract would be punished by reducing payments to the hospitals. 2. Number of hospital admissions should be reasonable according to numbers of outpatient emergency services. 3. If hospitals charges patients with services or drugs outside the insurance package, services provided should get permissions from the patients and the insurer. 4. The insurer would organize regular monitoring for charging behaviors of contract hospitals. 5. Quality control indicators were set up for monitoring health care of quality. 5% of the payment w 阿嫂 ere left for the final payment after quality of care passes the evaluation. 6. If the actual expenditure per inpatient was above 90% of the fixed rate per inpatient, the insurer would pay the fixed rate. Otherwise, the hospitals would be paid the actual expenditures in order to assure quality of care.

Zhenjiang	<ol style="list-style-type: none"> 1. A panel of medical experts was organized by the insurer and municipal Department of Health for monitoring and evaluating the quality of health care. The experts panel would monitor and evaluate quality of care by regular examinations to the contract hospitals with the quality evaluation forms. 2. Contract hospitals must strictly prescribe drugs that were listed by the insurer. Expensive and imported drugs should be limited in use. The drug prescriptions should be rational and reasonable. 3. Contract hospitals must charge uninsured patients with official fee schedule. 4. Use of high technologies should meet some standards of positive cases. The proportion of positive cases for 500MAX-ray should be greater than 50% , CT scan must be greater than 60%, and MIR must be greater than 70%. 5. Expenditure per outpatient visit in contract clinics should be less than 20 yuan. 6. Payment with contract health providers was made every six month. 5% would be remained by the insurer as the control payment after quality of care was assessed.
Jiujiang	Similar to Zhenjiang
Hainan	<p>In early 1997, the Hainan Provincial government issued and implemented “the method for managing risk pooling fund” and “the method for evaluating quality of care”. According to those methods, the excessive expenditures over budget would be shared by both insurer and contract hospitals if the excessive expenditures are less than 20% of the budget. If the excessive expenditure is greater than 20% of the budget, all the excessive expenditure would be born by the contract hospitals. Quality of care is closely linked to payment to the hospitals.</p>
Mudanjiang	<ol style="list-style-type: none"> 1. Different fee rates were made for different hospitals for the same disease. On average, the fee rates for the same diseases were 30% lower in secondary hospital than in tertiary hospitals. 2. The fee rates were different for the same diseases according to different outcome of the treatment. 3. For diseases that were not covered by the DRG-payment list, the reimbursement would be paid according to actual expenditures. However, service items would be reviewed and fee items that were not covered by the insurance would not be reimbursed. 4. Ratio of inpatient over outpatient visits of the insured was used for controlling hospital admissions. For general hospitals, the maximum ratio was 1.2% and minimum ratio was 0.8%. For specialty hospitals, the ratio was 2.5%. 5. DRG-based FFS. If actual expenditures for diseases were less than 75% of fee rates, the payment to hospitals would be made according to actual expenditures.

--	--

3. Summary of the findings of impacts on cost containment

In general, the changes in payment methods have had positive impacts on cost containments in the pilot cities.

➤ In Shenzhen, the hospital expenditures for the insured increased by more than 30% every year before payment reform. After the implementation of new payment method, the annual increase rate of medical expenditures declined to 16%. Average medical expenditure per insured in 1999 was 150 yuan lower than that in 1999.

➤ In Zhenjiang, before the pilot between 1991 and 1994, medical expenditures increased by 33% annually. In the first year of the payment reform (1995), increase rate of medical expenditure was 16%. However, in 1996, medical expenditure increased rapidly, about 40% greater than 1995. Between 1997 and 1999, the annual increase rates of medical expenditure were controlled below 15% with the reformed payment methods.

➤ In Jiujiang, in the first year of payment reform the increase rate of medical expenditure decreased by 32%. Medical expenditure increased rapidly in the next year. After implementation of fixed charge payment method, the inpatient expenditure slightly decreased. In 2001, after one-year implementation of capitation payment method, it was found that the capitation payment method was more effective in controlling hospital expenditures for the insured. The expenditure per inpatient decreased by 24% in 2001 compared with the expenditure in 2000.

➤ In Hainan, before the payment reform, the insurance expenditures for contributors accounted for 13% of the total salaries. After the reform, this proportion decreased to 10%. Hospitalization rates were 5-11% for the insured before reform and decreased to 4.4-4.9% after the reform.

➤ In Mudanjiang: during the three years after implementation of DRG payment method, the average of annual increase rate of expenditure for inpatient care was 14% that was much lower than that before the changes in payment methods.

The common problem in reporting the impact of payment reforms is that quality of care and “cream skimming” behavior of health providers were not reasonably examined. All the studies were focusing on the issue of cost containment.

Appendix 2 : Payment arrangements in NCMS

Longyou County of Zhejiang Province

The medical organizations which have received "operation license of medical organization" with the approval of health administrative departments at all levels, can apply for the contracted qualification to NCMS management office in the county, and sign the service contract of NCMS, define the responsibility, right and obligation of both sides.

The contracted medical organization must carry out the regulations of basic medicine use, medical examination and price of medicines strictly, stop the unnecessary drugs and medical check consciously, report the situation in hospital about the personnel of NCMS to rural NCMS office of the county in time, and help the NCMS office to control the medical expenses actively.

According to the first item of "management liability statement of new rural NCMS in Longyou county", we reaffirm regulations as follows.

If the contracted medical organization or doctor helps patient falsify prescription, expenses document or voucher, once checked and verified, the leader will be bear the responsibilities by the health administrative department, the institution can be cancelled the contracted qualification of medical organization if the situation is serious, and the relevant doctor have to be investigated and affixed legal liability according to the regulation of medical practitioner, until revoked medical practitioner's qualification.

Gong'an County of Hebei province

Reimbursement payment: According to the prompt and convenient principle for people, the peasants who participate in NCMS must pay for the expense of outpatient and inpatient service noninstallmently which has been verified by every contracted medical organization. Every contracted medical organization goes to the NCMS management office of the county and town to transact reimbursement formality before the 30th every month. Once the formality accords with regulation of compensating, in should be submitted to the financial department. Then, every contracted medical organization will be allocated the funds by the management office of NCMS in time. All that violate medical principle, settlement standard and the regulation of medicine use, will be punished correspondingly besides compensating under the care of medical organization.

Tertiary medical organizations of the county hospitals, township health centers and village clinics can apply for the new-type rural cooperative medical care qualification. The qualified medical organizations through examination confirmed as the contracted

service organization of NCMS signs the service contract with NCMS management office in the county and announces to the public. Peasants who participate in NCMS can choose any hospital to see a doctor freely in the county and can change the place of examination to need due to illness. People in the county who change the place of examination organization need provide the proof and report to the NCMS office in the county in time. If patients need transfer to another county for diagnosis and treatment, it must be examined and approved by the NCMS office in the county.

Dazhi of Hubei

The payment of expenses in the contracted medical organization of the clinic. NCMS stations of all towns gather special-purpose prescription paper, clinic registration form, and monthly summary form of contracted medical organization in the popedom with floppy disk and report to the NCMS office of the county to check up. The NCMS office pays for the compensation expenses.

The contract health providers must charge the patients with official fee schedules, can't increase the drug prices for the peasants who participate in NCMS without permission, can't counterfeit the medicines with health products, daily necessities, cosmetics to sell by "health". Can't turn the medicines at one's own expense into other medicines to take place of and reimburse for falsification either. The use of all kinds of medicines should follow the principle of "treatment due to illness", rely mainly on medicine in drug list and try the best to control the amount of medicine use, and prevent drugs from wasting.

Payment of medical expenses implements the system of rendering an account: First, postpaid system. Peasants who see a doctor in the clinic of medical organization at all levels, only pay for their own expenses which are carried out the compensation encashment in the scene. Compensation expenses adopt the form of account keeping by the contracted medical organization of offering service, and are gathered by the cooperative medical station of the villages and towns to get the expenses from the NCMS office of the county every month. Second, prepaid system. In order to guarantee the normal operation of NCMS and make the supplier's funds operate normally, the NCMS office of the county prepays certain medical expenses according to the agricultural population of NCMS in all towns as the starting funds in the beginning of every year.

Fund allocation of NCMS: 1) Medical fund. Medical fund of outpatient service: Per capita 11 yuan, which is used for the compensation of the medicine expenses of the outpatient services. Medical fund of inpatient service: Per capita 21 yuan, which is used for the compensation of the serious disease. 2) Health physical examination fee of peasants: A per capita yuan, which is used for joining general health survey of the peasants of new-type rural NCMS. 3) Risk fund: Per capita 2 yuan.

Deqing county

It is the core of the whole management that the NCMS fund's management. Once the NCMS's fund raised, it must be turned to the rural NCMS management organization of the town in full and should be deposited in Countryside Credit Cooperative with special account. The special fund is drawn according to the actual compensation account of the compensation registration form each time. Any individual (or the unit) can't practice fraud, detain or divert the fund. Those who violated the regulation have to be investigated responsibility, until affixed legal liability. Clear account every day and close account monthly. Audit and announce the account periodically. Accept the masses' supervision.

Management of operating mechanism is the key to guarantee normal running of NCMS. Registration with one family as the unit of the villager who participate in NCMS, card granting, prescription invoice, fund checking and controlling etc, all that should be have a set of intact management and control procedure.

Management of medical care organization is the assurance that the NCMS is implemented normally. First, strengthen the appraisal and control of the quality of medical care, improve the medical service quality constantly, and reach the objective of costing little money and curing the disease. Second, do a good job of controlling drug and medical fees and forbidding tying NCMS's drug income with personal task and bonus. Third, medical organization accepts the supervision of the masses, guarantees to economize, and fair benefits. Fourth, the incentive system of high quality, fine curative effect and few medical expenses, and the punishment system on the contrary in medical care should be set up.

Yanzhou of Shandong

Set up and amplify rural NCMS financial rule, accounting system, audit system, bonus final accounts system, fund overspending and alarming system in advance, and strengthen the supervision of the new-type rural medical fund of countryside. New-type rural NCMS committee office of town and city should regularly report the income and expenses of new-type rural NCMS fund to New-type rural NCMS management committee and supervisor committee. Every town adopts form of putting up a notice to publish operating position of fund to peasant regularly, accepts the social supervision, and guarantees the peasants who participate in new-type rural NCMS to have the right of participation, being in know and supervision.

The contracted medical organization that has one of the following behaviors, will be criticized by publishing the notice, rectified and improved within a definite time period by the relevant department according to the seriousness of the case. If overdue rectification and improvement can't still reach the standard level, it will be cancelled the contracted qualification. The medical expenses because of this situation are undertaken by the contracted medical organization.

1) Do not carry out rural NCMS drug catalogue, diagnosis project and expenses standard strictly.

2) Do not carry out relevant policies and regulations of new-type rural NCMS strictly, and cause the fund to waste.

3) Do not carry out the system of compensating strictly. Cause the certificate not to accord with relevant people and personate another name to see a doctor because not checking valid certificate of the patient

4) Utilize the office to practise fraud, draw a bill emptily, get a lift to get drugs, and turn the medicines at one's own expense, health products and expenses of article for daily use into medicines expenses.

Faking, altering medical expenses note or lending rural NCMS certificate to others to defraud compensation, will be cancelled the compensation qualification of this current year and confiscated " the new-type NCMS certificate of Yanzhou " besides recovered and compensated the fund.

Yuexi of Anhui

Carry on the dynamic management to the contracted hospital. The contracted medical organizations in the county are determined as follows temporarily, including county hospital, county traditional Chinese hospitals, CMH stations, and township health centers.

People who participate in NCMS must hold cooperative medical certificate to transact the formalities in hospital and can choose the contracted hospitals in the county independently.

People who participate in NCMS must report to the committee in the village while seeing a doctor in hospital. Contracted hospitals should verify the certificate and detailed register project, implement responsibility system for the first diagnosis, strengthen consultation system of the people who have medical insurance. Should put case history in order in time after leaving hospital and write brief summary of case history to report to the leadership for reference.

That the township health centers and village clinics transfer to the commune hospital in the center, the hospital at county level, or province, city level hospital and make a diagnosis, need show the application of changing the place of examination from county level hospital and report to the NCMS office in the county for approval.

The NCMS office in the county should sign the medical service agreement with contracted medical organization, and define the responsibility, obligation, right and interest and penalty clause in breach of both sides.

Every contracted medical organization must set up, amplify and carry out all the regulations, such as changing the place of examination step by step, inspecting medicine use, etc. Control medical expenses, check rationally, use medicine rationally, treat rationally, and utilize medical fund rationally. Improve service attitude, service

function, medical quality and market competitive power conscientiously. Try hard to make light disease can be treated in the villages and towns, and serious disease can be treated in the county for the effect that insurance peasants can be offered cheap, convenient, high-quality medical service.

Xinxiang of Henan

Chinese Life Insurance Company including city and every county undertakes relevant insurance business, its main responsibilities included:

1) Audit fund payment inventory, set up the special-purpose account card of NCMS, edit and verify payment formality, audit the subsidy, manage funds, and participate in the raising of the NCMS fund.

2) Set up subsidy service window in the contracted medical organizations of every county and town, responsible for business recruitment and management, salary and relevant expense.

3) According to the regulations of rural NCMS strictly, such as “basic drug reimbursement catalogue” and “range not subsidized”, carry out subsidy payment business.

4) Show the operating position of the NCMS fund commonly every month, offer the relevant materials as requested, and accept the supervision of the society and relevant department.

It is a contracted medical service organizations that was only appointed by supervision and management office of new-type rural NCMS in the county. Its main responsibilities include:

1) Carry out every regulation to medical organization and medical worker, every rule of the new-type rural NCMS in the country, province and city strictly, and offer high-quality, normal service to the peasants who participate in the new-type rural NCMS.

2) Carry out “basic drug reimbursement catalogue“ of the new-type rural NCMS strictly. If use medicines beyond this catalogue, should tell to the patient or the patient family members.

3) Carry out charging item and expenses standard that the price department has made strictly and accept social supervision.

4) Offer the situation of coming to hospital and leaving hospital of the peasants who participate in NCMS to the payment service window that has been set up in our institute in time.

5) Offer the office to Chinese Life Insurance Company.

Bing County of Shaanxi

In order to strengthen the management work of new-type rural NCMS, standardize the medical behavior of contracted hospitals, improve medical quality, reduce peasant's medical burden, the management committee of NCMS in the county implements the ceiling of 38 kinds of common diseases and give quota subsidy to patients.

All expenses including peasants' payment can't exceed the ceiling of single disease; otherwise, the excess part is given patient for compensation by the hospital.

Disease	The ceiling of medical expenses (Yuan)		Quota subsidy standard (Yuan)	
	County	Town	County	Town
Big leaf pneumonia	1300	1090	364	
Acute gastritis, enteritis	1200	840	360	336
Brain infarction	2800	1960	840	780
TB	2000	1400	600	560
Simple appendicitis	1200	840	360	336
The chest traumatism amalgamates serious blood pneumothorax	3840	2688	1140	1075
Gastric perforation	3000	2100	900	840
Thyroid gland cyst	1800	1260	540	504
Child's bronchitis	1200	840	360	336
The forearm is a pair of fracture	3200	2240	960	896
The tibiofibula fracturing	3200	2240	960	896
Give a birth normally	380	266	150	150
Hysterotomy	1800	1260	540	504

Kashi of Xinjiang

Means of payment (supplier): A rural doctor's value is about 2000 yuan, which includes county government supply which is about 40 to 50 yuan per month, fees of accounting and free of compulsory work..

Level and pattern of management: The NCMS which is conducted by town is lead centralized by the county government .The NCMS funds are special funds which must be used specially.

Results of NCMS (coverage rate, rate of financing, efficiency of service, cost, improvement of health status, etc) For township, the coverage rate of NCMS could reach to 100%;for village, the coverage rate of NCMS could reach to 97.0%. In Maigaiti county.The NCMS which has received incessantly improved in 42 years was conducted in 1958.In 1997,the county government improved the management system by implementing Method of management and administration of NCMS; in Shache county ,the town coverage rate of NCMS is 79.0%,the village coverage rate is 85.0% .NCMS covers 75% of total people in Shache county.

Wushe County of Henan

Peasant family contract about healthcare based on the health service management integration of town and village and rural commune health care, is supported by rural

health organ at the basic level, regards rural health personnel as backbones, regards peasant household and key crowd in the area as the object, takes prevention and health care as the focal point, takes the "everyone enjoys health care" as the target, takes the form of the contract, is a new-type health security method which offering basic medical treatment prevention and health care service for rural resident. Launching this work should insist on the principle "government leading, helping each other and resisting the difficulties together, voluntary and paid, service priority, adapting market, health care for main fact".

Peasant family contract about health care through health technical backbones of town and village going on a free health physical examination one half a year to the peasant household in the area for each village and family, include examining blood pressure, checking the urine candy, examining heart and lungs, mother and child care, disease of old people, health care of chronic disease health consultation, setting up family's health file, and classifying and managing the chronic disease. If peasants are satisfied with this kind of service, each household pays 10-30 yuan every year through consulting and signs family health care contract. If peasant households' kinsfolks hold the health care contract of the township, village medical organization to see a doctor, they can also exempt from the registration fee and reduce 15%-20% checking and treating fees.

Appendix 3: DRG-based payment reform for out-of-pocket patients

1. Jining Model

On April 6, 2004, the affiliated hospital of Jining medical college started to reform part of its payment method for 69 diseases. In order to review the effect of their payment reform, a team from Shandong University conducted an analysis for this hospital.

10 diseases of high frequently treated were selected for analysis from the 69 kinds of diseases used for the DRG-based payment. From the medical record database of the hospital, the contents of those 10 diseases' case history in the year 2003 and April to June of 2004 were collected. Data for five diseases with reliable and comprehensive information were finally analyzed.

From table1, it could be conclude that after adoption of DRG-based payment method, compared with the year 2003, the average length of stay for acute gastritis patients who has been operated declined 2 days and the average total expenses were decreased by 47.60%. From the components of each item, it could be conclude that each item such as drug expense has declined to some degree. The decline degree of per capita drug expense is 64.27%, which is the main cause for the decline of total medical expenditures. The next is therapy expenses per inpatient with a decrease by 63.5% and surgery expenses per inpatient decreased by 41.75%. From the proportions of expenses of all items accounting for the total expense, it could be conclude that the decreasing proportions of per capita drug expenses (7.06%)and per capita therapy expenses (5.12%) are significant. The decreasing proportion of surgery expenses (53.86%) increases 5.40% than that in 2003 and it is still the highest.

Table 1 Change of medical expenditure on acute appendicitis cases before and after the reform

Item	2003	April to June, 2004	Changes	Degree of changes
Case number	188	13	-	-
LOS	8	6	-2	-
Per capita total expenditure	4147.05	2173.16	-1973.89	-47.60%
Per capita drug expenditure	905.97	323.78	-582.19	-64.26%
% of drug expenditure	21.96%	14.90%	-7.06%	-

Table 2 presents process for selected diseases using the DRG-based payment method. Those fee rates are the cap for charging the patients. Actual charges can be set below those rates.

Table 2 presents process for selected diseases using the DRG-based payment method.

Ategories	Name of disease	Rate (yuan)
Heart surgical department	Arterial septal defect	10000
	Heart operation I	20000
	Lung cancer	10000
	Cardiac cancer	12000
Obstetrical department	cesarean	2800
	Childbirth	1000
E.N.T-department	Skill that the tonsil is exised	1500
Dept.of orthopedics	Protrusion of waist intervertebral disc	4300
Center of department of ophthalmology	glaucoma	5300
	Cataract(crstal imported completely)	2700
	Vitreous body retina	5200
	Lacrimal sac	2200-3200
	Laceration of cornea and sclera	4300
	strabismus	2200-3200
	Tumour in the socket of the eye	5300

2. Zhenjiang expenriment

The determination of the diseases which are implemented to DRG-based payment is based on “international classification of diseases” and accords to the principle of “more familiar, high homogeneity and expenses could be easily controlled by the uniform standard”. In practice, it was improved by absorbing the advice of therapists and case management specialists. From the year 2002, the hospital started to experiment DRG-based payment method. At present, 82 diseases are covered with this payment method. Table 3 presents the diseases falling into the categories for use of DRG payment.

Table 3 Components of 82 kinds of diseases which are implemented for DRG-based payment

Disease	Classification	Disease	Classification
1-22	Diseases of general surgery	67-70	Disease of ophthalmology
23-26	Diseases of Thoracic surgery	71-72	Diseases of stomatology
27-30	Diseases of urine surgery	73-76	Diseases of internal medicine
31-42	Diseases of orthopedics	77-79	Interposition treatment of internal medicine of cardiac
43-45	Diseases of Cranial surgery	80-81	Surgery of cardiac
46-56	Diseases of Gynaecology and obstetrics	82	Diseases of Psychiatric
57-66	Diseases of ENT		

There are two principles to determine the rates of diseases. The first principle is social

average medical cost of the area and the second is basic medical range. The method used included: 1) count the actual expenses and case number of the past 3 years of some related contracted hospitals. The expenses of non-basic medical (for example, the exceedable standard berth expenses and the diagnosis items which were not covered by the insurance scheme) and the irrational expenses which didn't follow regulation of the price department are excluded from the actual expenses, which produced the standard fee rates for the diseases. When the remaining expenses are divided by the case number, we will find the payment standard (reference value); 2) sample and analyze a number of cases and expenses in hospital, then study whether the payment standard is reasonable and modify the payment standard; 3) absorb the advice of therapists' about payment standard of some diseases; 4) adjust the payment standard on the basis of the actual institution.

In 2003, based on some statistical data, the average expense per inpatient was 7708 yuan in all tertiary hospitals in the whole province, while the expense per inpatient in the tertiary hospitals in Zhenjiang was 6000 yuan. Among the diseases using DRG-based payment, the average expenses of cholecystitis and gall-stone are separately 6971 yuan in the province, and 5150 yuan in tertiary hospitals in Zhenjiang. From 2001 to 2003, Medical expenditure for the insured increased by 8.79%, 8.89%, and 11.17%, which were thought of being reasonable according to price inflation.