

# **Pilot Program of NCMS in China:**

## **System design and progress**

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This paper was prepared by Mao Zhengzhong, Sichuan 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.

## **I. Introduction**

Pilot programs of New Cooperative Medical Schemes (NCMS) have been implemented for a year or longer in 310 counties (or county-level cities) till the end of 2004, according to the series of stipulations of the Central Committee of CCP and State Council. There have been another 306 counties implementing the pilot program beginning since the beginning of 2005. Thus, about one third of the counties in the country have been implementing the pilot program.

Based on the statistics from 282 pilot counties, survey data of our own research, as well as NCMS-related literature since 2003, this report aims to offer a brief introduction of the program in terms of systematic characteristics, implementing condition, experience, issues and challenges, so as to provide information to perfect NCMS policy and improve the pilot implementing.

## **II. NCMS System Design**

1. Documents of the central government have clear stipulations on the system design of NCMS<sup>[1-4]</sup>, which can be summarized as following:

### **(1) Nature of NCMS**

NCMS is a government organized and conducted scheme of mutual assistance among voluntary participating farmers against serious diseases. It makes use of multiple channels diverse funding sources from personal payment, government and collective subsidy, donation and so on. The goal is to protect farmers from becoming or returning poverty-stricken because of catastrophic illness including infectious diseases and endemic diseases. It can be called a primary medical security system for rural population. But the ultimate liability is still not certain. For example, we are not sure who would be responsible for the “bankruptcy” of the fund.

### **(2) Benefit related groups and their relations**

There are four interesting groups in the framework of NCMS: government, health service providers, NCMS fund managers, farmers, who form a multilateral

relationship of mutual check(see fig.1).Among them, the government plays the dominant role, who is not only the framer of all the game rules of NCMS, regulating and monitor behavior of all related parties, but also the main capital contributor of the scheme through subsidy to participants and proving health service provides with budget.

The farmers, however, besides their voluntary choice of participation, are not well-informed about how to play their role and guard the right and benefit in the implementing of the scheme.

Health departments, in many places, play as managers for both health service providers and the NCMS fund, which may cause conflict in roles, undermining its effect as a representative of farmers as collective purchaser.

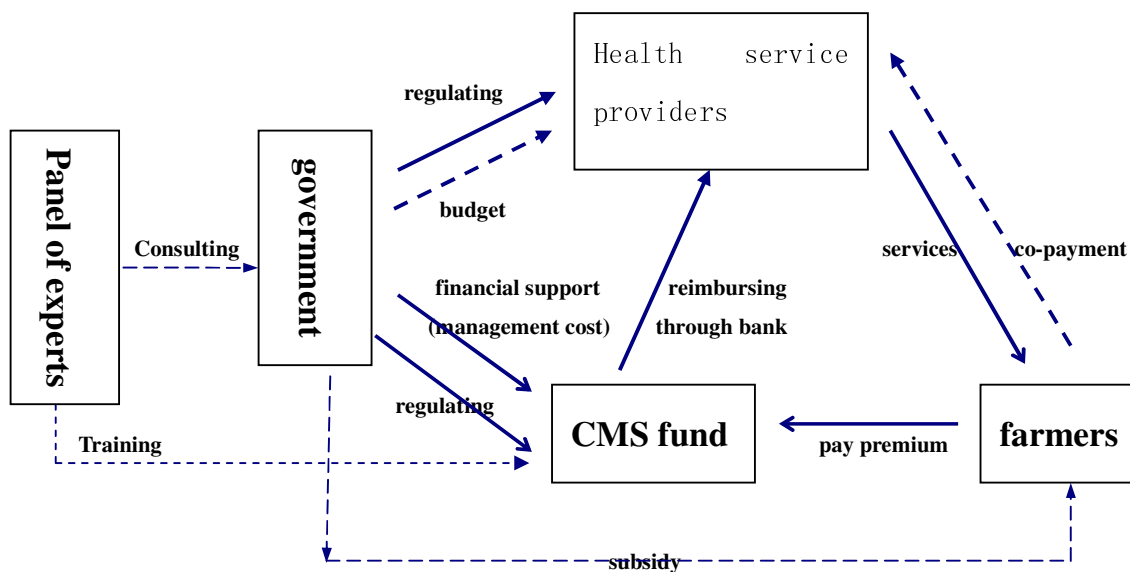


Fig.1. Relations among NCMS interesting groups

### (3) Management system

Management departments are established from central to local governments, to take charge of policy framing and supervising of the implement of the scheme. In the county level, there are administrative offices to be responsible for concrete operation of NCMS. All the management fee is paid by government.

### (4) Financing mechanism

NCMS fund comes from multiple resources, with voluntary payment (premium) by the farmers and subsidy from tiers of governments. Farmers are required to participate as family units, so as to reduce on the adverse selection caused by “voluntary participation”. But such financing form of “voluntary participation” may cause high financing cost.

#### (5) Illness risk sharing mechanism

Usually, the range of illness risk sharing takes county as a unit (averagely 200 thousand in population), and provides financial risk protection to patients with catastrophic health problems.

Thus, the vast majority cannot benefit from the scheme, and it will in the long run lose attractiveness to the majority of farmers. In fact, there have been controversies over “sever disease reimbursement” or/and “minor disease reimbursement”

#### (6) Integrated development of Medical Assistance System and NCMS

NCMS financing is, on the whole, low in level, so its security cannot be high. Meanwhile, there are 25.42 millions of poverty-stricken population in rural area. So it is helpful that Medical Assistance System be established at the beginning of NCMS, to form a rural medical security network through integration of the two systems. But it should be regulated that the Ministry of Health and the Ministry of Civil Affairs be respectively responsible for the establishment and operation of the two systems. There are some difficulties have to be overcome in order to make these two systems to function cooperatively.

### 2. Some issues and studies

#### (1) Adverse selection

According to the present NCMS system design, farmers have the freedom to choose whether to participate in the NCMS; but such freedom is limited by the regulation of participation as families, so as to prevent adverse selection. The question is if it is preventable.

Zhan Zhongqing surveyed 100 households of participants and 100 households of non-participants<sup>[5]</sup>. Among the 776 people in the 200 households, 75.4% and 24.3% of the non-participants evaluate themselves as “very healthy” and “healthy” respectively.

The proportions in beneficiaries of NCMS are respectively 63.1% and 20.3%. In the 100 households of participants, all together 140 persons have 325 illness treatments, with medical expenditure 41,572 yuan in total. In the 100 households of non-participants, the figures are 104 persons and 286 treatments respectively, with a total medical expenditure of 15,475 yuan in the same period . The former cost is 2.69 times that of the latter, showing the possibility of adverse selection under voluntary principle of NCMS.

He Yonghua finds in one pilot county in Hubei Province that though participants account for only 76.5% of agricultural population, they constitute 95% of hospitalized patients.<sup>[6]</sup>

Shen Weiru also reports condition of Kunshan city, Jiangsu Province. In contrast of the 16.5% rate of elderly population, there are 6,084 elderly people over 60 among all the 18,616 participants of Yushan Township, Kunshan City, accounting for 32.5% of the total.<sup>[7]</sup>

Liu Aimin et al. find, through the survey of 624 households in Fenyang City, Shanxi Province of the west, that households that have had family member(s) hospitalized or with chronic diseases are obviously more willing to participate in NCMS than those without such members. ( $P < 0.05$ )<sup>[8]</sup>.

With data from Kaiyang county, Guizhou Province, Wang Hong et al. also draw the conclusion that farmers who feel healthy are less willing to participate in NCMS than those who feel bad about their health condition; the participation rate is obviously lower in healthy people than that in sick people.<sup>[9]</sup>

The elementary conclusion drawn from published research so far is that voluntary participation in units of family cannot avert the occurrence of adverse selection.<sup>[10]</sup> Besides, families with students or enterprise workers who have already participated in local commercial insurance (like accidental injury insurance for pupils and high school students,) will not participate in NCMS. The survey by Song Youlin et al confirms that 17% of farmers of above mentioned types do not participate in the scheme<sup>[11]</sup>. On the other hand, incidence of occupational diseases in peasant workers keeps rising, with treatment cost increasing. For example, the pneumoconiosis cases

in peasant workers has increased by 16.7% from the year 2001 to 2002; but most of the patients are not treated locally. The disease causes economic loss up to 16.6 thousand yuan each year. The ultimate treatment expenditure will be in the rural area, which poses a great potential threat to NCMS fund<sup>[12]</sup>.

## (2) Management cost

Management cost of NCMS is taken up by fiscal budget of local governments. How to decrease the management cost is key point in keeping sustainable development of NCMS.

At present, the problem is shown in two aspects. On the one hand, there is shortage in both management staff and outlay, which is especially obvious in the western and central areas.<sup>[13]</sup> For one example, in three pilot counties of Hebei Province, NCMS management offices are established in local Bureau of Health, reimbursement being entrusted to township health centers. The aim is to reduce fiscal burden caused by shortage in staff and outlay.<sup>[14]</sup> Similar management takes place in Gucheng county of Hubei Province.<sup>[6]</sup> On the other hand, there is considerably high management cost, caused by “voluntary participation” principle, especially for door-to-door motivation and collection of fee from scattered farm households. The survey by Beijing University in Yulong county of Yunnan Province finds that above-the-line NCMS management cost in mobilization and establishment fee is 380 thousand yuan, or 17% of total financed fund, in the poverty county of 197 thousand agricultural population and per capita income 1,166 yuan.<sup>[15]</sup> Pilot experience in Gucheng county of Hubei province shows that for every 10 yuan premium taken from farmers, 1.2 – 1.5 yuan is to be cost in management.<sup>[6]</sup>

Zhou Haisha et al. find in the survey of a county in Henan Province that the direct cost on information dissemination and mobilization of the year 2004 is 416,440 yuan, not including other costs like salary for NCMS administration staff and the cost of NCMS administration, including staff salary, equipment and management fee, is all from medical institutions in fact.<sup>[16]</sup>

Hu Shanlian et al. also provide a case report of a county. 183 thousand of rural population participate in the NCMS, the per capita management cost reaches a high of

5.97 yuan, about 20% of NCMS fund.<sup>[17]</sup>

According to the statistics of the Ministry of Health, the management cost of pilot counties paid by finance department of local governments is 84.924 million yuan, about 1 yuan per capita. Of course, this does not include the recessive cost such as staff outlay beyond authorized size. In general, the average cost in the country as a whole is 2.91% of financed sum, with the highest average 3.48% in the west, 2.61% for central areas and the lowest, 2.54% in the east. Compared to factual reimbursement sum, the management cost accounts for 9.77%, 5.07% and 3.03% in respectively western, central and eastern areas. But, the figure gained from field investigation is much higher than the proportion. So it remains the biggest issue how to enhance efficiency and control cost in management of NCMS.

### (3) Equitability

For the low reimbursement rate or high co-payment rate (see Part III of this report), so it is more difficult for the low-income to pay the out-of-pocket part, which naturally causes the worry about equitability in NCMS.

Wang Hong et al. find in the “Research of beneficiary equitability of CMS in rural China” that the low protection rate and high co-payment rate will make “those wealthy and healthy farmers benefit more from the scheme than the poor and sick ones.” In population with sound, moderate and poor health conditions, the ratio between benefit of the high-income and the lower-income is respectively 3.50, 1.90, and 1.30.<sup>[9]</sup>

In their research on NCMS pilot counties of Yunnan Province, Gao Mengtao and his colleagues find that NCMS operation shows “the superiority of wealthy farmers in medical service utilization and reimbursement.” At the same time, they find that richer townships “have a better accessibility of medical service than poor ones, and gain higher reimbursement quota.”<sup>[18]</sup>

Similar findings are gained by Hu Shanlian et al. in a county .<sup>[17]</sup> By comparing gaps of health service utilization and reimbursement in participants and villages of different income levels, they find an obvious trend of inequality that the higher the income level of family and village, the more they utilize health services and the



pilot county in Henan Province, Zhou Shahai et al point out that “field survey result does not favor coverage of small outpatient expenditure in NCMS”. The reasons include 1) indoor survey does not back up enhanced outpatient service utilization by corresponding reimbursement; 2) reimbursement of small amount of outpatient cost is not effective in alleviating economic burden caused by illness; 3) outpatient reimbursement calls for a much higher management cost; and 4) outpatient reimbursement may detract the already scant NCMS fund. However, they also point out that small amount of outpatient reimbursement can be favorable in increasing participation rate. [15]

Many researchers argue for small amount outpatient reimbursement to expand coverage of the “voluntary participation” of NCMS and to sustain finance from farmers to support the scheme. [7] Zhao Zhenghong et al advise in “Suggestions for CMS reforming” to “change CMS from pure medical security to medical and preventive security”. [20] In fact, some pilot counties include not only outpatient services but also preventive health care in reimbursement coverage. According to report by Ni Junjie et al, the factual utilization proportions of NCMS fund is 53% for outpatient reimbursement, 45% for inpatient reimbursement, and around 1.15% for preventive care in the counties Jiading, Jinshan and Fengxian of Shanghai City. [21] Wang Jingyuan et al also report embodiment of preventive priority principle in NCMS design of Gangyu county, Jiangsu Province. It is regulated that 20% reimbursement is paid to participants receiving non-projected vaccination against hepatitis (A and B), hydrophobia, etc; reimbursement rate for contagious diseases (class A and B) is increased by 5%; 30% of antemarital physical examination fee should be reimbursed. Part of NCMS fund is also spent in developing health education material and carrying out of health promotion. In Suzhou Industrial Area, NCMS fund consists of three parts: family savings account, severe disease pooling and preventive health care fund, the last mainly spent on health education information dissemination, woman and child care, and disease prevention and control in rural areas. [23]

##### (5) Poverty Medical Assistance

In designing NCMS system, the central government points out definitely that the

scheme should be in cooperative and integrated development with Poverty Medical Assistance System. Until the end of year 2004 the Poverty Medical Assistance System has been established in 1501 counties. And in 2004 it financed 1.35 billion yuan for the assistance fund, and paid 0.443 billion yuan to medical providers for 6.407 million poor totally. Among the 282 counties we analyze in Part III of this report, 122 have helped poverty-stricken population to participate NCMS with the Medical Financial Assistance developed by the Ministry of Civil Affairs. More reimbursement is paid by this scheme besides NCMS payment. Poverty Medical Assistance Scheme totally input 19.9758 million yuan, making the NCMS participation rate 68.18%, close to the average of farmers as a whole.

The following are examples of poverty assistance.

Case 1: Tongren county, Guizhou Province (data collected through field survey)

In order to help vulnerable group participate in NCMS, the Bureau of Civil Affairs, Family Planning Committee, and Poverty Assistance Office etc. together provide special subsidy to pay personal premium for the households enjoying five guarantees, poverty-stricken families, the disabled, two-daughter-households, and only-child households. In the year 2005, the departments have paid all together 82.5 thousand yuan as personal premium for the households enjoying five guarantees (787 persons), poverty-stricken families (5449 persons), two-daughter-families (1869 persons) and only-child households (1222 persons) which accounts for 6% of total sum of personal premium. The Bureau of Civil Affairs also pay the out-of-pocket part of inpatient services for households enjoying five guarantees and poverty-stricken families. Civil assistance of 290 thousand yuan is also provided for another 1402 participants whose out-of-pocket payment is above 1,000 yuan.

Case 2: Suzhou, Jiangsu Province

Personal payment of premium is exempted for all poverty-stricken population. It is also stipulated that poverty assistance fund be no less than 5% of total NCMS fund. The Rural Poverty Assistance Provision of Suzhou City was established in 2003 which aims to supply the colony with a per capita 250-300 yuan assistance, to support them in participation of NCMS and help to pay the out-of-pocket part of service bill.

### III. Pilot Programs across China

NCMS pilot programs across China were started from latter 2003 there have been 310 pilot counties till the end of 2004. The following analysis is based on the data from 282 counties in 2004 (the other 28 pilot counties not supplying complete information). Among the 282 counties, 72 are from 12 western provinces ( municipalities or autonomy regions ), 88 from 10 central provinces, and 122 from 9 eastern provinces.

#### 1. Economic condition and NCMS participation in various areas

Table 3 indicates the NCMS participation in the pilot counties.

**Table3. Economic condition and NCMS participation in various areas**

	No. of pilot counties	No.of participants (thousand)	Participation rate (%)	Participation rate in poverty-stricken population (%)	PCAIF	per capita GDP* (1000 yuan)	PCFR* ( yuan )
West	72	1802.964	70.80	66.29	2179	11.882	577
Central	88	2876.020	75.38	65.54	2756	35.448	728
East	122	3361.024	69.53	72.54	5221	172.001	5162
Total	282	8040.008	71.87	68.18	3284	65.970	2003

\*Average by rural population

Note: PCAIF= Per capita annual income in farmers

PCFR= Per capita fiscal revenue of local government

The gaps between east, west and central areas are obvious. For example, the per capita GDP in the east is 14.5 times that of the west, its per capita income 2.4 times, and local governmental revenue about 9 times that of the west. In spite of such disparity, the participation rate in the three areas is more or less the same, around 70%. In these areas, multiple revenues including poverty aids funds, collective and enterprise subsidy as well as donations, are employed to help poverty-stricken farmers to participate in the NCMS, enhancing the participation rate of this population near to that of the total population (Tongren county of Guizhou province is one instance). Especially in the east, the participation rate of poverty-stricken population is

obviously high, due to its better financial condition.

## 2.NCMS financing condition

Table 4 shows financing condition in the three areas

**Table 4 Financing conditions in the three areas**

	Per capita total*	Out-of pocket payment		Central government subsidy		Provincial subsidy		County subsidy	
		Sum	%	Sum	%	sum	%	sum	%
		(yuan)		(y/p)**		(y/p) **		(y/p) **	
West	43.25	12.3	28.44	13.4	30.98	8.4	19.42	4.2	9.72
central	41.06	12.0	29.24	12.25	30.49	5.7	13.89	5.5	13.40
East	61.07	25.1	41.11	0.00	0.00	3.4	5.57	11.1	18.18
Total	49.91	15.9	31.86	11.4	28.84	6.1	12.22	6.6	13.22

\*The total includes “out-of pocket payment”, “central government subsidy”, “provincial subsidy”, “county subsidy”, “collective enterprise input” and donations.

\*\* : y/p = yuan for each participant

In all the areas, NCMS fund constitutes mainly of government subsidy and personal payment by farmers themselves. The fund per capita the east is about 1.5 times that in the central and west areas. In the east, there is no central government subsidy, personal payment accounts for 41% of the total financing (a proportion of which is subsidized by collective enterprises); while in the central and western areas, personal payment only accounts for about 29% in the total financing sum. But that comparatively low sum of personal payment is of an obviously higher proportion in the farmers’ income than that of their eastern counterparts (see Table 5). Still, on the whole, it accounts for a relatively low proportion in farmers’ income.

**Table 5 Payment proportions of participants and local governments**

	Personal payment in participant’s income (%)	County subsidy in county financing revenue (%)
West	0.57	0.835
Central	0.44	0.69.
East	0.44	0.316
Total	0.49	0.631

Many counties in the central and western areas are in poverty, with poor financial

condition. In complementing NCMS pilot programs, the expenditures are mainly in two forms: 1) subsidy to the participants; and 2) day-to-day operation of management offices. In earlier we mentioned some cases about management cost. But for whole NCMS pilot program if let “total county financing input” equal to “subsidy to participants + operating expenditure of NCMS management”, the proportion of total financing to county revenue are 1.06%, 0.79% and 0.34% for west, central and east separately. This means that the proportion is two times higher in the west than that in the east.

### 3. Fund allocation and reimbursement design

The NCMS fund can be divided into two parts, one is for reimbursing expenditure on basic medical services (including physical check-up) and other is risk fund which is to be used to reimburse participants after basic medical fund has been exhausted. .

Pilot counties in 11 provinces set up risk fund, including Chongqing, Guizhou, Qinghai and Shanxi in the west, Hubei and Hainan in the central area, and Beijing, Shanghai and Zhejiang in the east. The average risk fund of each eastern province or municipality is up to 19.15million yuan, with that of Shanghai as much as 90.26million yuan. On the average, risk fund accounts for about 2.0% of the pilot provinces (municipalities and autonomous regions). It is scarcely 0.39% in the west, 0.25% in the central areas, but 3.94% in the east. Only the three provinces (municipality) in the east has lived up to the regulation of Ministry of Finance that 3% of financed cooperative medical funds be extracted as risk fund. So far there are lack information on risk fund.

22 provinces (9 in the west, 8 in the central and 5 in the east) establish physical check-up funds, amounting to 97.10 million yuan in total, accounting to 2.22% in their total financed sum. It is highest in the central part, 3.03% of the total finance pool, and 1.97% in the west and 1.40% in the east.

The rest part is all basic medical reimbursement, including out-patient reimbursement and in-patient reimbursement. Different counties have different ways distributing the basic medical reimbursement fund, as illustrated in the following:

1) "Inpatient reimbursement + family savings account"

The expenditure on hospitalization can get reimbursement with some co-paymeny.

The family saving accounts can be used by the participants directly to pay for outpatient expenditures.

2) "Inpatient reimbursement + outpatient reimbursement"

Outpatient fees in county or/and township levels is reimbursed in certain proportion, sometime with a limit sometime without.

3) "Inpatient reimbursement + family savings account + reimbursement of catastrophic service in outpatient department"

This is to pay special reimbursement to those non-inpatient catastrophic diseases like nephropathy, hepatitis, chemotherapy of tumor, diabetes and hypertension, etc.

4) Inpatient reimbursement + reimbursement of catastrophic service in outpatient department"

5) Only inpatient reimbursement

**Table 6 choices of reimbursement patterns (number of counties and proportion)**

	Inpatient only	%	Inpatient + big sum outpatient	%	Inpatient +family savings account	%	Inpatient +outpatient pool	%
West	0	0.00	8	9.64	74	89.16	1	1.20
Central	3	3.41	6	6.82	75	85.23	4	4.55
East	50	27.32	30	16.39	82	44.81	21	11.48
Total	53	14.97	44	12.43	231	65.25	26	7.34

The distribution of the four designs is as indicated in the table 6, according to a report from the Ministry of Health

The majority, 65.2%, of pilot counties across the country choose the design of "inpatient reimbursement + family savings account". But the preference is much more obvious in the western and central areas, accounting for 85% of counties, than in the east, only about 45%. The main reason is that the participants are reportedly lack of feeling of safety for entrusting their money to NCMS administration. Due to the

low income, the ten yuan premium is indeed a sum of money for them. Knowing that a proportion of the payment as family saving account, the farmers are more willing to participate. According to surveys by Hu, et al, the family savings account fund in the country is 327million yuan, which is 11.1% of the total NCMS fund. Another finding of the same report is that “the establishment of family savings account can not increase the participation rate, but can obviously control outpatient visiting.”<sup>[26]</sup> In fact, the national collect material also supports such finding, showing that participation rate keeps more or less the same despite of the much lower proportion of family savings account in the east than that in the west and central areas(see Table 3).

Around the startup of NCMS pilot program, the Ministry of Health and provincial bureaus of health carried out extensive training and set up instructing offices, to fix a suitable reimbursement design based on the participant disease risk, which is calculated with data collected from baseline investigation. The principle of reimbursement designing is “payment in proportion with expenditure and appropriate reimbursement rate”. But every county designs its own reimbursement scheme according to its understanding and conditions. The information we have got so far shows that central and provincial governments have to provide more effective training and sep up a detail guideline for designing scheme.

Among the 67 central and western counties our department team surveyed by mails in order to collect information on reimbursement scheme in October –December, 2004, we found that 25 did not set up deductible, which accounted for 37.3%; the ceiling of reimbursement was usually between 3,000-20,0000 yuan.

The following are four typical designs:

1) Zhaoyuan county, Shandong Province

Zhaoyuan county has a total population of 565.5 thousand, with agricultural population 443.4 thousand, per capita annual income of the farmers 4,998 yuan.

The total fund per capita is 23 yuan , with 10 yuan of personal payment, and 13 yuan of government subsidy. The reimbursement pattern is only inpatient reimbursement. There is no deductible while the ceiling is 5,000 yuan; the reimbursement rate is 20% when the total expenditure is under 5,000 yuan, 25%

between 5,000 and 10,000 yuan, 30% when the total expenditure is over 10,000 yuan.

2) Gong'an County, Hubei Province (Key monitoring county of the province, one of the four pilot provinces)

Gong'an county has a total population of 1.033 million, with agricultural population 0.78 million, per capita annual income of farmers 2,300 yuan.

The per capita total fund is 35 yuan, including 15yuan of personal payment and 20 yuan of government subsidy. 10 yuan is set aside as family savings account, the other 25 yuan as catastrophic disease pooling fund.

Inpatient service reimbursement design:deductible is 50 yuan for township health centers, 100 yuan for county hospitals within the county, and 150 yuan for those outside the county.

Subsections of reimbursement proportion is as follows:

Impatient expenditure (yuan)	Township health centers	Second county hospital	First county hospital (TCM)	Outside county hospitals
Under 1,000	50%	35%	30%	20%
1,001-2,000 元	55%	40%	35%	25%
2,001-4,000 元	60%	45%	40%	30%
above 4,000	70%	55%	50%	40%

The ceiling is 15000 yuan.

Besides, limited amount of reimbursement (maximum 600 yuan)is paid to seven kinds of non-inpatient serious chronic diseases including cancer, hepatocirrhosis caused by hepatitis, stroke sequela, severe diabetes, TB and antirejection after renal transplantation, etc.

Reimbursement above the ceiling can be re-paid with ratification to poverty-stricken families.

Outpatient service reimbursement design of Mahaokou Town: the per capita 10-yuan-premium is united in CMS administrative office. There is no personal savings account. 20% expenditure of total outpatient services and drugs in the benefit

package of participants is reimbursed, with a limit of 6 yuan each day. According to the survey data, there has been so far no over-expenditure.

Outpatient service reimbursement design of Buhe Town: No personal savings account. Outpatient expenditure is planned as a whole in the town, which is named as “small disease pooling”. Expenditures of outpatient services within the town, including registration, doctor’s visiting, skin test, injection, dressing change, etc, is fully reimbursed; 30% of other expenditures in township health center is also reimbursed, including ECG, Ultrasonic B, X-ray, biochemical examination, ENT and dental treatment. There has been no over-expenditure till now.

3) Dujiangyan City, Sichuan Province (one of the five pilot counties in the province, once been covered in CCTV program)

Dujiangyan city (county level) has total population of 595.5 thousand, agricultural population 434.9 thousand, among which 365.11 thousand are participants of NCMS. Per capita annual income for farmers is 3,600 yuan.

Total fund each participant is 30 yuan, including 10 yuan of personal payment, and 20 yuan of government subsidy. 15 yuan of the total is for family savings account, and 15 yuan for catastrophic disease pooling funds.

Inpatient service reimbursement design:

For township health center: the deductible is 200 yuan; reimbursement rate is 30%.

For city medical institutes: deductible is 200 yuan; the reimbursement rate is 20% for “secondary B class”, 10% for “secondary A class” and above. Treatment in outside city hospitals needs transfer of city-level hospitals to be reimbursed.

4) Midu county, Yunnan Province (Key monitoring county of the province, one of the four pilot provinces)

Midu county is a country-level poverty county. Its total population is 311.9 thousand, with agricultural population 290.6 thousand, per capita annual income for farmers is 1,682 yuan. There are 215.2 thousand participants of NCMS.

Total money each participant is 30 yuan, including 10 yuan of personal payment, and 20 yuan of government subsidy. 10 yuan of the total is for family savings account,

and 20 yuan for catastrophic disease pooling funds.

Inpatient reimbursement design (no differentiating among levels of hospital):

Deductible: 150 yuan; reimbursement rate: 40%; ceiling: 1,500 yuan.

Inpatient spontaneous labor: reimbursement rate 40%, maximum 200 yuan.

#### 4. Health service utilization of participants

In the documents of central government, it is pointed out that “establishment of New CMS is the effective approach to help farmers resist catastrophic disease risks.”

So we are to mainly discuss participants’ utilization of in-patient services.

**Table 7. participants’ utilization of levels of in-patient services**

	TIR	PT (%)	ACIR	PAC (%)	CIR	PC(%)	TSIR	PTS(%)
West	558306	3.10	47479	0.26	207527	1.15	303300	1.68
Central	969470	3.37	137176	0.48	327254	1.14	505040	1.76
East	964057	2.87	148395	0.44	417035	1.24	398627	1.19
Total	2491833	3.10	333050	0.41	951816	1.18	1206967	1.50

Note: TIR=Total inpatient reimbursed person-time

PT=Proportion of inpatient beneficiary person-time in total participants

ACIR=Inpatient reimbursement person-time above-county level

PAC=Proportion of inpatient beneficiary person-time above-county level in total participants

CIR=Inpatient reimbursement person-time county level

PC=Proportion of inpatient beneficiary person-time county level in total participants

TSIR=Inpatient reimbursement person-time township level

PTS=Proportion of inpatient beneficiary person-time township level in total participants

Table 7 introduces the condition of participants’ utilization with reimbursement of different levels of hospitals. As we have stated, about 63% of pilot counties set up deductible, so there must be a part of hospitalization that has not been counted in the table. It is obvious that the factual hospitalization rate of participants is higher than that shown in the table.

We can see from table 7 that reimbursed farmers only account for 3.10% of total

participants, the highest being in the central part, 3.37%, the lowest in the eastern areas, 2.87%. (because it's very unusual that one be hospitalized twice within a year, person-time hospitalization can be seen as the number of persons being hospitalized.)

The most often utilized service in the central and western areas is township health centers, with about 54.19% of hospitalization taking place in health centers, and 37.10% in the county level institutions in the west; in the central areas, 52.22% of hospitalization takes place in township health centers, and 33.83% in the county level medical institutions. While in the east, 43.21% of hospitalization is in the county-level institutions, which is followed by 41.46% in township health centers. On the whole, however, hospitalization in county and township levels accounts for 86.5%, indicating the sensitive choice of participants in hospitalization in township health centers and county level hospitals.

**Table 8. In-patient reimbursement (million yuan)and its distribution**

	TR sum	ACR sum	ACR %	CR sum	CR %	TSR sum	TSR %
West	231.5031	51.4701	22.23	111.4423	48.14	68.5908	29.63
Central	535.0435	200.2624	37.43	207.7617	38.83	127.0194	23.74
East	898.9668	301.3335	33.52	448.9256	49.94	148.7077	16.54
Total	1665.513	553.066	33.21	768.1295	46.12	344.3179	20.67

Note: TR= total reimbursement

ACR= above-county-level reimbursement

CR = county level reimbursement

TSR = Township level reimbursement

Table 8 indicates expenditures and distribution of in-patient service utilization in levels of medical institutions. We can see that in general, reimbursement for county and township levels accounts for the majority (66.79%) of NCMS funds. But the proportion is highest in the west, 77.77%, which suggests that the more lagged behind the economy, the higher priority in consumption of lower level medical service. Reading with table 6 we will find, the average in-patient expenditure in above county-level hospitals is 2.6 times that of county level, which is, in turn, more than

twice that of township health centers. So, the proportion of reimbursement payment of county and above county levels is larger than that of corresponding hospitalization person-time. For example, though the ratio of above county-level hospitalization is only 13.22% of the total person-time, its reimbursement is 33.21% of the total sum.

Table 9 shows the average expenditure and factual benefit in various levels of institutions

**Table 9. factual benefit of participants in various levels of institutions**

	ETE (yuan)	Reimbursement per case		EACLI	RACLI		ECLI	RCLI		ETHC	RTHC	
		Sum	%	(yuan)	Sum	%	(yuan)	Sum	%	(yuan)	Sum	%
		(yuan)	(yuan)	(yuan)	(yuan)	(yuan)	(yuan)	(yuan)	(yuan)	(yuan)	(yuan)	(yuan)
West	1848.8	472.6	25.6	6022.5	1252.6	20.8	2024.3	528.2	26.1	735.7	266.9	36.3
Central	2808.5	714.6	25.4	6759.5	1606.5	23.8	2543.4	658.6	25.9	1246.8	363.7	29.2
East	4309.9	1088.5	25.3	9776.8	2255.3	23.1	4218.6	1022.9	23.8	2369.2	604.9	25.5
Total	2943.5	746.8	25.4	7441.8	1671.4	22.5	2884.3	720.1	25.0	1418.9	400.5	28.2

Note: ETE = total expenditure per case;

EACLI= Average expenditure per case in above-county-level institution;

RACLI/t= Average reimbursement for above-county level institutions;

ECLI= Average expenditure per case in county level institutions;

RCLI= Average reimbursement for county level institutions;

ETHC= Average expenditure per case in township health centers;

RTHC= Average reimbursement for township health center service

It's obvious in table 9 that the general benefit level of participants is 25.37%. though there is great difference of average expenditure for in-patient services among the west, central and east areas, the sums of reimbursement also show corresponding difference, so that the reimbursement ratio is much the same, all about 25%. Also shown in the table is that the inpatient reimbursement ratio is increasing with the lowering of level of medical institutions. For example, in the west, the reimbursement rate for above county-level institutions is 20.80%. It increases to 26.09% for county-level, and further higher to 36.28% to township level. There is similar trend in the central and eastern areas. The phenomenon may be caused by the scheme design

in many counties that a higher deductible is set in higher levels of medical institutions, and a higher reimbursement rate for in-patient expenditure in lower levels of institutions.

In the east the average expenditure per case was much higher than other areas because the price was higher and much more high technologies were used.

#### 5. Effect of NCMS in alleviating fiscal risks of disease burden in participants

The sustainability of cooperative medical schemes is to a great extent dependent on its insuring degree, which can be measured with its factual coverage and reimbursement level. As we have pointed out, only 3.10% of participants have hitherto received reimbursement of an average 25.35% of in-patient expenditure, but the limited number of beneficiaries and level of reimbursement show certain effectiveness in financial protection against illness risks.

Table 10 shows the relationship between average in-patient expenditure and per capita income in participants. In the table data come from MOH.

Table 10. proportions of in-patient expenditure in per capita per year income (%)

	Pre-reimbursement	Reimbursement (yuan/case)	Post-reimbursement
West	82.47	472.6	60.98
Central	101.53	1714.6	75.60
East	78.63	1088.5	58.97
Total	87.85	738.0	65.40

We can see from table 10 that before NCMS reimbursement, the average in-patient expenditure accounts for as much as 87.85% of per capita income, the highest even exceeding the latter, 101.53%. The proportion decreases to 65.40% of national level and 75.60% for the central areas. It is so obvious that NCMS is to certain degree effective in protecting farmers from poverty caused by illness.

For all the participants, the proportion of per capita medical expenditure (including inpatient and outpatient) in pure income is decreased by 0.9 percent after NCMS reimbursement, that is, from 3.13% to 2.24% (see table 11). In the table data come from MOH.

**Table 11. Per capita illness burden of participants**

	Before reimbursement				After reimbursement			
	inpatient (yuan)	Outpatie nt (yuan)	Expendit ure sum (yuan)	Percentage in income	Inpatient (yuan)	Outpatie nt (yuan)	Expendit ure sum (yuan)	Percentage in income
West	51.8	10.4	62.2	2.85	38.2	5.0	43.2	1.98
Central	72.1	16.4	88.5	3.21	53.7	10.4	64.1	2.33
East	124.2	45.4	169.6	3.25	92.6	28.3	120.9	2.32
Total	81.3	21.9	103.1	3.13	60.4	13.2	73.6	2.24

Table 12 is about the reimbursement of NCMS in terms of basic medical package. On the average, each participant gains a 32.8 yuan reimbursement, but it is lower in the west, only 19.04 yuan for each. We can see that the NCMS fund is mainly spent on inpatient reimbursement (66.6%) and outpatient reimbursement (26.49%). There is still some surplus, amounting 1.33755 billion or 34.28% of the funds in the whole country, with the highest surplus rate of 55.98% in the west (see table 13). It's obvious that there is still space to improve insurance coverage of the funds. By controlling surplus rate within 15%, we can have an increase of 773.5406 million yuan or nearly 30% in reimbursement payment, which means to enhance hospitalization rate to 32% (if the number of hospitalized persons keeps constant).

The main reasons which lead to such large surplus are: 1) the question, “who is a final responsible body?”, is not clear, therefore the office, which is responsible for designing scheme, is afraid of accept the responsibility of fund collapse; 2) at the beginning of NCMS beneficiaries' demands for medical services have not awaked; 3) in some counties administrators have paid attention to control the cost, including regulating behaviour of providers.

**Table 12. Expenditure and reimbursement rate of inpatient, outpatient and physical examination services**

	Reimbursement sum (million yuan)	Per capita reimbursement sum (yuan)	Inpatient		Outpatient		Physical examination	
			Sum (million yuan)	Rate %	Sum (million yuan)	Rate %	Sum (million yuan)	Rate %
West	343.234	19.04	231.503	67.45	98.69112	28.75	10.9648	3.19

Central	796.683	27.7	534.617	67.11	231.140	29.01	23.24247	2.92
East	1497.493	44.6	990.8716	66.17	368.6464	24.62	18.5449	9.21
Total	2637.409	32.8	1756.992	66.62	698.7777	26.49	58.75217	6.89

**Table 13. Surplus of funds**

	Funding sum (million yuan)	Surplus (million yuan)	Surplus rate
West	779.7504	436.5164	55.98
Central	1180.3980	383.7147	32.51
East	2052.7340	555.2417	27.28
Total	4012.8824	1375.4730	34.28

#### IV. Exploration of NCMS Pilot counties

In the NCMS pilot counties, in order to seek and explore roads to and ways of a sustainable development, some counties have made various explorations. Although the approach is just a start, they have enlightened us from different perspectives.

##### 1. Reform of payment method

In China, the conventional dominant payment method is based on fee for services( FFS ). According to the statistics by the Ministry of Health, nine pilot counties have adopted payment method of Diagnoses-related groups (DRG) for in-hospital services. At the same time, some of the pilot counties have adopted payment method of capitation for clinic services. For instance, in 2004, at Xiaoshan District, according to the number of beneficial the amount of 1.1 million yuan in total, were appropriated beforehand to the local health centers in advance. The NSMS participants going there for medical services enjoyed 10% discount of the fee for clinic services; at Shengsi county, three yuan per capita was beforehand appropriated to the township health center, and NSMS participants enjoyed 10% of discount and/or of exemption.<sup>[27]</sup> And from this year on, Lufeng county of Yunnan province has begun to experiment with prepayment of the total amount for clinic services.<sup>[28]</sup>

##### A typical case of DRG payment for inpatients: Zhenan County Mode

Zhenan County of Sanxin Province is one the pilot counties. The county is

poverty-stricken and the average income per capita was 1520 yuan. The county experienced three failures in the past CMS. Therefore, from the beginning of the pilot project, the county put great emphasis on the expenses control and DRG payment was included in the contents of the pilot project.<sup>[29]</sup>

Zhenan County selected 54 kinds of common diseases to practice with set amount of DRG payment for inpatients of single disease. The diseases accounted for 79.4% of the total amount of participant inpatients. Inpatients of other diseases were still charged by FFS.

The standard of DRG payment were set up as following: from year of 2001 to 2003, for of a sample of 6500 in-hospital cases at county and township levels the average expense, the highest and lowest were calculated, with the consideration of price rise. And then, a payment standard was agreed on for the diseases with medical services providers through consultation.

According to the actual financial level (average: 30 yuan/person) and the payment standard for each disease, the amount of reimbursement by NCMS and co-payment were determined. Take appendicitis, the set amount of 1000 yuan was paid for Township health centers and 1200 yuan for county hospitals. Participants were free to choose center or hospital for treatment within the county. If he/she chose county hospital, he/she would pay 600 yuan; if township health centers, he/she would only pay 400 yuan.

The statistics from 9-month practice of DRG showed that at Zhenan county there were 2,978 patients got reimbursed in this way of such. The reimbursement amount was added up to 2.3 million yuan and an average of 770 yuan was reimbursed per case, which was 63% higher than the average reimbursement per case (namely, 472.6 yuan) in West China, even higher than that in Mid China. In calculation of average expenses, the percentage of actual reimbursement amount for Zhenan county was as high as 37.8%, much higher than the average level of the nation.

Although the reimbursed took up only 2.2% of NCMS participants, lower than the average of 3.10% in West China, the numbers of cases in hospital were increased by 66% as compared with those of the same period before NCMS, and especially in

township health centers, the increase was of 136%. In the light of the county's statistics, after the implementation of DRG, the average expenses of medical treatment and drugs for each participant and each case did not increase on account of the rise of NCMS security.

A comparison of a different payment methods: a case in Helongjiang province

Linkou, Lindian and Baoqing in Helongjiang province are NCMS pilot counties and all the three implemented “Inpatient reimbursement + family savings account” model. But, Lindian county implemented the policy of DRG for 48 diseases and 4 kinds of cancers. [30]

Table 14.3 Reimbursement for inpatients

	ANIP <sup>1</sup> (Yuan)	CRFI <sup>2</sup> (yuan)	AFT <sup>3</sup> (yuan)	Reimbursed (%)	ART <sup>4</sup> (yuan)	FR <sup>5</sup> (%)	CAFS <sup>6</sup> Surplus (%)
Linkou	2889	39.9	2317.04	2.91	873.31	30.23	16.66
Lindian	863	31.9	924.80	3.60	402.35	46.62	34.51
Baoqing	2079	38.7	3241.43	2.50	660.47	31.77	57.71

1. Average Net Income/person
2. Comprehensive Arrangement Fund/Inpatient
3. Average Fee/Time
4. Average Reimbursement/Time
5. Factual Reimbursement
6. Comprehensive Arrangement Fund Surplus

Obviously, the factual reimbursement of County of Lindian that implemented DRG was higher than those of the other 2 counties; both the percentages of inpatients at township health centers and that of reimbursement fund were also higher. At the same time, the surplus of fund is moderate, which displayed some advantage of DRG.

Table 15.3 % of hospitalization reimbursement at different organizations

		Township	County	Above county
Linkou	The reimbursed inpatients (%)	25.40	46.90	27.70
	Reimbursement amount (%)	13.10	35.80	51.10
Lindian	The reimbursed inpatients (%)	73.60	18.20	12.20

	Reimbursement amount (%)	48.50	22.40	29.10
Baoqing	The reimbursed inpatients (%)	14.99	42.00	43.01
	Reimbursement amount (%)	15.04	41.99	42.97

## 2. Commercial Insurance units get involved in NCMS management

The documents of the central government clearly stipulates: agencies at counties should be set up and be responsible for the actual operation. But among the pilot counties, some, following their local conditions, adopted the way in which Commercial Insurance units are virtually responsible for the management of NCMS funds. The statistics of Ministry of Health indicated that 17 pilot counties have explored the way of commercial insurance getting involved in NCMS management. The counties were mainly distributed in Zhejiang, Jiangshu, Fujian provinces.

The original intention that had commercial insurance involved in NCMS management was to make use of their human resources, technology and network platforms so as to achieve higher management efficiency and lower the management cost. There were two major modes in which insurance units took part in NCMS management: one was called “entrusted contract mode” ----- the local governments / NCMS administrations signed contracts with commercial insurance units, entrusted to them the NCMS funds management (including reimbursing NCMS participants), and the local governments/ NCMS administrations paid commercial insurance units for their management ; the other was defined as” insured contract mode”----- the local governments/NCMS administrations signed contracts with commercial insurance units in regard to fund raising standards, insured responsibilities, reimbursement standards and other items related. The commercial insurance units were responsible not only for the management of the whole fund, but also for settling claims. In addition, they are supposed to bear management expenditures, insured responsibility and Profit-and-loss responsibility. [31,32]

The following cases of 2 districts (DB and DL hereinafter ) were taken from a province of East China to introduce the operations of“ entrusted contract mode” and “ insured contract mode” respectively. For the purposes of illuminating the issues

under discussion, one more neighboring district (DZ) was chosen as a control district. District DZ was managed directly by NCMS administration Office. The data were obtained from the website of the District DZ government, while those of DB and DL from field investigation.

(1) General state of the 3 districts:

Table 16 provides a general state of the 3 districts.

Table 16 the general state of 3 districts

	RP (%) <sup>1</sup>	AIP <sup>2</sup> (yuan)	Participants (RMB 10,000 )	AFRP <sup>3</sup> (yuan)	TFR <sup>4</sup> (RMB 10,000)
DB	68.68	6388	21.50	50	1075.00
DL	85.91	6640	26.03	77	2015.95
DZ	46.62	7187	9.71	149	1446.72

1. rural population
2. Average Income /Person
3. Average fund raised/person
4. Total fund Raised

(2) Schemes of Reimbursement of 3 districts

The design of Scheme of Reimbursement: the mode of Reimbursement of DB was for inpatients only ; the mode of Reimbursement of DL was also for inpatients only, ( but providing medical examination for the benefifials of over 60); the mode of Reimbursement of DZ was for inpatients only, (but providing medical examination for those NCMS participant who do not get reimbursement for 2 consecutive years ).See Table 17.

Table 17 Reimbursement schemes of 3 districts:

	Deductible (yuan)	Valid reimbursement cases		Ceiling (yuan)
		Range of fee	reimbursem ent (%)	
D B	500	0— 3000	30	20000
		3000— 10000	40	
		10000— 30000	50	

			>30000	70	
D L	500		0—2000	20	30000
			2000—4000	30	
			4000—6000	45	
			6000—10000	55	
			>10000	65	
D Z	400		0—3000	50	20000
			3000—10000	60	
			>10000	70	

Table 18. Reimbursement for inpatients

	NC <sup>1</sup>	RB <sup>2</sup> (%)	TR <sup>3</sup> (RMB10,000)	ARP <sup>4</sup> (yuan)	FR <sup>5</sup> (%)	RIT <sup>6</sup> (RMB10,000)	IRID <sup>7</sup> (%)	ROD <sup>8</sup> (RMB10,000)	IROD <sup>9</sup> (%)	FIRID <sup>10</sup> (%)	FIROD <sup>11</sup> (%)
DB	6809	3.17	741.66	1089.2	21.1	265.25	35.76	476.41	64.24	*	*
DL	8011	3.08	1453.44	1814.3	25.5	919.44	63.26	534.00	36.74	26.56	24.36
ZD	8603	8.86	1558.74	1811.9	31.69	1233.95	79.16	324.79	20.84	42.33	16.21

1. number of case
2. the reimbursed
3. total of reimbursement
4. average reimbursement/person
5. factual reimbursement
6. reimbursement in district
7. inpatient reimbursement in district
8. reimbursement Out district
9. inpatients Reimbursement out district
10. factual inpatients reimbursement in district
11. factual inpatients reimbursement out district

### (3)Reimbursement for NCMS participants

Table18 indicates the state of Reimbursement for NCMS participants

In District DZ where fund was regulated by NCSM office, the average amount of fund raising per capita was 3 times that of District DB, nearly 2 times that of District DL. The percentage of the reimbursed of District DZ was 8.86%, 2.8 times that of District DB, and 2.9 times that of District DL; the average reimbursement was 1811.9 per case, 1.65 times that of District DB, running neck to neck with that of District DL, thus leading to the fact that the reimbursement level was comparatively a bit higher

than those of District DB and District DL in terms of fund raising.

In District DB where “insured contract mode” and “self-responsible for profit and loss” were implemented, the average reimbursement per case was 1089.2 yuan, obviously lower than those of the other 2 districts. And also, the fund surplus of this district was as high as 3.336 million yuan equal to a surplus of 31.01%, that is to say, in the local insurance company’s term, about 1 million yuan indemnity was unsettled, and also, its surplus ran up to about 2.336 million yuan, thus resulting in a surplus percentage of 21.67%. In District DL that only bore the responsibility of management, rather than profit and loss, the surplus percentage was only 18.54% after the reimbursement of inpatients and medical examination fee (20.668 million). It was easy to see that it was the responsibility for self profit and loss that greatly encouraged the commercial insurance companies of District DB to keep a fund surplus.

#### (4) Management cost of different management modes

A glancing comparison of the management cost of 3 different management modes can be taken.

Statistics by the province where 3 districts are located showed that the number of NCMS participants of the province was 8,485,500; the finance expenditure for management was 12.0182 million yuan (incl. fund of 2.561 million yuan for management staff and that of RMB9.4572 million for official operation), merely taking up 3.0% of the total of NCMS fund; in other terms, the average management cost for each Participant was 1.4 yuan. The government of District DL appropriated the fund of RMB0.9 million, taking up 4.46% of the total of NCMS fund, and the average management cost for each Participant correspondingly was 3.5 yuan. The NCMS management cost of District DZ was 0.78 yuan, equaling 5.39% of the total of NCMS fund. If the “surplus of District DB” were regarded as “management cost”, its management cost reached as high as 21.67%.

Of course, it is not adequate to jump at a conclusion from the one-year pilot counties which mode has more advantages than the other.

### 3. Exploring the integration of medical security of urban and rural

In the economically developed areas, such as Zhujiang delta areas, areas around

Shanghai, some NCMS pilot counties have already explored the road to integration of medical security of urban and rural. Jiading District of Shanghai was a case in point.

The NCMS of Jiading District of Shanghai was described as “ medical security system of rural residents”, but not NCMS, featuring a progress from help-each-other Cooperation by farmers themselves to social medical guarantee system.”<sup>[33]</sup> The fund for this system was composed of that of individuals (49%), collective and enterprises (38%) and that of the governments at levels of towns and districts. The total fund raised amounted to 267.5 yuan per capita.<sup>[34]</sup> The collection and management of the fund is executed by the bureau of social security----- “the Center of Social Security of the District”, and moreover, with the collection and management of the fund for the pension combined, i.e. collected at the same time and managed together. The district divided the fund for medical security system of rural residents into 3 parts ----- individual saving accounts (for clinic reimbursement), township pooled hospitalization fund and district-level pooled hospitalization fund. The farmer who suffered serious diseases can be reimbursed with as much as 50 thousands yuan. In the calculation of Yu Jianzhong and others,<sup>[34]</sup> compared with the urban basic medical insurance of Shanghai employees enjoyed, there was only a gap of 10.32% for what Jiading farmers were reimbursed between. The management of the two was brought in line with each other. Therefore, there was only one step far to integrate the two.

City of Dongwan in Guangdong province was of a rural population of 1.22 million, 92% of which were covered by various kinds of medical insurance. Although the security levels of groups varied slightly, from July of 2004, the all citizens security system that enabled a general coverage of the whole citizens was put into practice.<sup>[35]</sup>

## **V. Evaluation of five NCMS pilot counties**

### **1.Introduction**

This part is devoted to a preliminary evaluation of five NCMS pilot counties of a province in west.

By sampling, we, from each county, chose three typical towns whose economical levels were assessed as “high”, “Medium” and “low”, then three villages at random from each town, and then 15-30 farmer households from each village as targets. Before the operation of NCMS, investigation of baseline was made, which involved 1302 farmer households in total and 4756 persons; from December of 2004 to February of 2005, 712 household and 2677 of persons were re-interviewed. After that, they were graded into 3 gradations of “high”, “medium” and “low” according to their income, and then parted into 3 groups.

Table 19 showed the income, NCMS holding and average fund-raising per capita of the farmers of the five counties

2. Scheme Designing: table 20 indicated the reimbursement scheme of the 5 counties

Table 19 income, participation rate and average fund-raising per capita in five counties

county	AP <sup>1</sup>	AP (%)	participant	Partin. <sup>2</sup> (%)	NIP <sup>3</sup> (yuan)	F RTP <sup>4</sup> (yuan)	IFR <sup>5</sup> (yuan)	PGS <sup>6</sup> (yuan)	MGS <sup>7</sup> (yuan)	CGS <sup>8</sup> (yuan)
P	256047	79.0	200666	78.37	2889	30	10	2.31	2.99	4.69
D	436413	73.1	370103	84.81	4040	30	10	1.25	5.05	5.04
W	710622	87.8	435072	61.22	2657	37.53	10	1.06	4.09	6.9
X	568029	85.9	345577	60.84	2020	27.07	10	1.34	4.14	0
J	133863	94.8	116725	87.20	1085	33.48	10	3.96	2.8	1.4

- |                                 |                                  |
|---------------------------------|----------------------------------|
| 1. Agricultural population      | 2. participation                 |
| 3. net income l/person          | 4. fund raising total/person     |
| 5. individual fund raising      | 6. Provincial government subsidy |
| 7. municipal government subsidy | 8. county government subsidy     |

Table 20 Reimbursement scheme of 5 counties

county	Deductible line (yuan)			Reimbursement (%)			Top line (yuan)			IDR <sup>2</sup> (yuan)
	town	county	AC <sup>1</sup>	town	county	AC	town	county	AC	
P <sup>[1]</sup>	50	200	500	45	35	30	5000	5000	5000	

D <sup>[2]</sup>	200	800	800	30	20	10	12000	12000	12000	spontaneous labor RMB100
W	100	300	500	40	30	30	5000	5000	5000	
X <sup>[3]</sup>	50	400	800	40	35	30	10000	10000	10000	spontaneous labor RMB100
J <sup>[4]</sup>	0	0	0	*	50	50	3000	3000	20000	

1. . above county hospital

2. In-hospital delivery reimbursement

[1]: County P (1) clinic treatment of chronic diseases:

levels: hospitals above county levels; deductible line: RMB2000; reimbursement: 20%

(2) subsidy for patients of serious diseases :

RMB5000 – RMB10,000: 5% rise of reimbursement;

RMB10,000 – 20,000: 10% rise of reimbursement;

> RMB20,000: 15% rise of reimbursement;

(3) subsidy for poor farmers: > RMB5000 (determined by the register provided by the Department of Civil Affairs): 20% rise of reimbursement;

[2]County D comprehensive arrangement fund: RMB15 per capita

[3]County X (1) subsidy for outpatients of serious diseases:

Diseases: rheumatic heart disease, pulmonary heart disease, cerebrovascular accident, chronic hepatitis, chronic nephropathy, malignant tumor, schizophrenia, hyperparathyroidism, cerebrovascular accident, hepatocirrhosis, epilepsy

Deductible line: RMB800; reimbursement: 30%; biggest amount of reimbursement: RMB2000

(1) reimbursement goes in effect only 30 days after “signing contract”

[4]County J: hospitalization needs conforming by hospitals at town and village levels; Subsidy

for 22 towns in the mountainous areas: 80%;

Subsidy for other villages/towns: 70%;

Subsidy for central township health center: 60%

All the five pilot counties followed the mode of “family saving account plus inpatient reimbursement” in fund allocation. The family saving account was mainly used to pay for clinic treatment expenses. The family saving account of County D was opened on the basis of RMB15 per capita; those of the other four counties were set up/opened on the basis of RMB10 per capita.

### 3.Result of NCMS operation

(1) Fund operation: table 21 indicated the fund operation of the 5 counties.

Table 21. result of fund operation

county	TRF <sup>1</sup>	RPT <sup>2</sup>		Reimbursement		Reimbursed/person		FHR <sup>3</sup>	FS <sup>4</sup>		reimbursed*	
	(RMB10 thousand)	hospital	Clinic	(RMB 10,000)		(yuan)			(%)	(yuan)	(%)	
				total	hospital	hospital	clinic			hospital	clinic	
P	909.69	21955	78985	545.83	363.95	165.77	23.03	21.83	465.69	10.94	39.36	
D	1719.78	11804	362172	577.38	301.79	255.67	7.61	16.77	1237.13	3.23	99.19	
W	1904.7	13416	313089	1259.60	714.87	532.85	17.40	22.67	851.70	3.08	71.96	
X	1809.96	5917	136554	434.84	227.80	384.99	15.16	23.20	1449.64	1.71	39.50	
J	553.50	5366	96992	301.13	184.33	343.51	12.04	56.00	290.28	4.60	83.09	
average	6897.63	58458	987792	3118.78	1792.70	306.67	13.42	22.60	4294.44	4.00	67.51	

1. Total raised fund
2. The reimbursed person-time
3. factual hospitalization reimbursement
4. fund surplus

\* "Clinic treatment" consists of Clinic treatment and physical examination, thus resulting in a percentage of the reimbursed as high as 99.19 % in County D.

Table 21 showed that the total of reimbursement by NCMS for inpatients and outpatients ran up to RMB31.1878 million, but only taking up 37.75% of the total raised fund and resulting in a fund surplus as high as 62.26%. Of the reimbursement, and the reimbursement for inpatients accounted for 57.48%. Although the percentage of the reimbursed farmer (inpatients and outpatients) was very high and the average was 71.50%, that of the reimbursed inpatients was still very low, only 4.00% and that for County X was the lowest, only 1.71%. The average of factual reimbursement for inpatients was only RMB306, taking up only 22.6% in the factual expenditures. The reimbursement of County J was relatively high, to 56%. County J is a county of minority where expenditures of medical treatment were relatively low and no deductible line was set up.

## (2) Changes of health services provided and charges related

(i) Changes of health service by county-level health providers and charges related

After the implementation of NCMS, the per capita operating revenue of the employees in the county health services providers was raised to a large extent (see table 22). In calculation of nominal price, the per capita operating revenue was of

15.38% on rise and in calculation of real price (the index of medicine and medical article of 2004 for this province: 104.9), the per capita operating revenue was of 10.07% on rise. That resulted from the increased amount of in-hospital services and the increased average expenditures each case. The average number of inpatient case by the staff was of 6.45% on increase. In calculation of real price, the average expenditures per case was increased by 5.52% (see table 23). The number of visits (outpatients) at county hospitals was decreased to some degree. For each medical providing unit, the average visits of outpatients was decreased by 7.06%, which was caused by the fact that many patients turned to township health centers and village clinics. And again, because in County J there was no a deductible, many patients might turned to making use of in-hospital services. That could be explain why the visits of clinic treatment experienced an appreciable drop, i.e. by 23.52%. In fact, at County J, the number of inpatients was greatly increased (esp. that in township health centers. See table 25). But the average fee per case were increased to a larger extent (namely, by 18.94% in calculation in real price).

Of the operating revenue of county hospitals, 40% of it came from drugs. And after the implementation of NCMS, the percentage was increased by 2.65%, namely from 41.68% to 44.33%. But, for some counties (such as County X), the percentage of operating revenue from drugs dropped , which indicated that this county managed to take effective measures to regulate doctors' prescribing behavior.

Table 22. service providing of county-level units

county	Operating revenue/ staff (RMB 10,000)			visits of clinic service/ staff			inpatients/ staff		
	2003	2004	change	2003	2004	change	2003	2004	change
P	4.36	4.64	0.28	391.22	345.84	-45.39	11.40	13.47	2.07
D	5.48	6.14	0.65	343.87	344.89	1.02	20.02	20.73	0.71
W	6.91	9.48	2.58	469.65	439.05	-30.60	22.64	25.35	2.71
X	5.94	6.23	0.29	367.06	394.75	27.69	22.43	22.41	-0.02
J	1.92	2.02	0.10	158.85	121.49	-37.36	9.16	10.63	1.47
average	5.46	6.30	0.84	381.18	354.25	-26.93	18.92	20.14	1.22

Table 23 income and charges of county level units

county	Operating revenue/staff (RMB10thousand)			Operating revenue/staff (real price)			Average clinic treatment expenditure /time			Average clinic treatment fee /time (real price)			Average in-hospital fee /time			Average in-hospital fee/time (real price)		
	2003	2004	change	2003	2004	change	2003	2004	change	2003	2004	change	2003	2004	change	2003	2004	change
P	4.36	4.64	0.28	4.36	4.43	0.06	53.09	61.43	8.34	53.09	58.56	5.47	1857.86	1844.11	-13.75	1857.86	1757.97	-99.89
D	5.48	6.14	0.65	5.48	5.85	0.37	44.02	47.45	3.43	44.02	45.23	1.22	1819.91	1956.58	136.67	1819.91	1865.19	45.27
W	6.91	9.48	2.58	6.91	9.04	2.14	60.42	92.53	32.12	60.42	88.21	27.80	1882.36	2061.42	179.06	1882.36	1965.13	82.77
X	5.94	6.23	0.29	5.94	5.94	0.00	50.82	55.65	4.83	50.82	53.05	2.23	1806.49	2352.13	545.64	1806.49	2242.26	435.77
J	1.92	2.02	0.10	1.92	1.92	0.01	51.26	52.01	0.75	51.26	49.58	-1.68	1272.67	1297.39	24.72	1272.67	1236.79	-35.88
average	5.46	6.30	0.84	5.46	6.01	0.55	50.36	62.74	12.38	50.36	59.81	9.45	1819.98	2014.50	194.52	1819.98	1920.40	100.42

Table 24. the average income items of operation and drugs at county level units

Table 24 showed the average income items of operation and drugs at county level units.

In calculation of real price, the in-hospital expenditure of the year of 2004 was increased by RMB100.42, but the reimbursement gained by the inpatients was RMB306.7 (see table 23). In one word, NCMD is indeed a boon to farmers.

(ii) Services by township health centers and charges related

county	Gross operating revenue (comparable price)									Drugs income in gross revenue						
	Gross operating revenue (RMB10,000)			Gross operating revenue (RMB 10,000)			Drugs revenue (RMB 10,000)			Drugs revenue (comparable price) (RMB 10,000)			operating revenue (%)			
	03	04	Change	03	04	Change	03	04	Change	03	04	v	03	04	Change	
P	2137.3	2312.4	175.1	2137.3	2204.39	67.09	869.7	1041.4	171.7	869.7	992.76	123.06	40.69	45.04	4.34	
D	6826.9	8108.6	1281.7	6826.9	7729.84	902.94	2603.1	3256	652.9	2603.1	3103.91	500.81	38.13	40.15	2.02	
W	3369.78	4817.9	1448.12	3369.8	4592.85	1223.07	1588.7	2367.7	779.06	1588.66	2257.13	668.47	47.14	49.14	2.00	
X	2862	3542.8	680.83	2862	3377.34	515.34	1275	1425.5	150.48	1275	1358.89	83.89	44.55	40.24	-4.31	
J	234.02	254.32	20.3	234.02	242.44	8.42	94.38	110.93	16.55	94.38	105.75	11.37	40.33	43.62	3.29	
average	3086	3700.1	614.11	3086	3527.27	441.27	1286.2	1640.3	354.14	1286.17	1563.69	277.52	41.68	44.33	2.65	

The implementation of NCMS had great impact on health services providers at township level. In order to meet the requirements of NCMS, supported by the government, township health centers reinforced themselves through staff training and

purchase of more instruments and equipment, along with standardization of management. As a result, the township health centers saw an increase in the gross revenue, operating revenue per capita, inpatients treated, average clinic fee per visit, average in-hospital fee per case. At all 4 counties, the average amount of clinic services for each employee of each unit was increased. At County J, the visits of clinic services dropped a lot (namely, by 26.83%). County J did not set up the deductible for hospitalization; the clinic treatment was paid by family saving accounts; thus, outpatients might turn to hospitalization. After the implementation of NCMS, at County J, the average in-hospital fee of township health centers gained an appreciable decrease, namely, RMB135.88 (see table 26). That probably resulted from the phenomenon that some outpatients whose cases were not serious turned to hospitalization

Of the operating revenue of township health centers, the percentage from drugs, in general, dropped, which showed that with the implementation of NCMS, the technical level of township health centers was enhanced, with more service items. Although the revenue from drugs also gained an appreciable increase (by as high as 77.22%, see table 27), the increase earned from technical services was higher than that from drugs, and accordingly, the percentage of income from drugs in the operating revenue went down.

Table 25 Services by township health centers

	Operating revenue/ staff			Clinic Person-time /person			inpatients/person		
	2003	2004	change	2003	2004	change	2003	2004	change
P	26213.87	29452.05	3238.18	1122.68	1218.29	95.61	38.48	41.16	2.68
D	24134.62	46251.57	22116.96	1019.57	1140.01	120.44	18.50	26.89	8.39
W	18388.69	40536.59	22147.90	233.08	379.69	146.61	21.32	21.54	0.21
X	18205.72	23744.64	5538.92	681.10	761.95	80.85	12.73	17.64	4.91
J	12847.50	15742.00	2894.50	920.00	673.20	-246.80	17.50	53.60	36.10

average	22895.49	37358.26	14462.77	867.52	845.45	-22.07	25.51	27.91	2.40
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Table 26. charges by township health centers

	Operating revenue/ staff (yuan)			Operating revenue/staff real price) (yuan)			Average clinic fee /case(yuan)			Average clinic fee of/time(yuan) real price)			Average in-hospital fee/case (yuan)			Average in-hospital fee/time (yuan) (real price)		
	03	04	change	03	04	change	03	04	change	03	04	change	03	04	change	03	04	change
P	26213.9	29452.1	3238.2	26214	28076	1862	14.84	14.95	0.11	14.84	14.25	-0.59	201.44	256.28	54.84	201.44	244.31	42.87
D	24134.6	46251.6	22117	24135	44091	19956	20.09	23.74	3.66	20.09	22.63	2.54	617.24	763.82	146.58	617.24	728.14	110.90
W	18388.7	40536.6	22148	18389	38643	20254	47.25	60.9	13.65	47.25	58.06	10.81	340.7	442.81	102.11	340.7	422.13	81.43
X	18205.7	23744.6	5538.9	18206	22636	4430	21.39	18.18	-3.21	21.39	17.33	-4.06	465.97	643.69	177.72	465.97	613.62	147.65
J	12847.5	15742	2894.5	12848	15007	2159	12.66	21.54	8.88	12.66	20.53	7.87	300.57	142.54	-158.03	300.57	135.88	-164.69
average	22895.5	37358.3	14463	22895	35613	12718	19.02	25.95	6.93	19.02	24.74	5.72	334.17	474.01	139.84	334.17	451.87	117.70

Table 27 % of revenue of township health centers

	GOR																	
	GOR <sup>1</sup>			(comparable price)			DR <sup>2</sup>			DR (comparable)			DR in OR <sup>3</sup> (%)					
	Before	after	change	Before	after	change	Before	after	change	Before	after	change	before	after	change			
P	113.4	143.3	29.96	113.4	136.63	23.25	55.55	73.33	17.78	55.6	69.9	14.35	49	51.16	2.17			
D	125.5	245.1	119.6	125.5	233.68	108.2	80.87	113.7	32.8	80.9	108.4	27.49	64.4	46.37	-18.1			
W	55.17	277	221.8	55.17	264.06	208.9	33.7	133	99.3	33.7	126.8	93.09	61.1	48.01	-13.1			
Xi	36.41	46.7	10.29	36.41	44.52	8.11	21.59	24.03	2.44	21.6	22.91	1.32	59.3	51.46	-7.84			
Ji	3.43	3.94	0.51	3.43	3.76	0.33	2.75	3.45	0.7	2.75	3.29	0.54	80.4					
average	69.69	153.2	83.48	69.69	146.02	76.33	39.93	74.21	34.28	39.9	70.74	30.81	57.3	48.45	-8.85			

1. gross operating revenue      2.drugs revenue      3.operating revenue

(iii) Operation of village health stations (the village health stations were not responsible for treatment)

Table 28 and Table 29 indicate that the amount of services was decreased and the revenue went down accordingly. The data for revenue in Table 29 was self-represented by village doctors. The data indicate that the revenue of clinics moved down after the implementation of NCMS. With 30 prescription forms spot-checked, it was proved that the data reported by village doctors were reliable. The phenomenon might be caused by the measures taken by NCMS to put clinic fee of the village clinics under control.

By examining the 30 prescription forms with at least more than 2 kinds of

antibacterial and those with **drugs of hormone**, the practicing of village doctors were observed and it was found that the practicing of village doctors varied from county to county.

Table 28 village clinic

county	Units surveyed		Patients (previous month)			At least >2 antibacterial/30			hormone/30		
	03	04	03	04	change%	03	04	change%	03	04	change%
P	7	7	770	1308	69.9	3.14	5.71	2.57	7.57	4.29	-3.29
D	3	3	593	765	29.0	3.25	4.50	1.25	3.75	4.00	0.25
W	9	9	1995	1835	-8.0	2.33	2.78	0.44	1.67	1.89	0.22
X	7	7	1933	938	-51.4	4.57	3.00	-1.57	7.14	4.86	-2.29
average	26	26	5291	4846	-8.4	3.26	3.85	0.59	4.93	3.59	-1.33

table 29 village clinics

	GRPM <sup>1</sup> (comparable)			DRPM <sup>2</sup> (comparable)			Total fee/30 (comparable)		
	before	after	change	before	after	change	before	after	change
P	1641.4	1419	-222.4	1584.3	1217.4	-366.9	225.61	226.06	0.45
D	3788.1	2315.5	-1473	2375	1113.9	-1261	200.48	169.43	-31.05
W	1480	1396.7	-83.26	979.67	1228.3	248.65	478.84	435.52	-43.32
X	1774.6	1104.6	-670	1244.3	795.18	-449.1	329.2	242.36	-86.84
J	1940.2	1462.9	-477.3	1411.7	1095.6	-316.2	316.95	294.18	-22.77

a) Gross revenue (previous month)

b) drugs revenue (previous month)

### (3) Use of health service and economical burden of farmers

#### i Medical services utilization (clinic and hospitalization) of 2003 and 2004

Table 30 provides a picture how beneficiaries of the 5 counties made use of the clinic treatment and hospitalization in 2003 and 2004. In general, the use of clinic treatment experienced a little bit drop, which was similar to the conclusion made from a research in Shandong province showing that NCMS did not have great impact on the use of clinic services<sup>[36]</sup>. But, the percentage of hospitalization was dramatically

increased; the percentage of those patients who did not go to hospital due to economical factors dropped from 9.95% of year of 2003 to 5.15% of year of 2004; the percentage of those patients who did not hospitalized due to economic factors moved down from 25.68% of year of 2003 to 14.44% of year of 2004.

Table 30 provides another picture that the percentage of hospitalization was by 1.98 % higher than that of the benefited from NCMS in Table 21, which indicated that still many NCMS inpatients whose fee were under the deductible line, taking up about 33% of the total inpatients, did not get reimbursed. And also, that implied that the deductible line might be too high.

Table 30 Medical services (clinic & hospitalization)of 2003 and 2004 and changes

County	2003				2004			
	VT <sup>1</sup> (%)	NVT <sup>2</sup> (%)	IH <sup>3</sup> (%)	NIH <sup>4</sup> (%)	VT <sup>1</sup> (%)	NVT <sup>2</sup> (%)	IH <sup>3</sup> (%)	NIH <sup>4</sup> (%)
P	140.2	31.05	38.4	52.70	140.9	40.00	78.0	13.43
D	134.9	52.02	44.0	71.31	132.0	35.35	60.6	6.90
W	139.6	44.13	37.4	43.55	108.4	27.78	48.8	19.05
X	91.0	29.46	36.4	56.47	108.3	29.87	33.5	53.85
J	27.1	54.55	39.7	26.09	22.1	38.46	64.5	5.41
Total	114.4	41.11	39.1	56.56	104.6	35.50	59.8	17.22

1.visiting 2.not visiting  
3.in hospital 4.not in hospital

## ii Choice of health services providers by farmers

NCMS exerted influence on farmers' choice of health services providers. Table 31 displayed the distribution of health services providers where farmers went for medical treatment.

Table 31.Proportion (%) of use of health services providers by farmers

clinic treatment	2003 %	2004 %	hospitalization	2003 %	2004 %
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			T-health center		
Ind.clinic <sup>1</sup>	10.59	12.59		57.32	64.58
Vilg. Clinic <sup>2</sup>	37.47	45.32	County hospital	30.08	24.48
T-health center <sup>3</sup>	40.73	33.09	AbC hospital	11.38	9.38
County hospital	8.35	7.55	AH&EH	1.22	1.56
AbC hospital <sup>4</sup>	2.24	0.36	total	100	100
AH&EH <sup>5</sup>	0.62	1.09			
total	100	100			

1. individual physician clinic

2.village clinic

3.township health centers

4.above county hospital

5.army hospital and enterprise hospital

After implementation of NCMS, farmers made more use of village stations for clinic treatment (inconsistent with what the village doctors claimed); the use of township health centers for in-hospital treatment was on an appreciable increase.

### iii use of health services by farmers with different levels of income

With the farmers divided into 3 groups--- “high”, “medium” and “low” according to income levels, table 32 displays the picture of use of in-hospital services by the 3 groups of the 5 counties in 2003 and 2004 (no appreciable changes for outpatient services ). Judging from the general situation of the 5 counties, the hospitalization of high income group was 4.46% in 2003, higher than those of medium and low income groups, but not higher than 1%. In 2004, the hospitalization of all 3 groups was increased, but that for high income group was increased to 8.36%, or by 87.89%, remarkably higher than those of medium and low groups which were only by 23.61% and 23.47% respectively.

Table 32. use of hospitalization of different income groups (%)

county	2003			2004		
	high	medium	low	high	medium	low
P	4.24	4.97	4	7.44	2.86	6.86
D	3.33	3.62	4.45	10.58	7.48	4.46
W	4.98	2.89	3.39	6.47	3.97	3.8
X	3.8	2.85	4.17	2.97	1.18	8.05
J	7.02	3.47	2.08	13.19	4.81	0.88

total	4.46	3.6	3.75	8.38	4.45	4.63
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Table 33 was about the medical service fee of different income groups and the reimbursement gained by them. The high income group taking up 1/3 of participants got reimbursed from NCMS fund, and the reimbursement amount accounted for 58.2% of the total amount, while the medium and low income groups taking up 2/3 of participants only procured 41.8% of the total. And moreover, the average monthly medical services fee per capita of high income group was much higher than those of the medium and low income groups, and after they got reimbursed, the proportion of the expenditures in their living cost stayed even with that of the low income group.

## VI. Conclusion

Pilot of NCMS in China has been making progress and farmers benefit from the scheme. But at the same time there still are some issues which are big challenges, and need to be studied, such as sustainable financing, management cost, equality, security level, regulating providers' behavior, and so on.

Table 33. Medical service fee of different income groups and reimbursement gained

Economical status	2003		2004		
	Per capita fee /month (yuan)	Medi Fee in total expenditures ( % )	Per capita fee /month (yuan)	Medi Fee in total expenditure ( % )	in total Fee After reimbursement ( % )

P	high	41.6	12.56	39.6	11.82	11.4
	medium	12.8	10.27	13.8	11.72	10.99
	low	8.3	10.56	5.7	8.7	6.17
D	high	37.3	8.66	37.6	10.09	8.29
	medium	15.6	8.21	18.8	9.52	9.04
	low	10.7	11.6	13	12.23	7.99
W	high	31.4	12.45	8	3.1	2.15
	medium	12.4	8.97	3.9	2.77	1.72
	low	6.1	9.29	5	8.61	7.95
X	high	41	17.58	30.3	13.56	13.46
	medium	9.5	8.7	9.4	7.5	6.27
	low	5	8.73	6.1	21.97	16.06
J	high	23.3	10.44	13.8	7.41	5.09
	medium	8	9.91	6.2	7.4	0.98
	low	3.1	7.69	5.5	11.33	11.21
total	high	36	11.94	28.5	10.11	8.88
	medium	12.2	8.99	11	8.3	6.72
	low	6.9	10.01	8.3	11.76	8.59

## References

1. Central Committee of the Communist Party of China, The State Council. Decision on Enhancement on Health Work in Rural Areas, 2002
2. Ministry of Health, Ministry of Finance, Ministry of Agriculture. Opinions on

Establishment of NCMS, 2003

3. Ministry of Health, Ministry of Civil Affairs, Ministry of Finance. Guidance on Enhancement of NCMS Pilot Counties, 2003
4. General Office of Ministry of Health. Notification of NCMS Pilot Counties, 2003
5. Zhan Zhongqing. Analysis of Factors Preventing Farmers From Being Participants. Health Economy Research [J], 2005(4): pp 21-22
6. He Yonghua. Proposals of NCMS- related Problems. Chinese Health Management [J], 2005(1): pp.53-55
7. Shen Weiru. Practice and Approach to NCMS in Developed Areas. Health Economics Research,[J] ,2004(4),pp.42-13
8. Liu Aimin et al. Analysis of Farmers'Aspiration for CMS and Factors in Shandong Province. Chinese Rural Health Administration [J], 200,24(9): pp.3-5
- 9.Wang Hong, et al..Equality of Being Benefited from CMS in China Rural Areas. Chinese Health Economice[J], 2005, 24(2): 16-19
10. Liu Qidong, Identification with Embarrassing System Limitations, Health Economics Research[J], 2005: pp.3-7
11. Song Youlin. Survey of and Reflection on Implementation of NCMS in Xuzhou. Chinese Health Management [J],2004,24(11): pp.32-34
- 12 Wei Chengbin. Harm to Farmer Workers from Occupational Diseases and Impact on CMS Fund. Occupations and Diseases [J], 2005(2)pp.73-74
13. Yi Peifu. Problems of NCMS Work and Solutions. Chinese Health Economics[J] ,2005,24 (5): pp.17-18
14. Yang Huanzu. Problems of Management of NCMS Fund of HeBei Province and Suggestions. Health Economics Research[J], 2004(11),pp.25-26
15. Gao Mengtao. Reflection on Sustainability of NCMS from Demand. Health Economics Research[J],2004(10),pp.3-6
16. Zhou Haisha, et al,. Discussion on Problems of NCMS Operation, Chinese

- Health Economics [J], 2005,24(5),pp.5-8
17. Department of Rural Health of Ministry of Health. Textbook for CMS Training (Third draft),2005.
  18. Gao Mengtao. Analysis of Effects of NCMS Operation from Demand. Chinese Health Economics [J], 2005,24(5):pp.9-12
  19. Chang Hongxiao. Disputes about CMS. Finance [J],2004(5): p.67
  20. Zhao Zhenghong. Suggestions of CMS Reform. Chinese Health Resources[J], 2004,7(1)pp.5-6
  21. Ni Jun, et al., Survey and Analysis of Distribution and Use of CMS Fund of Shanghai Rural Areas. Chinese Primary Health Care of [J] 2003, 17(2): pp. 27-29.
  22. Wang Jingyuan et al., On Fundamental Principles of NCMS. Chinese Rural Health Management [J], 2004,24(10) : pp.20-22.
  23. Lang Juming. Experience and Practice of Implementation of NCMS in District of Suzhou Industry Park. Chinese Rural Health Management [J], 2005, 25(3)pp.15-16.
  24. Fu Caiqin et al. Study of Effects of NCMS Operation in Suzhou, Chinese Rural Health Management [J], 2004,24(11):pp.25-29.
  25. Fu Caiqin et al, Study of Effects of NCMS Operation in Suzhou, Chinese Rural Health Management [J], 2004,24(11):pp.25-29.
  26. Department of Rural Health of Ministry of Health. Collection of Thesis on NCMS of Seminar (working papers), 2004
  27. Li Lanjuan et al. Preliminary Study of NCMS Pilot counties in Zhejiang Province. Chinese Rural Health Management [J], 2004,(12):pp.3-8.
  28. Lufeng NCMS Management Committee. NCMS Progress of 2005 in Lufeng and Prepayment Opinions on Total Prepayment for Clinic Services and Fee For Hospitalized Disease (local government document) , 2005.
  29. Government of Zhen'an County. Approach to Pay For Hospitalized Disease (local government document),2004
  30. Zhang Jiwei et al. Survey and Study of Reimbursement Mode of NCMS pilot

counties of Helongjiang. Chinese Rural Health Management [J], 2004, 24(4): pp.56-59

31. Lv Yong. Analysis of Advantages and Disadvantages of Commercial Insurance Involvement in NCMS, Health Economics Research [J],2005 (3) :pp.18-19.
32. Wang Hui. Problems of Commercial Insurance Involvement in NCMS, Health Economics Research [J], 2003(10):p.32.
33. Xu Jingen et al. Investigation of Establishing New Medical security system. Chinese Health Economics [J], 2005,24(2):pp.84-85.
34. Yu Jianzhong. Analysis of Function of Comprehensive Arrangement of Serious Diseases of Medical Guarantee system. Chinese Health Economics [J], 2003,21(5): pp.222-223
35. Hu Shanlian, Research Direction of NCMS, Health Economics Research, 2004, (6):pp.9-10.
36. Yang Ajun and Xu Lingzhong. Study of Impact of NCMS on Use of Clinic Services by Rural Population of Dongying City. Chinese Hospital Management [J],2005, 21(2):pp.114-117.