Practical Experience of the Primary Healthcare System for Chinese Rural Residents: Building the Largest Health Insurance Program to Cover People Living in Poverty

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Research article

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Abstract

Background: The New Rural Cooperative Medical Scheme plays a crucial role in relieving the economic burden of medical care and cost of medicine for rural residents, and is expected to enhance economic growth and social development in the rural area. To further promote and improve the primary healthcare in the rural area through high quality medical services and healthcare cost management in China.

Methods: This study collected and analyzed the data from 2003 to 2015 published literatures, domestic policies, the national health statistics yearbook and statistics reports to provide an overview of the NRCMS and the implementation experience since its inception in the perspectives of organization and management, finance, coverage and insurance, supervision and monitoring.

Results: The NRCMS has been implemented in all the counties for Chinese rural residents. It is the largest primary healthcare system by population in the world. It reached the full coverage in 2008, and the participation rate has been stable at more than 95%. The scope and levels of the insurance offered by NRCMS have expanded over time. The actual level of insurance for hospitalization has increased from about 20% at the beginning to about 57%. By the end of 2014, the cumulative benefit usage reached 10 billion person-time. In 2013, healthcare insurance reform for major diseases was undertaken for twenty-two major diseases with the pilot conducted at the national level. It led to an increase in the actual reimbursement rate for major diseases to 70%. In 2015, the average standard subsidy of the NRCMS from central and local government agencies was 380 Yuans per person, and the individual shared payment was about 120 Yuans. Attention has been paid by all levels of government to continuously improve information network, strengthen personalized management, and increase quality of service.

Conclusions: After more than a decade, the NRCMS has become the primary healthcare system for over 800 million Chinese rural residents, playing a vital role for healthcare equality and social and economic development in rural areas.

Background

The New Rural Cooperative Medical Scheme (NRCMS) is the primary healthcare system covering 800 million rural residents in China. It is a significant institutional innovation in healthcare reform for rural areas and plays a crucial role in relieving the economic burden of medical care and cost of medicine for rural residents, and is expected to enhance the economic growth and social development in rural areas. It has provided a good example for other developing countries in dealing with similar healthcare reform. To continuously improve the primary healthcare in the rural area through high quality medical services and healthcare cost management, it is essential to further reduce the urban-rural gap in healthcare and to promote new socialistic development and social stability in the rural area.

Methods

In this study, literature research, expert consultation and other research methods were used synthetically. This study collected and analyzed the data from 2003 to 2015, published literatures, domestic policies [the national health statistics yearbook] and statistics reports to provide an overview of the NRCMS and the implementation experience since its inception in the perspectives of organization and management, finance, coverage and insurance, supervision and monitoring. Semi-structured interviews are used in this study. The main forms of interviews are seminars and in-depth interviews. A symposium is held at each research site. Participants in the symposium mainly included the heads of national-level urban and rural residents' medical insurance administrative departments, information system contractors, provincial-level new rural cooperative medical administrative departments, agencies, information departments, designated medical institutions, medical insurance, information and finance departments, information technology company personnel and other relevant personnel. In this study, the SPSS 13.0 software was used to make a descriptive statistical analysis of the above indexes by using the average number, median, rate and so on.

Results

3.1 History

The NRCMS was created on the basis of the traditional cooperative medical system (CMS) in the 1950-60 s. The CMS was promoted by the government through a joint contribution between the rural residents and the village collectivity based on the principle of mutual assistance across the country. In the late 1970s, the CMS covered 85% of the rural population, provided primary care to most rural residents, increased rural labor productivity, and tremendously contributed to the rural economic growth.¹ It was named by World Health Organization (WHO) and the World Bank (WB) as the only system in developing countries to effectively resolve the challenge of shortage in healthcare financing. Beginning at the end of 1970s, a profound economic reform started in China, which gradually led to the disintegration of the CMS. In 1986, CMS was reduced to cover only 5% of all administrative villages in the rural area. In the following decades, the government attempted to restore the CMS with no success.² In the second National Health Services Survey in 1998, it was reported that healthcare insurance coverage was < 5% in the economically under-developed rural areas, and the proportion of rural residents paying medical services out-of-pocket was more than 90%.

To reduce the economic burden of healthcare for rural residents and mitigate the potential increase of disease risk in poverty, the Chinese government started the NRCMS in 2002.³ It is a mutual medical assistance system sponsored by government, voluntary participation to rural residents, focusing on the management of major diseases with multi-level financing mechanism from individual, collectivity, to government. The NRCMS started with a pilot phase (2002 ~ 2006), and continued on an expansion phase (2007 ~ 2008), and transited to the current phase with consolidation, enhancement and improvement (2009 ~ now). NRCMS covers all rural population living in all the rural districts and is the largest primary healthcare system by population in the world.⁴

3.2 Practical Experience

3.2.1 Financing driven by government investment aided by individual shared investment

In a country with a large agriculture sector, the government always considers it vital to resolve the development issues of agriculture, in the rural areas, and for rural residents. In the NRCMS, the government functions as the organizer, main investor, and manager responsible for system design and development. The NRCMS organizational structure consists of four levels: central government, province, city and county. A team dedicated for the NRCMS was formed of representatives from fourteen ministries, including Health, Finance, Civil Administration, Agriculture, and others, and met regularly to discuss and develop the important policies for NRCMS development.⁵ The Ministry of National Health and Family Planning Commission (former Ministry of Health) led the management of NRCMS and was responsible of providing the overall guidance and coordination. The corresponding agencies at local government were in charge of the management and implementation of the NRCMS in their administrative area.

China has about 800 million people in rural areas. Most rural residents have low income and do not have stable source of income, therefore it is difficult for them to pay a high medical insurance premium.⁶ In order to achieve equal access to basic healthcare, the NRCMS implemented a financing mechanism mainly driven by government investment and aided by individual appropriate investment. In 2015, the average government subsidy from multiple agencies was 380 Yuans per person, with individuals paying 120 Yuans (Fig. 1). The proportion of government subsidy had been maintained at 70–75% to ensure a sustainable financing system for NRCMS and affordable health services for rural residents.

3.2.2 Expanding the NRCMS coverage over time

The NRCMS follows the principle of voluntary participation rather than forcing participation, and allows the rural residents to voluntarily determine whether to enroll the family as a unit. It fits the actual conditions in rural areas, is consistent with the government's working principle for the people and respects the needs of rural residents.⁷ In the actual implementation, the local government carried out extensive propaganda, improved the scope and the level of insurance coverage, promoted real-time problem solving and other benefiting, favorable, convenient measures to meet people's need, hence greatly raised recognition of the NRCMS among rural residents. At the initial stage, the NRCMS workers needed to visit rural resident's house-by-house so as to collect the individual premium in time. In contrast, nowadays during the NRCMS open period, rural residents paid their premium by themselves on time.⁸ Even if when they were temporarily out of town, they would request their relatives to make the payment to the NRCMS. Following the full coverage in 2008, the participation rate of the NRCMS has been stable at above 95%, indicating that the NRCMS received a wide range of support and recognition among rural residents (Fig. 2).

The NRCMS started from providing subsidies for major medical expense (in-patient hospitalization). The expense of common outpatient clinics was reimbursed mainly to the family account. Since 2007, most of regions began the transition from the family account to the outpatient clinic account. At present, the outpatient clinic account has become the major source of reimbursement in many regions. With the increased funding to the NRCMS, the scope and levels of the insurance coverage were also improved over time.⁹ The actual in-patient hospitalization reimbursement rate for rural residents increased from about 20% at the initial stage to about 57%. By the end of 2014, on the national level the accumulative reimbursement from the NRCMS reached 10 billion person-time, benefiting more and more rural residents (Fig. 3).

To further relieve the economic burden of rural residents from major diseases, starting 2010 a pilot program has been under way to reform medical insurance to give higher priority for major diseases that affect patient survival, require high medical expense, or need extensive treatments.¹⁰ Starting in 2013, a total of twenty-two major diseases were included in the disease-specific insurance reform nationwide, including: pediatric leukemia, congenital heart disease, late-stage renal disease, breast cancer, lung cancer, hemophilia, AIDS/HIV, among others. Each year nearly 2 million person-time benefitted from the NRCMS major disease reimbursement program and the actual reimbursement took up to 70% of total expenses. The major diseases insurance coverage benefits all the NRCMS participants and the actual reimbursement rate is at least 50%, which effectively reduces the burden of healthcare expense for rural residents.¹¹

3.2.3 Promoting information technology

Since the beginning of the NRCMS, effective use of information technology has been actively pursued. All the coverage areas use electronic information management system for real-time medical expense settlement¹². Most provinces implemented regional NRCMS information system, which standardized the procedures and operations, and facilitated the decision making and fund management. In addition, most provinces implemented real-time settlement of medical reimbursement across cities/counties, which provided greater convenience for rural residents to utilize medical service and receive reimbursement.

In 2011, a national NRCMS information platform was started and subsequently connected more than twenty provincial or regional NRCMS information networks, through either the provincial networks or direct connection to link with the hospital information system. On this basis, a national health expenditure verification database was set up to provide inter-province medical expense data to the participating regions.¹³ At the same time, inter-province medical reimbursement was piloted to allow rural residents in the pilot areas to receive healthcare and real-time reimbursement outside of the original region, by national NCRMS platform to send the referral application to the care-providing hospitals.

3.2.4 Payment structure reform and controlling the unreasonable increase of healthcare costs

To standardize the quality of medical institution services and control the unreasonable rise of healthcare costs, the government actively promoted the NRCMS payment reform by providing guidance to local government to explore Diagnosis Related Groups (DRGs), per-diem payment, global budget, and other types of payment.¹⁴ In 2013, the NRCMS payment reform covered more than 80% of the rural areas, efficiently controlled the unreasonable rise of healthcare costs, increased the efficiency of the NRCMS funds utilization, and provided immediate benefits to the rural residents.

3.2.5 Creating a professional team to guide decision-making and implementation

To promote sound decision-making, technical advisory groups were created at both central and local governments comprising of experts from multiple disciplines. They played an important role in designing the NRCMS system and standardizing the operation procedures. A dedicated administrative office was established at the regional level and equipped with qualified professionals to perform the daily management responsibilities.¹⁵ Meanwhile, the level and quality of NRCMS is constantly improved through easy access to public service with innovations of business management, and complement of qualified commercial insurance. In doing so, the NRCMS services are customized to meet the healthcare needs of rural residents and help developing a multilevel healthcare system.

3.2.6 Comprehensive supervision and monitoring measures

The NRCMS funds are deemed as the lifeline for rural residents. It is essential to ensure the security of the NRCMS funds. To regulate the NRCMS funds management, the government implemented strict financial regulations to secure the safety operation of funds and provided quality and cost-effective medical services to rural residents.¹⁶ In recent years, the government enhanced the supervision duty for the targeted medical institutions in the published guidance, including standardization of patient management and control of unreasonable increases of healthcare expenses.

In addition, the government promoted and incentivized rural residents to monitoring and management of the NRCMS through the following approaches: making regulatory policies available to public periodically, disclosing NRCMS running status, such as: the reimbursement level, and the service status of the targeted medical institutions, and collecting the participants' complaints and appeals. These approaches ensured an open and transparent communication for the NRCMS operations and increased the credibility of NRCMS and government, thus generated positive effects for further enhancement of the NRCMS.

3.3 Future Development

3.3.1 Creating a long-term and stable financing mechanism

A stable financing mechanism is not yet fully established for the NRCMS despite the positive progress. Combining government, community, and individual responsibilities for the financing of the NRCMS is being actively pursued. A dynamic mechanism is needed to increase the financing level and to meet the

local needs to match the economic scale, healthcare demands, and the income growth in the rural areas.¹⁷ It is important to establish a healthy self-improved mechanism for NRCMS in future.

3.3.2 Establishing a multilevel healthcare insurance system

During a decade-long development, the NRCMS played an important role in reducing the risk of poverty-induced disease burden for rural residents. However, the scope and the levels of protection still lag behind some advanced countries. On the basis of consolidating and improving NRCMS, future development requires continuous expansion of the scope of the NRCMS to include more severe diseases and increase the protection level. Using NRCMS funds to acquire supplemental commercial insurance will establish a multilevel healthcare system to maximize health care benefits for rural residents.

3.3.3 Utilizing data to improve the decision-making process

NRCMS employed electronic information and data management system, which allowed efficient supervision and monitoring precise decision-making and real-time settlement for all the stakeholders, including the government, the system operators, and rural participants. Data mining methods could be applied to data in the national NRCMS information system to identify system and quality problem, standardize process, mitigate financial risk, and ensure timely decision-making.

3.3.4 Improving the system efficiency and controlling the increasing cost

The increasing healthcare cost requires efficient distribution of the NCMRS funds. Solving this problem will improve the efficiency of the NCMRS fund use as well as increase the actual level of benefit to rural residents. The current NCMRS system is mainly managed on the county level platform. In some regions, the integration of NCMRS platforms started to combine the platforms on the province and the city/county levels hence expanded the pool of insured population and available funds. Similar type of integration can be gradually started in the regions with similar level of economic development or relatively smaller population in order to increase the equality of access, the efficiency of fund usage, and the level of risk management.

3.3.5 Steadily developing an integrated primary healthcare system across urban and rural areas

The overall goal for an integrated primary healthcare system across urban and rural areas is to ensure equal access and efficient use of healthcare resources. It is on the agenda of government agencies. In the process of developing such a system, a comprehensive consideration should be sought on the levels of economic and social development of cities and counties, the funding level, the distribution of healthcare resources, the healthcare demand of local residents, and other factors. Currently, there are significant differences between urban and rural areas in social and economic development, medical resource distribution, and healthcare demand, among others. People in the rural areas use less healthcare services than those in urban areas. Therefore, during the integration process, it is necessary to fully consider the

existing situation and the long-term existing urban-rural discrepancy. A gradual approach is recommended by starting the process in areas where economic development levels are similar and where health-seeking behavior and utilization of healthcare resources are similar. With the social and economic development in progress, it can be further integrated across more regions and finally to achieve a unified framework for the primary healthcare system.

Discussion And Conclusions

By combing its development course, basic experience and main results, this paper analyses the problems and challenges facing the new era, and puts forward corresponding countermeasures and implementation paths. After more than a decade, the NRCMS has become the primary healthcare system for over 800 million Chinese rural residents, playing a vital role for healthcare equality and social and economic development in rural areas. The future challenges facing the NCMRS remain in maintaining an affordable healthcare system for disadvantaged populations and strengthening the system to be financially sustainable. To address these challenges and further improve the NCMRS, the following areas need to be strengthened: to create a long-term and stable financing mechanism, to establish a multifaceted healthcare system, to constantly improve management and quality, as well as to steadily integrate the primary healthcare systems among both urban and rural residents in China. With the constant improvements, the NRCMS system will have a bright future to continue contributing to the health and well-being of Chinese rural residents.

Abbreviations

NRCMS

The New Rural Cooperative Medical Scheme

DRGs

Diagnosis Related Groups

Declarations

Ethics approval and consent to participate

The Chinese Ethical review regulation of biomedical research involving human beings issued by National Health and Family Planning Committee of the People's Republic of China on October 12, 2016. According to the definitions in the article 3 of the first chapter of this regulation, this study doesn't need to be reviewed, so this study would not require ethical approval under Chinese regulations.

Consent for publication

All authors have approved this manuscript for submission, and claim that none of the material in the paper has been published or is under consideration for publication elsewhere.

Availability of data and material

The datasets generated and/or analyzed in this study are available from the first author or corresponding author on reasonable request.

Competing interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Authors' contributions

Hongpu Hu: Study design, Data collection, Data analysis, Writing.

Patricia Lee: Data collection, Data analysis, Writing.

Liqin Xie: Data collection, Data analysis, Writing.

Yan Wang: Data collection, Data analysis

Yanli Wan: Data analysis, Writing.

Wuqi Qiu: Study design, Data collection, Data analysis, Writing.

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Figures

Figure 1

NRCMS Financing Standard Changes (2003-2015)

Figure 2

NRCMS Number of Participants and Participation Rate (2004-2014)

Figure 3

NRCMS Actual In-patient Reimbursement Rate and Coverage Scope (2004-2014)