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Analysis on the Equalization Promotion System of Rural Health Resource Allocation and the Importance of Telemedicine

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ABSTRACT
The equilibrium status of health resource allocation in rural regions profoundly effected the welfare of the rural people in China. This study adopts an institutional comparison research method to distinguish the characteristics of rural healthcare equalization promotion systems among 3 countries, to evaluate the system construction status in China. It can be concluded that to narrow the gap of health resources distribution among the rural regions in China, the system still needs to optimized. The government needs to take measures to improve the equalization of the health resource allocation in rural China, including accelerating the implementation of telemedicine, constructing a multilevel health insurance system in rural areas, etc.

Keywords: *Rural healthcare, Equalization of health resource allocation, Institutional comparison, Telemedicine.*

1. INTRODUCTION

After more than 70 years of continuous development, China's health care system has basically established a primary care mechanism with universal coverage. In 2018, the country has basically completed the "15-minute health care circle construction". More than 80% of residents are able to reach the nearest health care facility within 15 minutes.[1] At the same time, health insurance policies such as new rural cooperative medical care and fixed-point medical reimbursement have promoted the expansion of China's rural primary health care coverage, which has strongly contributed to the development of fairness in the delivery of rural health care resources. In 2020, the social basic medical insurance's coverage accounts for 95.6% of the national population, including 1.016 billion urban and rural residents' health insurance participants.[2] From 2018 to 2020, the social medical insurance financed a total of 230 million participators of the poor and reduce the burden of the health expenditure of the poor by more than 360 billion Chinese Yuan.[3] China has established the world's largest social basic medical insurance network.[4]

However, in contrast, the share of rural primary care outpatient visits in the total number of outpatient visits in China has decreased from 41% to 32% in 2013-2019.[1] It shows that there is a deep disequilibrium in the allocation of rural health resources, resulting that the rural residents prefer to visit secondary healthcare institutions more than primary healthcare institutions in villages in their first visit.

2. METHODOLOGY AND DATA

This paper adopts a qualitative research method of an institutional comparison among China, France and Japan. We draw on an analysis of the healthcare equalization promoting systems in three countries considering the respects of the social health insurance, the talent nurturing, the

1. Based on the number of consultations in township health centers and village health offices from 2014 to 2020 in the China Health Statistics Yearbook.

compensation incentives and the telemedicine among rural residents.

3. INSTITUTIONAL COMPARISON OF PROMOTING RURAL HEALTH RESOURCE DISTRIBUTIONAL EQUALITY IN COUNTRIES

According to the financing channels and the expenditure mode, the health care models in developed countries can be classified as welfare-guaranteed healthcare systems (e.g., Japan's model), social insurance healthcare systems (French model), and commercial insurance healthcare systems (e.g., the United States' model). The following is a comparison of government measures to promote the equal delivery of rural health resources in China, France and Japan. ("Table 1")

Table 1. Comparison of the government measures in China, France and Japan

Main measures	China	France	Japan
Social Health Insurance and medical assistance	1. Social insurance for rural residents. The current social insurance for rural residents mainly involves basic medical insurance and critical illness insurance program. The aggregate payment ratio of the social insurance funds for hospitalization expenses in urban and rural health areas reaches 70%, and across different levels of health care institutions the payment ratio of the social insurance varies from 80% for village-level health institutions to 65% for tertiary hospitals.[5] 2. Rural medical assistance. Rural families with living fees lower than the minimum amount are the target population of medical aid in China, and basic medical insurance is purchased by the state for them free of charge.[6]	Social health insurance. French takes measures in rural areas that insurance participants need to select their preferred doctors. The preferred doctors provide primary care service and referral service when necessary. When one insurance participant goes to a specialist or another general practitioner without preferred doctor' referral, the social health insurance reimbursement rate decreased greatly. [7] 2. Medical assistance. The proportion of medical aid plays a supplementary role in health security system in France.	1. National Health Insurance. National Health insurance in Japan compulsorily requires farmers and agricultural workers to participate.[8] The individuals have co-payment except the social insurance reimbursement part.[9] Patients who go directly to secondary medical institutions without a referral from primary care were usually required to pay an extra amount or were not accepted by big hospitals for outpatient visits in Japan.[10] 2. Medical assistance. If people with very low incomes do not participate in any of the insurance systems, their health care expenses are covered by the state's public finances.[11]
Talent Nurturing	Rural clinical workforce training. The government encourages in-service rural doctors to participate in general practice training, and after they obtain GP licenses, to continue to improve their general practice techniques by accepting on-the-job training. 2. Dispatching system of medical students. Contracted medical graduates are sent to rural areas, mainly in less developed middle and western China.	**1**. Rural clinical workforce training. General practitioner needs to take 2+4 years of medical education and 3 years of general practice education. After graduating from 9 years ' education and obtaining a doctorate in medicine, they can become a general practitioner through a qualification examination and provision primary health care service in rural or urban areas. 2. On-the-job education. Physicians are required to receive special training such as in-service medical training, academic forums, and case seminars during career.[12]-[13]	Dispatching system of medical students. Government opens autonomous medical universities in training doctors for rural areas. By signing job intention contracts with the students, the students are required to do their internship at the rural medical institutions in their hometown in the 5th academic year, and their tuition fees during the 6-year college period are preferentially covered by the government loans.[14]
Compensation Incentives	Career income for rural clinic staffs includes basic salary, performance salary, allowances, and subsidies. Their basic salary consists of a post wage and a grade salary, usually paid partly by fiscal funds. Performance salary is paid by their working institutions or higher authorities. Primary health care institutions are allowed to pay the clinic staff health allowance and allowance for seniority.[13]	The career income for clinic staff includes the service item payment and the capitation prepayment. The Social Security Fund pays for primary care services of practising physicians who become preferred physicians. It is a combination of service items payment and the prepayment for the capitation of contracted residents.[7]	Japan adopts the "Diagnostic Panel Classification (DPC)" flat-rate payment mode. The DPC flat-rate payment measures include standard codification of nine factors, such as age and surgery, to form 2,927 diagnostic clusters, each of which is assigned by different value point. Value points correspond to certain amounts of fixed payment.[16]
Telemedicine promotes regional equalization of rural health care service delivery	In 2018, telemedicine services were regulated in the "Telemedicine Service Management Code (for Trial Implementation)" issued by the National Health Commission and the National Administration of Traditional Chinese Medicine, adopting a number of B2B telemedicine policies covering areas of Yunnan, Guangxi, Guangdong, Ningxia, Henan, Sichuan and Heilongjiang Provinces. [17]	France launched telemedicine since 2009 and has integrated it into official medical schools and internship programs. In 2018, the French National Health Insurance system began to reimburse teleconsultation. [18]	The introduction of telemedicine in Japan led to a decrease in referral rates in rural areas and had good results in improving the management of critical diseases in rural areas. It saved a range of medical costs and improved economic efficiency.[19]

4. FINDINGS: MEASURES' SIMILARITIES, DIFFERENCES AND IMPLICATIONS

China, France and Japan all tried to guide rural residents to seek primary care services in rural primary health-care facilities in their first visit through system designs such as health insurance reimbursement leverage. In France and Japan the first level of health insurance reimbursement is set up with rural primary clinics, to promote rural patients to conduct first visits in rural primary health-care institutions. It guarantees equitable access and universal coverage for rural residents obtaining primary care services. Secondly, the lack of an incentive payment mechanism design for rural physicians in China makes it difficult to sink physicians and other medical workforce allocation across rural regions. In France, a capitation prepayment system for primary care physicians has been adopted to sink physicians to rural areas. Third, France and Japan implemented telemedicine services in rural areas early to overcome the space limitations of health resource allocation. This allows urban quality medical resources to spread to rural areas. There are fewer telemedicine service items in rural clinics in China, and the telemedicine service is not covered by health insurance. Fourth, all the three countries have developed medical aid systems to guarantee rural poverty equal access to primary health care.

5. CONCLUSION

5.1 Accelerating the Construction of Telemedicine Services

Accelerating the construction of telemedicine services is essential to sink high-quality health care resources in rural areas and break through the space barriers of quality medical service delivery from the urban to the vast rural areas. The French and Japanese practices demonstrate the important role of telemedicine services in promoting universal coverage of quality health resources for rural residents and equalizing the access to the quality medical service for rural residents. China is supposed to accelerate the provision of multiple types of telemedicine services that cover different rural areas, considering the practical situations of different rural areas around the country. The projects of teleconsultation, remote consultation, remote prescription and remote monitoring of patient need to be gradually introduced and incorporated in rural areas according to local conditions. Second, standardize telemedicine content review, platform construction and corporates entry and exit criteria.

5.2 Constructing a Multi-level Health Insurance System

Government should help construct a multi-level and diversified health care system. The government is supposed to accelerate the integration of basic health insurance systems for urban and rural residents, promote the market-oriented development of commercial health insurance, improve the social supplemental insurance with universal coverage. Construct a multi-level security mechanism with comprehensive coverage of basic health care, diversified commercial health insurances, and health aid protection should be a key project carried out in China. It will meet the current demand of rural residents for diversified and personalized health service and create equal opportunities in the entrance of high-quality health care services in different rural areas.

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