

## Implementing Universal Health Coverage in Western China: Has Financial Burden of Healthcare Reduced for Rural Residents

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**Abstract.** Since 2009s China's health system reform has been implemented, there still exists the problem of uneven coverage of medical insurance. This study was to analyze the impact of implementing universal health coverage on reduction of financial burden of healthcare placed on people living in the rural areas of Chongqing. Sources of data used mainly come from the National Health Accounts (NHA) from 2010-2014 which covered 38 counties, National Health Service Survey (NHSS) in 2008 and 2013 in Chongqing. The key performance indicators included: the Total Health Expenditures (THE), the Out of Pocket Payment (OOP), Per Capita annual Disposable Income (PCDI), Outpatient expenditures (OP expenditure) and Inpatient expenditures (IP expenditures), as well as other socio-economic and health indicators, were used to examine changes in health service utilization and expenditure, and analyze changes in equity in access to, and financing of, healthcare among the targeted population. Therefore, this paper will compare the financial burden before and after 2009s health reform policy in China, to evaluate whether the financial burden is reduced during these periods in rural residents. The paper will use Chongqing, the western part of China as an example, analysis mainly from the following aspects: 1) Health Expenditure: Data from NHA 2010-2014, THE per capita average growth rate (GR) from high, middle and low-income districts has, respectively increased 13.99%, 13.15% and 13.89%, while the OOP GR was 9.20%, 11.13% and 12.55% respectively. 2) Financial Burden: Data from NHA 2010-2014. Although the OP per capita/PCDI (%) and IP per capital/PCDI (%) average increased rate in low-income level growth lower than the other two levels, the total OP & IP expenditure average GR was higher in low-income level than others. 3) Health Service Utilization: Data from NHSS between 2008 and 2013, both average expenditure in OP and IP visit growth faster in rural than in urban; in 2013, the average OP expenditure as % of PCDI increased faster in rural than in urban; and the average Inpatient expenditure as % of PCDI decreased not significantly in rural than that in urban compared with 2008 and 2013. Therefore, elimination of these barriers would have to require further government policy interventions in order to improve equity in financing of healthcare and to enhance health system resilience and achieve effective universal health coverage in the poor areas of China.

### Introduction

From World Bank reported, the Social Health Insurance (SHI) has been the primary focus of efforts to promote access to healthcare and to provide financial protection against impoverishing healthcare cost in China and other low-income and middle-income countries[1]. Since China's health system reform has been implemented in 2009, the Chinese economy has developed sharply after 2009 and entered a new era. The coverage of health insurance for Chinese population has reached over 95% [14]. China's OOP expressed as a percentage of THE, will fall to 28% by 2020 and then to 25% by 2030 [31]. in

response to implement universal health coverage, the Chinese government has established Urban Employee Basic Medical Insurance (UEBMI) in 1998, which was a major change of the original system of medical insurance for employers. That was a compulsory insurance of both employers and employees in urban China; and later readjusted rural health insurance scheme, which called New rural Cooperative Medical Scheme (NCMS) in rural areas in 2003, and began to start a pilot called Urban Resident Basic Medical Insurance (URBMI) in 2007 [10,19]. For migrants who use health services outside the counties, they need to pay for health service pocket (OOP) and afterwards get reimbursed[3]. However, measurement of vertical inequity (the inequity problem in different income levels) of health utilization remains underdeveloped[10]. There were plenty of literature evaluated coverage financial protection and equality of all the health insurances among urban and rural residents[4-6], but only a few studies carried out the proportion of financial burden compared with the Per Capita Disposable Income (PCDI) as comparison.

In China, THE is defined as total funds spend on healthcare and services, which included government health expenditure, social health expenditure and OOP parts. OOP is defined as the direct medical costs consumed by households according to their willingness. When OOP is less than 30% of THE, that means, the residents can be protected from health financing risk and the disparity in health service can be reduced with different income levels [32].

Chongqing is located in the southwest of China, which covers an area of 82.4 thousand square kilometers. It has jurisdiction over 38 districts and counties, population reached up to totally 33.92 million. In the article, we divided 38 districts and counties into three level by GDP indicator, which called high, middle and low districts in the following parts. By calculation, the number of high: middle: low districts=12:13:13 by scoring system.

Chongqing combined URBMI and NCMS jointly financed by the central and province government in 2012, which named Urban and Rural Residents Medical Insurance (URRMI) later in this study. That means, the residents in both urban and rural areas participated in the health insurance individually, unified to participate in the basic health insurance program for both urban and rural residents, to achieve urban and rural co-ordination.

Under this background, 1) this study was to examine whether reduce the financial burden of healthcare and improve the health utilization service under the impact of implementing universal health coverage. 2) In particular, to analyze the residents who lived in the rural and low-income districts in Chongqing. Whether there was an inequality effect between urban and rural areas[11] in 2010-2014 and the health service utilization situation between 2008 and 2013.

## Materials and Methods

Data used in the study in 2010-2014 was obtained from the Chinese National Health Accounts (NHA), the Social and Economic Statistical Yearbook and the Health Statistics Yearbook of Chongqing; the data which could reflect financial burden was mainly from the patient's self-report and household investigation in the Chongqing's National Health Service Survey (NHSS) in 2008 and 2013, Respectively.

Due to lack of some disaggregated data on urban and rural levels in the mentioned years above [3], we can only measure the different regions by socio-economic indicator Gross Domestic Products (GDP) per capita in 2010 was calculated as base year, and then segmented 38 counties into three levels (high, middle and low-income districts) to analysis. Ranked the 38 counties during 2010-2014, then divided them into three levels (high-income level: GDP per capital > CN¥30,000 including 12 counties; middle income level: GDP per capita CN¥10,000-30,000 including 13 counties; low-income level: GDP per capita < CN¥10,000 including 13 counties) (CN¥ 1=US\$0.15). Over the period from 2010-2014, the ranks of study provinces' development level were not changed much.

The indicators used in this study were Total Health Expenditure (THE), Out-of-pocket Payment (OOP), the Per Capita Disposable Income (PCDI), Outpatient (OP) expenditure, Inpatient (IP) expenditure and average expenditure of healthcare per capita of both urban and rural residents, as well as other key socio-economic and health indicators. In addition, the indicator of PCDI was used to

measure and to compare with fiscal expenditure in education and public health, which could estimate the financial burden of healthcare to the residents.

The average GR (GR) calculation formula was:  $GR = \text{indicator in 2014} / \text{indicator in 2010}^{1/5} - 1$ .

## Outcome

### Health Expenditure.

Table 1 Key socio-economic health indicators in Chongqing in 2010-2014

Key socio-economic and health indicators	2010	2011	2012	2013	2014	GR
<b>Total health expenditure per capita*</b>						
1) High-income districts	1619	1965	2241	2619	2715	13.99
2) Middle-income districts	1020	1477	1529	1869	1533	13.15
3) Low-income districts	798	1199	1305	1585	1189	13.89
<b>Out of pocket payment per capita*</b>						
1) High-income districts	767	884	980	1113	1081	9.20
2) Middle-income districts	540	637	713	805	819	11.13
3) Low-income districts	345	413	469	545	549	12.55
<b>Per Capita annual Disposable Income*</b>						
1) High-income districts	15919	18607	21210	23426	24728	11.72
2) Middle-income districts	11097	13016	15031	17243	18421	13.35
3) Low-income districts	7050	8705	10053	11470	12568	15.23
<b>OOP, as percentage of PCDI (%)</b>						
1) High-income districts	4.82	4.75	4.62	4.75	4.37	-2.32
2) Middle-income districts	4.87	4.89	4.74	4.67	4.45	-1.99
3) Low-income districts	4.89	4.74	4.67	4.75	4.37	-2.38

\*: CN¥

The financial burden is closely associated with out-of-pocket payment (OOP), which is a part of total health expenditure (THE), here we also used OOP, as percentage of PCDI to measure the level of financial burden.

The THE average GR in the study period seemed similar, however, the cardinality in low-income districts was relatively small, thus the absolute value there was low. The THE per capita in low-income districts in Chongqing rose from CN¥ 798 in 2010 to CN¥ 1189 in 2014, the average increased rate during the five years was 13.89%, increased more than one third; Apart from the government and social financing sides, the OOP per capital in low-income districts increased substantial during the studying periods, from CN¥ 345 in 2010 to CN¥ 549 in 2014, accounting for 12.55%. The OOP per capital was increased year by year in the low-income districts; with the average GR in 2010-2014 was 13% in low-income districts, and 9%, 11% in high and middle income districts, respectively, while the rising speed was far away from PCDI (Table 1) which enlarged medical service inequity problems.

Furthermore, OOP, as percentage of PCDI almost unchanged during the five years, however, considered the cardinality in low-income districts was small, thus the actual financial burden would be heavier than that in other income level districts (Table 1). The PCDI level for the low-income districts has not grown faster than that of healthcare expenses in the studying periods in other income level districts. The problem was, since it was not taken the floating population factors into account in accordance with the THE and OOP in the studying counties. Therefore, when calculated the population as denominator may be overestimated, and the counted THE and OOP would be underestimated, so the forecast of OOP parts should be higher than what mentioned above.

## Financial Burden.

Table 2 the Situation of Chongqing Outpatients in 2010-2014

	2010	2011	2012	2013	2014	GR
<b>Average OP expenditure per capita</b>						
( CN¥) *						
1) High-income districts	190	197(3.68)	210(7.97)	225(8.15)	248(10.00)	6.91
2) Middle-income districts	155	179(16.63)	168(-4.83)	200(22.18)	221(10.66)	9.72
3) Low-income districts	144	153(7.55)	162(7.31)	185(14.79)	201(8.60)	8.74
<b>No. of OP (10 thousands)</b>						
1) High-income districts	355	458(32.62)	489(7.66)	517(5.12)	549(5.54)	11.92
2) Middle-income districts	195	299(53.84)	304(1.83)	315(3.90)	305(-3.00)	13.86
3) Low-income districts	138	242(70.22)	224(-4.23)	229(3.34)	221(-3.74)	16.67
<b>Total OP expenditure (1 billion)</b>						
1) High-income districts	7.12	9.50(38.13)	10.49(17.36)	11.96(13.49)	14.05(16.12)	18.83
2) Middle-income districts	3.09	5.53(78.44)	5.15(-3.26)	6.39(26.94)	6.86(10.93)	25.88
3) Low-income districts	2.08	3.91(82.04)	3.70(2.59)	4.41(18.46)	4.56(4.71)	26.30
<b>OP per capita/PCDI (%)</b>						
1) High-income districts	1.19	1.06	0.99	0.96	1.00	-4.10
2) Middle-income districts	1.38	1.34	1.09	1.16	1.20	-2.92
3) Low-income districts	2.01	1.76	1.59	1.62	1.60	-5.36

\*: CN¥

Among the 38 study districts in Chongqing ranked by GDP per capita, it was divided into three income levels. The average outpatient (OP) expenditure per capital increased seriously in both middle and low-income districts, especially in 2013, the increased rate was 22.18% and 14.79% in middle and low-income districts respectively. (Table 2)

Compared to the average OP expenditure per capita in low-income districts showed a clear upward trend, while the number of outpatients showed a downward increase trend especially during 2011-2014. That means there was inequity between different income levels, the financial burden in low-income districts was still high.

Another indicator to measure the financial burden was OP per capita of PCDI ratio. It showed not a main financial burden from this indicator, and all the proportion was almost no more than 2% for all regions in Chongqing in 2010-2014, which was reasonable. However, compared with the three income levels, we can find that in all the regions, the OP per capita of PCDI ratio average increased rates were showed negative GR. However, the cardinality was also highest in low-income districts in the separate studying periods in 2010-2014. That means the OP per capita of PCDI ratio also took highest financial burden in low-income districts compared with other income levels.(Table 2) From NHSS over past decade, the OP treatment mainly flew to primary healthcare institutions, accounting for 73.4%, but the proportion was declined, compared to 84.7% in 2008, and decreased by 11.3%. Moreover, there was significant difference between urban and rural areas. In rural areas, residents reached 80.08% choose to go to primary healthcare institutions for treatment because of the distance, while in urban only took 61.45%, which less than that in rural areas by 18.6% [30].

The limitation here was, the average GR of the total OP expenditure in low-income districts was the largest, reaching 26.3%. As mentioned in (Table 1), the population in the counties has not estimated the number of floating population, so the number of OP has been overestimated, and the number of migrant workers in low-income districts is more. The OP expenditure in low-income districts are seriously underestimated. And then the OP/PCDI (%) indicator is undervalued.

Table 3 the Situation of Chongqing Inpatient in 2010-2014

	2010	2011	2012	2013	2014	GR
<b>Average IP expenditure per capita ( CN¥) *</b>						
1) High-income districts	6469	6988(9.10)	7366(12.70)	7980(8.41)	8179(2.17)	6.07
2) Middle-income districts	4602	5050(9.97)	5198(6.70)	5725(10.42)	5948(4.25)	6.67
3) Low-income districts	4149	4651(12.96)	4649(0.19)	4879(5.12)	4916(0.64)	4.44
<b>No. of IP (10 thousands)</b>						
1) High-income districts	11.03	12.22(10.58)	14.78(22.84)	17.16(16.89)	15.43(-9.09)	9.44
2) Middle-income districts	8.93	9.88(10.64)	11.87(20.30)	13.08(12.55)	7.94(-35.46)	0.42
3) Low-income districts	6.83	7.49(10.58)	9.11(21.07)	10.41(14.47)	5.12(-50.44)	-1.31
<b>Total IP expenditure (1 billion)</b>						
1) High-income districts	8.42	9.88(20.42)	12.11(39.57)	14.88(26.57)	14.10(-7.50)	14.39
2) Middle-income districts	4.31	5.30(21.76)	6.16(28.94)	7.65(24.04)	4.81(-32.91)	6.57
3) Low-income districts	2.91	3.54(25.27)	4.33(21.32)	5.24(19.94)	2.62(-50.12)	3.75
<b>IP per capital/PCDI (%)</b>						
1) High-income districts	40.64	37.56	34.73	34.06	33.07	-4.99
2) Middle-income districts	41.11	37.64	33.68	33.20	32.29	-5.78
3) Low-income districts	58.03	53.43	45.79	42.54	39.12	-9.34
<b>Average admission rate (%)</b>						
1) High-income districts	3.34	2.73	3.14	3.52	2.94	-1.91
2) Middle-income districts	4.62	3.34	3.95	4.27	2.69	-9.59
3) Low-income districts	5.17	3.28	4.11	4.55	2.34	-12.28

\*: CN¥

Using the similar indicators to measure the average Inpatient (IP) expenditure per capita, in low-income districts, the average IP expenditure per capita increased, while the number of IP decreased, and the GR of number of IP drew a huge gap among three different income level, the no. Of IP in high-income districts more than 9 times larger than that in both middle and low-income districts. There was also a medical service inequity problem here. That is, health insurance policies offered by urban employee health insurance scheme are more generous than that of the health insurance plan the rural residents enjoy. That means people in high-income districts were more willing to choose hospitalization than that of both middle and low-income districts [26]. Simultaneously, the IP expenditure increases were comprehensive, thus, the cost of all levels of institutions had increased significantly. Especially in low-income districts, the financial burden of IP expenditure still took highest place compared with other two income levels.

From the NHSS self-report parts, it concluded that disease was still the main cause of poverty. The main reason for the rural residents not to go for hospitalization was “economic difficulties”. The rate of people should be hospitalized but not be dropped significantly in 2013 compared to 2008 and 2003, but still 21.4% of patients who should be hospitalized but not be in rural areas, which due to economic factors accounted for 59% in the ratio. Although the economic factors accounted for 63.4% in 2008, which decreased significantly, that also be the most important reason for inadequate treatment [30]. In other words, it was sufficient to support the poverty caused by illness phenomenon has not been fundamentally ease off.

The IP per capita of PCDI in the study period from 2010-2014 seemed still heaviest in low-income districts in each year, which accounted for 58.03%~39.12%, and the low-income districts’ financial burden was even worse than the other districts. (Table 3)

Average admission rate in low-income districts were dramatically full down during the studying year, while the average IP expenditure per capital were still climbed up, these two reversed GR would illustrate that there is an inequality sign between different regions in Chongqing. The health insurance policies offered in high-income districts are more generous than that in low-income districts, thus the people in low-income districts would suffer much financial burden in both outpatient and inpatient.

Combined Table 2 and Table 3, In the use of outpatient services, people in low-income districts were more willing to choose in the country based for medical treatment at grass-roots level, accounting

for 16.67%; On the utilization of hospitalization side, people in low-income districts were more reluctant to choose hospitalization, accounted for average GR -1.31% compared with 9.44% in high-income districts. It seemed basically reasonable flow of medical treatment in both urban and rural residents, but the differences between urban and rural areas is still obviously inequity, and urban residents were more likely to use health services at higher levels.

Compared to health expenditure in Chongqing, which sources from NHSS (2008 and 2013) found that although IP, OP, THE and PCDI indicators increased much more in 2013 than that in 2008, the OP/PCDI(%) and IP/PCDI(%) indicators in 2013 were not better than that in 2008. Thus, the patients' financial burden has not been significantly improved.

### Health Services Utilization.

Table 4 Changes in health service expenditure and financial burden of healthcare

Different level of districts	Average expenditure for OP visit*		Average expenditure for IP visit*		Average OP expenditure as % of PCDI		Average Inpatient expenditure as % of PCDI	
	2008	2013	2008	2013	2008	2013	2008	2013
Urban	172.3	518.2	6823	8755	2.0	2.2	80.5	54.0
Rural	103.8	542.2	3364	5357.5	2.1	4.4	69.2	63.7
Average	138.1	530.2	5093.5	7056.3	2.1	3.3	74.8	58.9

\*: CNY

From NHSS, the figure was divided into two levels, urban and rural between 2008 and 2013. In 2013, The average expenditure for OP visit in rural areas was 5 times more than that of 2008, also beyond the same indicator in urban in 2013; in 2013, The average expenditure for IP visit in rural areas was 1.6 times more than that of 2008, while the same indicator in urban areas excess 1.3 times in 2013 than in 2008.

The average OP expenditure as % of PCDI in 2008 seemed similar in both urban and rural areas, while in 2013, the indicator in rural areas was 2 times than that of urban areas; the average Inpatient expenditure as % of PCDI in rural areas decreased not obviously in rural areas between 2008 (69.2%) and 2013 (63.7%), compared with that in urban areas 2008 (80.5%) and 2013 (54.0%).

## Discussion

### For health Care Financing Side.

1. Health Insurance: Continue to perfect the health insurance system and to improve the level of protection

The health insurance system in Chongqing has been basically implemented universal health coverage [10]. It has played a positive role to reduce the financial burden of medical expenses especially in rural and low-income districts. However, there is still an overall health security system gap between urban and rural areas. The health insurance policies offered by urban employee health insurance scheme are more preceded than that health insurance scheme in rural areas. Although THE in the survey districts' average GR was not obviously increased in Chongqing, the average GR of OOP per capita, as percentage of THE in low-income districts (12.55%) seemed climbed up drastic than that in high-income districts (9.20%). See in Table 1. Another indicator is OOP, as percentage of PCDI. Because in low-income districts the PCDI cardinality is small, thus the people's health financial burden will be more serious in poor areas. In 2012, Chongqing used to change the original health insurance policy, and combined the URBMI and the NCMS together, which called URRMI. It means to implement the cooperative medical insurance system for both urban and rural residents. From the NHSS database, in 2003, the participated rate in health insurance was only 7.6% in rural areas, compared with 89.4% and 97.48% participated rate in both 2008 and 2013 [30]. That is, because in 2003, It implemented the New rural Cooperative Medical Scheme (NCMS), then especially in rural areas, the participated rate was significantly expanded, almost implemented Universal Health Coverage (UHC) [27]. In addition, there were various findings illustrated that the positive relationship

between health insurance coverage and health service utilization [28]. From NHSS presented, in 2013, residents participated mainly in the URRMI scheme, accounting for the first place of all type of medical insurances (78.75%). With the implementation of the basic medical insurance policy for URRMI, the insured rate significantly increased, reached up 96.61%. The urban increased from 63% in 2008 to 96.04% in 2013, which almost reached fully coverage, with the rural insured rate as highly to 97.48% [30]. This showed that even if the rural health insurance coverage rate is higher than that of the urban, the financial burden of diseases in rural areas is more serious.

Therefore, on the basis of fully affirmed the results of the previous stage of reform, to continue improving the health insurance system consolidate the insured rate, improve the level of protection, and effectively reduce the financial burden on residents is the main task of health work [20,21,24].

2. Government Financing: Shorten the gap between different income levels to improve financing equity

A number of findings showed that under the basic medical insurance system for rural residents, low-income patients would have the highest financial risk of disease, which is unfGR, because the low-income patients are more vulnerable to poverty due to illness [29]. Thus, to increase the financial support for low-income patients is vital. i.e. cut down the deductible payment and co-pay of OOP in health insurance, using a progressive fee system according to the PCIDI level in low-income districts by the financing policy side. The NHSS showed that despite the past decades, the government's financing in basic health insurance for URBMI and NCMS was stably increased, but compared with UEBMI, and the government's financing amount was still low. Therefore, the government's financing in URRMI plan would be increased [22,23], so that more insured residents can get better health service and be fair [25]. According to the studying, it is vital to consider the vertical equity of health service financing. People from different income level have different payment ability. Thus, there should be a different amount of payment systems like the way of taxation for healthcare services. That means people with high-income levels and strong ability to pay should pay more, vice versa.

#### **For Health Service Utilization Side.**

1. Health service accessibility: Solve the problem of inequity treatment, narrowing the gap between urban and rural areas

The overall tendency of average expenditure in OP visit and IP admission were obviously much higher in rural areas (Table 4). From NHSS, the average time of residents reach to the nearest hospital is shortened, the number of "within 20 minutes time to hospital" was continued to increase, has now reached more than 70% [30], which illustrated the effectiveness of the construction of health service system, and the residents physical accessibility gradually improved. The average waiting time of inpatients in 2013 in rural areas dropped sharply compared with 2008, from 5.6 days to 1.1 days [30], the efficiency of institutions was improved, and the convenience of residents for medical treatment was increased.

To carry out first diagnosis step by step, together with improving primary medical staff professional quality. It also needs to gradually perfect General Practitioner System (GPS), reduce running of medical insurance expenses pressure. I.e. improve primary medical reimbursement measurements, guide the rural residents to visit in primary healthcare facilities at the community level.

Furthermore, implement two-way referral. According to the needs of the disease, to balance between the freedom choice of medical treatment and the medical funding pool keep normal operations. In particular, the government needs to first solve the reimbursement policy in different regions and reimbursement for rural people.

2. Health capacity: To optimize the structure of primary health institutions and performance evaluation system, and to guide the transformation of service mode

Implement the primary diagnosis step by step. The average OP expenditure as % of PCIDI grow faster in rural than that in urban between 2008 and 2013, while the average inpatient expense as % of PCIDI decreased slowly in rural than that in urban, which were out-of-balance (Table 4). The individual health financial impact remains an important determinant for people making medical decisions[8]. Thus, how to reduce the financial burden of rural residents, retain medical staff in rural or low-income districts is vital. The better way to retain qualified health professionals in rural and

low-income areas would use both financial and non-financial incentives [10]. i.e. narrowing the gap of medical technical personnel's salary between high, middle and low-income districts, even improve practitioners' subsidies in low-income areas, in particular, the subsidies for public health services; And continue to increase financial support to health workforce's insurance schemes.

Apart from the financing support, establish a sustainable health workforce recruitment and performance evaluation mechanism in primary health institutions [18]. Changing the medical profit model in health institutions is an important aspect of controlling the medical expenses. It can work through the perfect performance appraisal system, to establish health outcomes oriented performance evaluation system; enhance the hospital's public welfare. Simultaneously, change the behavior model of medical staff; pay more attention to health outcomes than economic income.

## **Limitations**

The study has a few limitations. 1) Due to the limits of available data, some confounding factors, such as sampling populations, ages, reimbursement ratio health or disease status, cannot be controlled[9]. Due to lack of disaggregated data for the same requirements, we used (high, middle and low-income districts) in NHA to measure the relatively indicators in our outcome, while in the NHSS, we would use (urban vs. rural area) for analysis, the different data sources can cause detection errors. 2) Since this article does not consider the data of the floating population, the results of the data in low-income districts may be underestimated. 3) Data updated problems. Because of the NHSS was investigated every 5 years, the newest one was in 2013. Thus, the study could track to the new date source in 2018, then present more researches.

## **Conclusion**

China has increased substantially government financing in health, particularly in the poor regions, like Chongqing in western part of China. Nowadays, it almost implemented universal health insurance plan resulting in sound health financing policy and substantial increase in health utilization service for both outpatient and inpatient. However, the rural and low-income residents still have financial barriers in accessing healthcare and also face to the inequity medical service problems. After the new medical reform, all income level districts is improving, however, the degree is different, and the inequity problem is enlarged. Thus, it is vital to find health insurance and health service utilization packages to eliminate the access of healthcare barriers between urban and rural inequity problems. We recognize that the government should decide effective measures to ease up the imbalance between urban and rural area's health reimbursement policy according to the different PCDI increased level, and aim to enhance health system resilience in both financing and utilization sides. That is, to minimize the financial burden in rural and low-income districts, simultaneously to maximize the health service utilization for both improving the accessibility of health service and capacity of primary medical workforce.

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Abbreviations. THE: Total Health Expenditure; OOP: Out of Pocket Payment; PCDI: Per Capita Disposable Income; OP: Outpatient; IP: Inpatient; UEBMI: Urban Employee Basic Medical Insurance; NCMS: New Rural Cooperative Medical Scheme; URBMI: Urban Resident Basic Medical Insurance; NHA: Chinese National Health Accounts; NHSS: Chongqing's National Health Service Survey.

Ethics approval and consent to participate. The study obtained approval from the institutional ethics review committee of Chongqing Medical University. All of the data were collected from publications which collected by the authors.

Consent to publish. Not applicable.

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