

Available online at www.sciencedirect.com

Public Health

journal homepage: www.elsevier.com/puhe

Short Communication

Limited effects of the comprehensive pricing healthcare reform in China



Y. Wang^a, Y. Zhang^a, C. Ma^{a,b}, Y. Jiang^a, Y. Li^a, X. Wang^a, S. Ma^{a,b,*}

^a School of Statistics, Renmin University of China, Beijing, 100872, China

^b School of Public Health, Yale University, New Haven, CT, 06520, USA

ARTICLE INFO

Article history:

Received 18 January 2019

Received in revised form

20 May 2019

Accepted 19 June 2019

Available online 29 July 2019

Keywords:

Healthcare reform

Comprehensive pricing

China

Survey

ABSTRACT

Objectives: To evaluate the effects of China's very recent comprehensive pricing healthcare reform, taking the patients' perspective.

Study design: Two survey studies were conducted using the same protocol in Beijing in July 2017 and 2018, respectively.

Methods: The same questionnaire was used and contains two sections, with the first on demographic and personal information and the second on various assessments of the reform.

Results: Findings different from those in the government-led evaluations were made. Specifically, the majority of the patients thought the level of medical service fee and cost of medicine still high, and experienced no change or an increase in overall medical cost. The overall assessment of the reform was not sufficiently positive. Multiple problems in healthcare were identified. Development from 2017 to 2018 was not significantly positive.

Conclusions: Patients' assessments of the reform were not as positive as those made in the government-led evaluations. In extending the reform to the whole country, the government and healthcare providers may need to further tune the reform to better serve the public.

© 2019 The Royal Society for Public Health. Published by Elsevier Ltd. All rights reserved.

Introduction

China has the largest population/healthcare system and one of the few universal basic health insurance systems.¹ In the past decades, China has experienced fast economic growth and significant reform in health care and health insurance, which have drawn extensive attention from the public health research community and general public.^{2,3} Under the old healthcare system, the fee for diagnosis was extremely low.

Hospitals and clinics recovered cost by imposing a markup to medicines. Published studies have suggested that this practice caused multiple problems.⁴ Specifically, doctors were motivated to prescribe (sometimes unnecessarily) expensive examinations and drugs as they led to higher profit. In addition, as hospitals with different quality had similar (low) diagnosis cost, patients tended to use high-quality hospitals even for minor illness conditions, leading to inefficient use of medical facilities. In addition, as the medicine markup and thus the overall medical cost structure were unclear to patients, there

* Corresponding author. School of Public Health, Yale University, 60 College ST, LEPH 206, New Haven, CT, 06520, USA. Tel.: +1 203 785 3119; fax: +1 203 785 6912.

E-mail address: ctnh60collegest@gmail.com (S. Ma).

<https://doi.org/10.1016/j.puhe.2019.06.014>

0033-3506/© 2019 The Royal Society for Public Health. Published by Elsevier Ltd. All rights reserved.

had been extensive tension between patients and healthcare providers. Finally, it has been suggested that the aforementioned problems had led to corruption (for example, doctors taking kickbacks from drug companies) and other social problems.

To make medical care more affordable, it is necessary to make more efficient use of all hospitals of various quality, reduce patient-doctor tension, and eliminate related social problems, and the Chinese government started experimenting eliminating the medicine markup and adopting a medical service fee to recover cost.^{5,6} In particular, on April 8, 2017, the city of Beijing implemented the comprehensive pricing healthcare reform. A total of more than 3600 hospitals/clinics were involved. Under the reform, the medicine markup was eliminated, the examination (for example, computerized tomography (CT)/ positron emission tomography (PET) scan, magnetic resonance imaging (MRI)) fee was reduced, and the medical service fee, paid by patients directly to hospitals, was created to reflect the service provided by doctors, recover cost, and promote the utilization of all healthcare facilities (by having higher fees for hospitals with a higher quality). Assessments of the reform were conducted by the government, and highly positive findings were reported,^{7,8} including lower medicine and overall cost, increasing utilization of second/third-tier hospitals, and a higher patient satisfaction rate.

As the government/hospitals designed and implemented the reform, the unbiasedness of their assessments may be of concern.⁹ In addition, the existing assessments have mostly taken the government/hospitals' perspectives, and there is insufficient attention to patients. The goal of this study is to directly address these problems. Specifically, a third-party independent evaluation was conducted, focusing on the patients' assessment of the reform. Significantly advancing from the existing ones, this study is the first to evaluate the change of assessment over time. As the Chinese central government is extending the reform to the whole country, this timely evaluation study can have important public health and policy implications.

Methods

This study was conducted under the CSPH (China Survey on Pension and Healthcare), a joint effort by the Renmin University of China (RUC) and Yale University. Data were collected through two surveys, which were approved by a research ethics review committee at the XXX. The first survey was conducted in July 2017, three months after the reform, and the second was conducted in July 2018. The same questionnaire was used and contains two sections, with the first on demographic and personal information and the second on various assessments of the reform. To achieve representativeness, hospitals were first randomly selected, and then, patients seeking care at those hospitals were randomly selected. The inclusion criteria included at least 21 years of age, used the participated hospitals/clinics at least once in the past month, and used the participated hospitals/clinics at least once in the six-month period before reform. A total of 632 and 802 subjects finished the surveys, with response rates 67% and 73%. Each participant was asked to sign an informed

consent form. Basic information on the non-responders was obtained, and no significant selection bias was found.

In data analysis, summary statistics (counts and percentages) were computed. To evaluate the change over time, the results from the two surveys were compared using the Chi-squared and Fisher's exact tests. Analysis was conducted using R 3.5.1.

Results

Subjects' characteristics

Analysis suggests that the surveyed subjects in 2017 and 2018 are largely comparable. Taking 2018 as an example, the median age is 41.9 years, and almost half (49.9%) are men. The majority (66.8%) have college education and more. The largest categories of occupation are enterprise (31.9%), government (19.0%), and self-employed (10.6%). The majority (78.3%) have Beijing 'hukou.' About half (48.8%) have household income less than 100 K RMB. Almost all have insurance coverage, with the majority having urban employee basic medical insurance (61.8%). The majority (73.6%) do not have chronic diseases.

Patients' assessment of the reform

As shown in [Table 1](#), the majority of the surveyed subjects were not knowledgeable of the reform, with only 18.9% responding partially or completely positive in 2018. With respect to the newly added medical service fee, the majority thought that the cost was somewhat high (50.7% in 2018) or too high (9.5%). There was no significant difference between 2017 and 2018. The majority viewed the cost of medicine after reform still high (51.3% somewhat high and 7.5% too high in 2018), and the difference between 2017 and 2018 is significant (P -value <0.001). The reform did not seem to be effective in reducing overall medical cost. Specifically, in 2018, 45.2% of the patients did not report a change, and 35.1% reported somewhat or significantly higher cost. The overall evaluation of the reform was positive. Specifically, in 2017 and 2018, 64.1% and 52.3%, respectively, thought that the reform had no impact on medical care, and 24.2% and 23.3% reported a negative impact. The satisfaction rates were somewhat low, with only 25.5% and 37.2% reporting somewhat and high satisfaction. Multiple major problems in health care were identified, including 'difficult to make an appointment' (42.9% and 47.3% in 2017 and 2018, respectively), 'waiting time too long' (37.7% and 63.0%, respectively), 'total cost too high' (31.0% and 14.5%, respectively), and 'medicine cost too high' (21.4% and 22.1%, respectively).

Discussion

In our third-party, patient-oriented evaluation, the observed changes in medical cost were not as positive as in the published assessments. In particular, patients still viewed the overall medical cost, medical service fee, and cost of medicine as too high. In addition, the (subjective) evaluation of

Table 1 – Summary survey results: count (percentage) and P-value.

Questions	2017 (n = 632)	2018 (n = 802)	P-value
Do you know the details of the reform?			
Completely negative	26 (5.4)	118 (14.7)	<0.001
Partially negative	133 (27.8)	282 (35.2)	
Neutral	150 (31.4)	250 (31.2)	
Partially positive	125 (26.2)	131 (16.3)	
Completely positive	44 (9.2)	21 (2.6)	
What do you think of the level of the medical service fee?			
Too low	1 (0.2)	5 (0.7)	0.24
Somewhat low	14 (3.1)	23 (3.4)	
Appropriate	187 (41.4)	244 (35.7)	
Somewhat high	204 (45.1)	347 (50.7)	
Too high	46 (10.2)	65 (9.5)	
What do you think of the level of the cost of medicine (after reform)?			
Too low	1 (0.2)	4 (0.6)	<0.001
Somewhat low	59 (13.1)	19 (2.8)	
Appropriate	267 (59.1)	259 (37.9)	
Somewhat high	114 (25.2)	351 (51.3)	
Too high	11 (2.4)	51 (7.5)	
Changes in total medical cost			
Significantly lower	1 (0.2)	18 (2.3)	<0.001
Somewhat lower	51 (10.2)	139 (17.4)	
No change	256 (51.2)	360 (45.2)	
Somewhat higher	149 (29.8)	220 (27.6)	
Significantly higher	43 (8.6)	60 (7.5)	
What do you think of the impact of the reform (on medical care)?			
Very positive	1 (0.2)	12 (1.8)	<0.001
Somewhat positive	73 (11.6)	154 (22.5)	
No impact	405 (64.1)	358 (52.3)	
Somewhat negative	135 (21.4)	133 (19.4)	
Very negative	18 (2.8)	27 (3.9)	
Your satisfaction with the reform			
Very low	25 (4.0)	52 (6.5)	<0.001
Somewhat low	166 (26.3)	160 (20.0)	
Neutral	280 (44.3)	291 (36.3)	
Somewhat high	153 (24.2)	269 (33.5)	
Very high	8 (1.3)	30 (3.7)	
What are the most important problems in health care?			
Difficult to make an appointment	271 (42.9)	379 (47.3)	<0.001
Waiting time too long	238 (37.7)	505 (63.0)	
Total cost too high	196 (31.0)	116 (14.5)	
Medicine cost too high	135 (21.4)	177 (22.1)	
Insurance coverage too low	121 (19.1)	242 (30.2)	
Medical examination fee too high	100 (15.8)	321 (40.0)	
Bad attitude (doctors, nurses)	78 (12.3)	338 (42.1)	
Other	74 (11.7)	9 (0.7)	
Bad environment (hospitals)	38 (6.0)	0	

the impact of the reform and satisfaction level were not as positive. Such results differ from those recently published.¹⁰ Multiple reasons may contribute to this difference. In particular, on the government side, hospitals are financed by the medical service fee, revenue from medicine, and subsidy from the government. In contrast, patients only face the medical service fee and cost of medicine. As such, a decrease in the government's overall medical expenditure and an increase in patients' medical cost can coexist (which can be associated with a decrease in the government subsidy). This study suggests that reducing the medical service fee and cost of medicine for patients may be needed. In addition, more than a quarter of the surveyed patients had chronic diseases. Their hospital visits were often for prescription only. In the past, they had to pay mostly for medicine,

whereas they now need to pay the recurrent medical service fee, which may lead to higher overall cost. The medical service fee can also lead to higher cost for patients who come to hospitals only for diagnosis. Differences between our findings and those in the literature can also be caused by differences in sample collection schemes, design of questionnaires, and other factors. The lack of positiveness in the overall evaluation of the reform is worth further attention. When extending the reform to the whole country, the government and healthcare agencies will need to more effectively design/implement the reform and educate the public. This study also identifies major concerns/problems in health care, which are mostly consistent with those in published studies, showing that the effort of improving healthcare experience needs to be continued. A major finding is that

there was little or no improvement from 2017 to 2018. Being the first of its kind, it suggests that it is necessary to examine the implementations in that one-year period and identify areas for improvement.

This study has limitations, such as a limited sample size and information (especially a lack of hospital side information). Although much effort was devoted in achieving representativeness, there is still a risk of sample bias. In addition, Beijing has a unique status in China, and patients in other cities/regions may not be comparable with those in Beijing. As such, findings made in this study may not be directly applicable to other cities/regions. Nevertheless, being the first of its kind, this study can provide valuable information on the ongoing, important healthcare reform.

Public health implications

In the past few years, the Chinese government has implemented a series of healthcare reforms, with the most recent being the comprehensive pricing reform. This study is the first to provide a timely, third-party independent assessment of the reform, taking the patients' perspective. The findings were not as positive as in the published studies, suggesting certain limitations of the reform and necessity to further tune the policy. Overall, this study may have a big impact on the ongoing healthcare reform.

Author statements

Acknowledgments

The authors thank the survey staff and participants for their contributions. The authors also thank the reviewer for careful review and insightful comments, which have led to a significant improvement of the article.

Ethical approval

This research was approved by an Ethics Review Committee at the Renmin University of China.

Funding

This work was supported by the MOE Project of Key Research Institute of Humanities and Social Sciences at Universities

(16JJD910002); fund for building world-class universities (disciplines) of Renmin University of China; and Yale University MacMillan Center Faculty award.

Competing interests

None declared.

Contributors

X.W. and S.M. designed the study. Y.L., Y.Z., and Y.J. designed the survey. Y.W. and C.M. conducted data analysis. Y.W. drafted the manuscript. All authors read and approved the final version of the manuscript.

REFERENCES

1. Yu H. Universal health insurance coverage for 1.3 billion people: what accounts for China's success? *Health Policy* 2015;**119**(9):1145–52.
2. Yip WC-M, Hsiao WC, Chen W, Hu S, Ma J, Maynard A. Early appraisal of China's huge and complex health-care reforms. *Lancet* 2012;**379**(9818):833–42.
3. Meng Q, Fang H, Liu X, Yuan B, Xu J. Consolidating the social health insurance schemes in China: towards an equitable and efficient health system. *Lancet* 2015;**386**(10002):1484–92.
4. Yip W, Hsiao WC. The Chinese health system at a crossroads. *Health Aff* 2008;**27**(2):460–8.
5. Fu H, Li L, Yip W. Intended and unintended impacts of price changes for drugs and medical services: evidence from China. *Soc Sci Med* 2018;**211**:114–22.
6. Tang W, Xie J, Lu Y, Liu Q, Malone D, Ma A. Effects on the medical revenue of comprehensive pricing reform in Chinese urban public hospitals after removing drug markups: case of Nanjing. *J Med Econ* 2018;**21**(4):326–39.
7. Zhang Y, Chao Y, Guo Q, Zhao Z, Zhang N, Bai B. Research of impacts on medical visit behaviors of patients due to the two reforms of the clinic-pharmacy-separation at a hospital in Beijing. *Chin J Hosp Adm* 2017;**33**(7):550–3.
8. Xu FX. Beijing released the consequence of the first anniversary of the “separation of diagnosis/treatment fee and medicine cost” reform. *Cap Food Med* 2018;**25**(10):4.
9. Lollar XL. Assessing China's E-Government: information, service, transparency and citizen outreach of government websites. *J Contemp China* 2006;**15**(46):31–41.
10. National Health Commission of People's Republic of China. Briefing on the State Council for deepening the reform of the “separation of diagnosis/treatment fee and medicine cost” reform (No. 211). 2018. <http://www.nhfpc.gov.cn/tigs/ygjb/201711/eda9ea7bf83b4398ae0fc7a3f636e948.shtml>.