**Appendix. Supplementary data**

Supplementary data associated with this article can be found, in the online version, at htt://[dx.doi.org/10.1016....](http://dx.doi.org/10.1016....)..

**What is known about the topic?**

China government launched an innovative policy catastrophic medical insurance in 2013 to prevent people from catastrophic health expenditure. The program has covered 1.3 billion people in 2016 and got some international concern on its policy design and its effect.

**What does this study add to the literature?**

Our study, the first evaluate of the effect of China catastrophic medical insurance, set the reduce of the incidence and intensity of catastrophic health expenditure as key indicators. China catastrophic medical insurance program may inspire other regions

**Editor in chief**

Miguel Ángel Negrín Hernández.

**Transparency declaration**

The corresponding author on behalf of the other authors guarantee the accuracy, transparency and honesty of the data and information contained in the study, that no relevant information has been omitted and that all discrepancies between authors have been adequately resolved and described.

**Authorship contributions**

P. Fang designed the study. S. Zhao conducted data collection, the analyses, interpreted the results, and drafted the manuscript. X. Zhang contributed to the data collection and interpretation of the results. W. Dai, Y. Ding and J. Chen collaborated in the data analysis and interpretation of the results. All authors critically reviewed the manuscript and approved the final version submitted for publication.

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**Conflicts of interest**

None.

**References**

1. Li H, Jiang L. Catastrophic medical insurance in China. Lancet. 2017;390:1724-5.

2. Naghavi M, Abajobir AA, Abbafati C, et al. Global, regional, and national age-sex specific mortality for 264 causes of death, 1980-2016: a systematic analysis for the Global Burden of Disease Study 2016. Lancet. 2017;390:1151-210.

3. Amaya-Lara JL. Catastrophic expenditure due to out-of-pocket health payments and its determinants in Colombian households. Int J Equity Health. 2016;15:182-93.

4. Huang H, Shi J, Guo L, et al. Expenditure and financial burden for common cancers in China: a hospital-based multicentre cross-sectional study. Lancet. 2016;388:S10.

5. Brinda EM, Kowal P, Attermann J, et al. Health service use, out-of-pocket payments and catastrophic health expenditure among older people in India: the WHO Study on global AGEing and adult health (SAGE). J Epidemiol Community Health. 2015;69:489-94.

6. Ma R, Huang L, Zhao D, et al. China critical illness insurance policy - the recent developments and prospects. Value Health. 2014;17:A795.

7. Yin WM. To accelerate the development of people's health and promote the innovation of medical insurance system. People's Daily. 2016; 2016-10-10.

8. Zhigang S. Insurance to cover serious illnesses. Beijing: Chinadaily; 2012. (Accessed on 28/02/2018.) Available at: http://europe.chinadaily.com.cn/china/2012-08/31/content\_15722438.htm

9. Xu K, Evans DB, Carrin G, et al. Designing health financing systems to reduce catastrophic health expenditure. World Health Organization, Department of Health Systems Financing; 2005. Technical Briefs for Policy-Makers. N.º 2.

10. Xu K, Evans DB, Kawabata K, et al. Household catastrophic health expenditure: a multicountry analysis. Lancet. 2003;362:111-7.

11. Kawabata K, Xu K, Carrin G. Preventing impoverishment through protection against catastrophic health expenditure. Bull World Health Organ. 2002;80:612.

12. Ozkok E, Streftaris G, Waters HR, et al. Modelling critical illness claim diagnosis rates I: methodology. Scand Actuar J. 2012;2014:439-57.

13. Dodd E, Streftaris G. Prediction of settlement delay in critical illness insurance claims by using the generalized beta of the second kind distribution. J R Stat Soc Ser C Appl Stat. 2017;66:273-94.

14. Langenbrunner J, Patricio V, Wang S. Toward a healthy and harmonious life in China: stemming the rising tide of non-communicable diseases. The World Bank; 2011. 50 p.

15. Bai X, Chen JY, Fang Z, et al. Motivations, challenges and coping strategies for smoking cessation: based on multi-ethnic pregnant couples in far western China. Journal of Huazhong University of Science and Technology-Medical Sciences. 2017;37:439-45.

16. Zhang XF, Tian XY, Cheng YL, et al. Health disparities among the Western, Central and Eastern rural regions of China after a decade of health promotion and disease prevention programming. Journal of Huazhong University of Science and Technology. Medical sciences. 2015;35:606-14.

17. Statistics Bureau QP. Qinghai statistical year book: China Statistics Press; 2016. 326 p.

18. Mao W, Tang S, Zhu Y, et al. Financial burden of healthcare for cancer patients with social medical insurance: a multi-centered study in urban China. Int J Equity Health. 2017;16:180-92.

19. Liu P, Jiang L, Li C, et al. How to deal with burden of critical illness: a comparison of strategies in different areas of China. Pak J Med Sci. 2014;30:659-63.

20. Zhou C, Long Q, Chen J, et al. The effect of NCMS on catastrophic health expenditure and impoverishment from tuberculosis care in China. Int J Equity Health. 2016;15:172-84.

21. García-Subirats I, Vargas Lorenzo I, Mogollón-Pérez AS, et al. Determinantes del uso de distintos niveles asistenciales en el Sistema General de Seguridad Social en Salud y Sistema Único de Salud en Colombia y Brasil. Gac Sanit. 2014;28:480-8.

22. Gu H, Kou Y, Yan Z, et al. Income related inequality and influencing factors: a study for the incidence of catastrophic health expenditure in rural China. BMC Public Health. 2017;17:727-39.

23. Chertorivski-Woldenberg S. Seguro popular: achievements and perspectives. Gac Med Mex. 2011;147:487.

24. Pavón-León P, Reyes-Morales H, Martínez AJ, et al. Out-of-pocket expenditure by elderly adults enrolled in a public health insurance programme in Mexico. Gac Sanit. 2017;31:286-91.

25. Goss PE, Strasser-Weippl K, Lee-Bychkovsky BL, et al. Challenges to effective cancer control in China, India, and Russia. Lancet Oncol. 2014;15:489-538.

26. Knaul FM, González-Pier E, Gómez-Dantés O, et al. The quest for universal health coverage: achieving social protection for all in Mexico. Lancet. 2012;380:1259-79.

27. Qin X, Luo H, Feng J, et al. Equity in health financing of Guangxi after China’s universal health coverage: evidence based on health expenditure comparison in rural Guangxi Zhuang autonomous region from 2009 to 2013. Int J Equity Health. 2017;16:174-86.

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