

Government insurance coverage and use and affordability of expensive targeted anti-cancer medicines in China: an interrupted time-series study

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Abstract

Background Little evidence is available to demonstrate the effect of the emerging government insurance coverage on use and affordability of expensive anti-cancer medicines as well as insurance sustainability for patients in China. This study examined the insurance programme in Hangzhou, the capital city of Zhejiang province, as an example, focusing on the six targeted anti-cancer medicines that were newly covered by government insurance in January, 2015, and looked at how such inclusions influenced the use and affordability of these medicines.

Methods We used longitudinal hospital medicines procurement data collected by IQVIA (IMS Health and Quintiles) Institutes for health-care informatics to assess trajectories in use of medicines in 69 hospitals with more than 100 beds from January, 2013, to December, 2016. We conducted segmented regression analyses of interrupted time series data to measure changes in use of medicines over time. WHO/Health Action International Project on Medicine Prices and Availability methodology was used to measure the affordability of medicines. Key informant interviews were done to document the pharmaceutical company patient assistance programme and insurance policies.

Findings In March, 2015, the use of all studied medicines increased by 15·58 (95% CI 3·86–27·30, $p=0\cdot01$, for imatinib) to 439·14 standard units (311·79–566·49, $p<0\cdot001$, for cetuximab) in 1 month. Before introduction of insurance coverage, patients had to pay out-of-pocket 3·0–13·1 and 6·2–27·3 times the provincial average disposable annual income per capita in urban and rural areas, respectively; 1·5–6·4 and 3·1–13·4 times for those who were entitled to the patient assistance programme. After introduction of insurance coverage in January, 2015, out-of-pocket payments were reduced to 0·6–2·1 and 1·8–4·4 times the provincial average disposable annual income per capita in urban and rural areas, respectively. By the end of 2016, cumulative total insurance expenses for the six targeted anti-cancer medicines accounted for 46% of the total amount of government catastrophic health funds collected for Hangzhou, which would reach 69% if the reimbursement rate was increased from 60% to 90%.

Interpretation Our findings suggest that government insurance coverage has a substantial role in increasing patients' access to expensive targeted anti-cancer medicines, with reduced individual financial burden, but it is still high, especially for low-income population. The sustainability of such systems requires close monitoring and appropriate use of medicines. Findings of this study provide directions for policy formation and financial risk management in relation to the government insurance.

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Contributors

JS, YD, JQ, and YL contributed to the concept of the paper and study design. YD, JQ, and YL took a key role in data cleaning and statistical analysis. All authors contributed to data interpretation. YD wrote the first draft of the Abstract. JS and AW made substantial contributions to the final data analysis and interpretation and critical revision of the Abstract. All authors have seen and approved the final version of the Abstract for submission.

Declaration of interests

We declare no competing interests.

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