

VIEWS & REVIEWS

PERSONAL VIEW

China should curb non-prescription use of antibiotics in the community

Non-prescription sales in retail pharmacies and the use of leftover drugs stored at home drive inappropriate use, with the public health dangers that it brings, writes Yu Fang

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The non-prescription use of antibiotics in the community is prevalent in China.¹ The results revealed in a recent survey of 7915 residents conducted by the China Food and Drug Administration (CFDA) were alarming: 2699 of 7915 respondents (34.1%) incorrectly believed that antibiotics were the same as anti-inflammatories, and 1892 (23.9%) chose to give themselves antibiotics instead of visiting a physician when they had symptoms of a cold.

This “self medication” varies in prevalence among different parts of the population. Our recent survey of 731 undergraduates at a university in Shaanxi province found that 40.2% had self medicated with antibiotics within the past six months. More than half of the students often stored antibiotics for self medication. Most preferred broad spectrum antibiotics, but almost half preferred intravenous antibiotics.² Another survey of 854 people in rural China found that 62% of parents had given their children antibiotics in the previous year without the advice of a physician.³

Self medication with antibiotics increases the risk of inappropriate use, which presents challenging public health problems.⁴⁻⁵ Inappropriate use is wasteful and harmful, and adverse consequences include the development of antimicrobial resistance, adverse drug events, waste of scarce resources, and eroded patient confidence. For example, more than 60% of *Staphylococcus aureus* isolates from Chinese patients in surveyed hospitals in 2009 were methicillin resistant—the dreaded MRSA—up from 40% in 2000.⁶ Notably, in the 1 317 000 cases of adverse drug reactions events reported for 2013, three antibiotics (cephalosporins, penicillins, and quinolones) accounted for more than half of the total number of serious case reports for anti-infectives (20 680).⁷ The estimated cost of responding to adverse drug events associated with antibiotics ranges from 2.91 billion yuan up to 13.93 billion yuan (£1.3bn; €1.6bn; \$2.21bn) annually.⁸

The main source of self medication is antibiotics left over from a previous course of treatment. Several factors may contribute

to the high availability of leftover antibiotics in China. Firstly, many Chinese families have a habit of storing antibiotics at home to treat future illness. A national survey of 1421 people found that more than seven out of 10 admitted keeping antibiotics at home.⁹ This habit can exacerbate the development of drug resistance if people decide to treat themselves at a later time. Secondly, leftover antibiotics may be available if a doctor overprescribes a drug, or a patient does not comply with the treatment schedule.¹⁰ Many patients misunderstand the purpose of antibiotics, and most Chinese people regard them as a cure-all. Patients’ lack of knowledge about antibiotics combined with frequent prescribing requests may aggravate the problem of self medication.

The other main source of self medication is the acquisition of drugs from pharmacies without a prescription. There are nearly 423 723 retail pharmacies in China, but only 226 064 licensed pharmacists. In 2004, the CFDA issued a regulation to restrict retail pharmacies from selling antibiotics without a prescription. Compliance with the regulation, however, has been poor.

Because of the shortage of pharmacists and the profit driven behaviour of some retailers, the illegal sale of antibiotics remains common.¹¹ A recent survey of 213 retail pharmacies in Shaanxi province found that antibiotics for paediatric diarrhoea were sold without a prescription by 72.8%. Non-prescription antibiotics for adult respiratory infections were sold by 95.8% of pharmacies.¹² Even in large cities such as Shanghai, people can obtain antibiotics at retail pharmacies by giving only their contact details.¹³

Many efforts to control antibiotic use have focused on limiting prescriptions in hospitals, but strategies that tackle the problem of easy access to antibiotics in communities have seldom been implemented.¹⁴ Measures to tighten control and monitoring of non-prescription use of antibiotics in communities nationwide are urgently needed to combat growing antibiotic resistance in China. The maximum penalty for illegal sales of antibiotics is a 1000 yuan (£94; €118; \$160) fine.¹⁵ The Chinese government should strengthen the regulation of sales of over the counter

antibiotics in retail pharmacies and provide heavier penalties to offenders, especially repeat offenders.

The government should also implement strategies to promote more judicious dispensing and use of antibiotics in the community. These strategies may include training more pharmacists and general practitioners to ensure legal dispensing and rational drug use. As a significant step in a positive direction, China's State Council, the government's highest executive organ, issued a plan in 2012 that specifies that by 2015 all retail and hospital pharmacies must have licensed pharmacists present to oversee the rational use of drugs.¹⁶

Finally—and critically—the government should deepen public hospital reforms and remove drug mark-ups. The income of hospitals and doctors should not be linked to drug sales, as they currently are.^{10 17} This change would accelerate the free flow of prescriptions from hospitals to retail pharmacies, encourage competition between these two settings, and ultimately reduce non-prescribed use of antibiotics in communities.

Government funding for public and professional education on the appropriate use of antibiotics is also needed. In the long term, national surveillance of non-prescription use of antibiotics and antibiotic resistant bacteria in communities would help estimate the prevalence of self medication with antibiotics and the development of resistance and guide future public policy.

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