

# Antibiotics and Antibiotic Resistance

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## Changes in patterns of antibiotic use in Chinese public hospitals (2005-2012) and a benchmark comparison with Sweden in 2012

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Changes in patterns of antibiotic use in Chinese hospitals before and after intensive nationwide interventions are reported and compared with Chinese national targets and antibiotic use in Swedish hospitals. Chinese data were collected quarterly and yearly from selected patient prescriptions/medical records and medicines inventory control systems from 15 hospitals (2005-2012). Swedish data were extracted from a 2010-point prevalence survey and 2009-2012 sales data from seven university hospitals. An interrupted time series with segmented regression analysis was used to measure changes in patterns of antibiotic use in Chinese hospitals before and after the interventions. Following the 2011 interventions, significant reductions in antibiotic use in Chinese hospitals were seen: The proportion of prescriptions with antibiotics decreased 4.7% ( $P=0.03$ ) and the proportion of medical records with antibiotic prescription decreased 7.3% ( $P=0.04$ ). The proportions of prescriptions and medical records with antibiotics in Chinese hospitals in 2012 were 10% and 50%, respectively and remained much higher than Swedish hospitals (1.1% in DDD for outpatients and 34% in number of patients for inpatients). Inpatient consumption in Chinese hospitals dropped significantly from 910 DDD/1000 inpatient days in 2008 to 473 in 2012 (588 in Swedish hospitals). Antibiotics are being used less frequently in Chinese hospitals, broad-spectrum antibiotics are still preferred and overall usage is higher than Sweden. A significant reduction in overall inpatient antibiotic consumption was observed after the interventions. It is not possible to identify whether the changes have resulted in less inappropriate antibiotic use. Further studies are needed.

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