



Highlights of [GAO-11-406](#), a report to the Committee on Agriculture, House of Representatives

Why GAO Did This Study

Infections that were once treatable have become more difficult to treat because of antibiotic resistance. Resistance occurs naturally but is accelerated by inappropriate antibiotic use in people, among other things. Questions have been raised about whether agencies such as the Department of Health and Human Services (HHS) have adequately assessed the effects of antibiotic use and disposal on resistance in humans. GAO was asked to (1) describe federal efforts to quantify the amount of antibiotics produced, (2) evaluate HHS's monitoring of antibiotic use and efforts to promote appropriate use, (3) examine HHS's monitoring of antibiotic-resistant infections, and (4) describe federal efforts to monitor antibiotic disposal and antibiotics in the environment, and describe research on antibiotics in the development of resistance in the environment. GAO reviewed documents and interviewed officials, conducted a literature review, and analyzed antibiotic sales data.

What GAO Recommends

To better control the spread of resistance, GAO recommends that HHS's Centers for Disease Control and Prevention (CDC) develop and implement strategies to improve its monitoring of (1) antibiotic use and (2) antibiotic-resistant infections. HHS generally agreed with our recommendations. HHS, the Environmental Protection Agency (EPA) and the Department of the Interior (DOI) provided technical comments, which we incorporated as appropriate.

View [GAO-11-406](#) or key components. For more information, contact Marcia Crossem at (202) 512-7114 or crossem@gao.gov

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ANTIBIOTIC RESISTANCE

Data Gaps Will Remain Despite HHS Taking Steps to Improve Monitoring

What GAO Found

Federal agencies do not routinely quantify the amount of antibiotics that are produced in the United States for human use. However, sales data can be used as an estimate of production, and these show that over 7 million pounds of antibiotics were sold for human use in 2009. Most of the antibiotics that were sold have common characteristics, such as belonging to the same five antibiotic classes. The class of penicillins was the largest group of antibiotics sold for human use in 2009, representing about 45 percent of antibiotics sold.

HHS performs limited monitoring of antibiotic use in humans and has implemented efforts to promote their appropriate use, but gaps in data on use will remain despite efforts to improve monitoring. Although CDC monitors use in outpatient healthcare settings, there are gaps in data on inpatient antibiotic use and geographic patterns of use. CDC is taking steps to improve its monitoring, but gaps such as information about overall antibiotic use will remain. Because use contributes to resistance, more complete information could help policymakers determine what portion of antibiotic resistance is attributed to human antibiotic use, and set priorities for action to control the spread of resistance. CDC's Get Smart program promotes appropriate antibiotic use; CDC has observed declines in inappropriate prescribing, but it is unclear to what extent the declines were due to the program or to other factors. CDC's program has been complemented by efforts by the National Institutes of Health and the Food and Drug Administration, such as supporting studies to develop tests to quickly diagnose bacterial infections.

Gaps in CDC's monitoring of antibiotic-resistant infections limit the agency's ability to assess the overall problem of antibiotic resistance. There are data gaps in monitoring of such infections that occur in healthcare facilities; CDC does not collect data on all types of resistant infections to make facilitywide estimates and the agency's information is not nationally representative. CDC can provide accurate national estimates for certain resistant infections that develop in the community, including tuberculosis. Although CDC is taking steps to improve its monitoring, these efforts will not allow CDC to accurately assess the overall problem of antibiotic resistance because they do not fill gaps in information. Without more comprehensive data, CDC's ability to assess the overall scope of the public health problem and plan and implement preventive activities will be impeded.

Federal agencies do not monitor the disposal of most antibiotics intended for human use, but they have detected them, as well as antibiotics for animal use, in the environment, which results partly from their disposal. EPA and DOI's United States Geological Survey have examined the presence of certain antibiotics in environmental settings such as streams. Studies conducted by scientists have found that antibiotics present in the environment at certain concentrations can increase the population of resistant bacteria.