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Environmental Health: Action Needed to Sustain Agencies' Collaboration on Pharmaceuticals in Drinking Water

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Summary

Drinking water in some metropolitan areas contains concentrations of pharmaceuticals, raising concerns about their potential impact on human health. The Safe Drinking Water Act (SDWA) authorizes the Environmental Protection Agency (EPA) to regulate contaminants, including pharmaceuticals, in public drinking water systems if they may adversely affect human health among other criteria. Pharmaceuticals may enter drinking water supplies from several pathways, including discharge from wastewater facilities. GAO was asked to provide information on the (1) extent to which pharmaceuticals occur in drinking water and their effects, if any, on human health; (2) U.S. and other countries' approaches to reducing their occurrence; and (3) challenges, if any, that EPA faces in determining whether to regulate pharmaceuticals. GAO reviewed federal and peer-reviewed reports, and surveyed a nonprobability sample of five U.S. programs designed to properly dispose of pharmaceuticals. We selected these programs based on geographic diversity and program characteristics. We also researched such programs in two countries, and interviewed scientists and agency officials.

Research has detected pharmaceuticals in the nation's drinking water. National and regional studies by the U.S. Geological Survey, EPA, and others have detected pharmaceuticals in source water, treated drinking water, and treated wastewater; but the full extent of occurrence is unknown. The concentrations detected for any one pharmaceutical were measured most frequently in parts per trillion. Research has not determined the human health effects of exposure to these concentrations of pharmaceuticals in drinking water. However, federal research has demonstrated the potential impact to human health from exposure to some pharmaceuticals found in drinking water, such as antibiotics and those that interfere with the functioning and development of hormones in humans. Some states and local governments as well as the Drug Enforcement Administration have taken actions that could reduce the extent to which pharmaceuticals occur in drinking water. These efforts have primarily been through drug take-back programs to encourage proper control and disposal of pharmaceuticals. Additional efforts have been adopted in Europe following the European Union's directive in 2004 requiring member states to have appropriate collection systems for unused or expired medicinal products. In addition to collection systems, Sweden also encourages actions such as writing small initial prescriptions to reduce the amount of pharmaceuticals that are disposed of if patients switch to a different pharmaceutical course. EPA faces challenges in obtaining sufficient occurrence and health effects data on pharmaceuticals and other contaminants in drinking water to support analyses and decisions to identify which, if any, pharmaceuticals should be regulated under SDWA. EPA is collaborating with the Food and Drug Administration and U.S. Geological Survey on research to help obtain such data but these efforts are largely informal. EPA officials said there is no formal mechanism, such as a long-term strategy or formal agreement, to manage and sustain these collaborative efforts. A recently expired interagency workgroup, which EPA co-chaired, initiated work on a research strategy to identify opportunities that will enhance collaborative federal efforts on pharmaceuticals in the environment, but its draft report did not contain key details about how the agencies will coordinate such collaborative efforts. GAO previously identified key practices for enhancing and sustaining collaboration among federal agencies, some of which may help clarify

such coordination, such as establishing the roles and responsibilities of collaborating agencies; leveraging their resources; and establishing a process for monitoring, evaluating, and reporting to the public the results of the collaborative research efforts. GAO recommends that the Administrator of EPA establish a workgroup or other formal mechanism to coordinate research on pharmaceuticals and other contaminants in drinking water. EPA agreed with the recommendation.

Recommendations

Our recommendations from this work are listed below with a Contact for more information. Status will change from "In process" to "Open," "Closed - implemented," or "Closed - not implemented" based on our follow up work.

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Recommendations for Executive Action

Recommendation: To collect the pharmaceutical occurrence and health effects data necessary to better implement SDWA, and to address the broader issue of pharmaceuticals and their relationship to other contaminants in the nation's waterways, the Administrator of EPA should establish a workgroup or other formal mechanism that includes the relevant federal agencies to collaborate and coordinate research on pharmaceuticals and, as appropriate, other contaminants in drinking water that present the greatest public health concern. In establishing this mechanism, EPA should: (1) define roles and responsibilities, including how the collaborative effort will be led; (2) identify the expertise and other resources that each agency can bring to bear on the issue; and (3) develop a process for monitoring, evaluating, and reporting to the public the results of the collaborative research efforts.

Agency Affected: Environmental Protection Agency

Status: In process

Comments: When we confirm what actions the agency has taken in response to this recommendation, we will provide updated information.