

Waterborne Disease Workshop

EXECUTIVE SUMMARY

November 19, 1997

BACKGROUND

On October 9-10, EPA held a public meeting for information exchange on issues related to developing a national estimate of endemic waterborne disease occurrence. The meeting brought together over 55 participants, including experts in the fields of epidemiology, biostatistics, public health and related fields. The experts represented academia; water utilities; government; and environmental, professional, and industry organizations.

The objectives of the workshop were to:

- provide background of the Safe Drinking Water Act (SDWA) mandate to carry out waterborne disease occurrence studies and develop a national estimate of waterborne disease incidence; - discuss how these studies fit into the larger public policy framework on providing safe drinking water; - discuss planned and ongoing epidemiological studies and EPA/CDC activities related to these mandates; - identify data gaps, research needs, and opportunities for improved methodologies; and - discuss next steps and opportunities for coordination and communication.

Topics of the workshop included: a brief review of the SDWA mandate to develop a national estimate of waterborne disease occurrence; review and discussion of current approaches to developing this national estimate, including planned and ongoing epidemiological studies, the goals and methodologies of these studies, and additional studies that might be useful in improving the national estimate.

SUMMARY

1996 SDWA Amendments: Waterborne Disease Occurrence Study

The 1996 Amendments to the SDWA require EPA and the Centers for Disease Control and Prevention (CDC) to jointly conduct waterborne disease occurrence studies and develop a national estimate of waterborne disease occurrence attributable to drinking water.

Representatives from EPA and CDC discussed ongoing and planned activities to address the mandate. EPA has redirected \$1 million of their \$10 million health effects research budget for FY 97 towards the first of a series of new epidemiological studies to be done by CDC on waterborne disease. Additional funds for this purpose are expected in FY 98, and will be made available in an open solicitation process. EPA and CDC have not decided on a research design for the next step in this process and welcomed the input of participants on this matter.

Current Approaches to Estimating National Occurrence of Waterborne Disease

EPA outlined the process the Agency currently uses to estimate drinking water related waterborne disease. In this process EPA calculates the effects of exposure to pathogens (the number of infections that occur as the result of drinking water) based on source water pathogen occurrence data, estimates of treatment effectiveness, and a dose-response relationship that defines the probability of infection resulting from exposure to drinking water pathogens.

Ongoing Epidemiological Studies

EPA and CDC representatives discussed four ongoing epidemiological studies. Newly funded studies include a cross-sectional telephone survey to estimate the incidence of gastrointestinal illness, and the first phase of a triple-blinded household intervention study to capture the percentage of illness attributable to drinking water. In the intervention study, the incidence of gastrointestinal illness will be compared for two groups of households (one with additional in-house water treatment units, and the others with sham units). Combined, these two studies can provide an estimate of gastrointestinal illness attributable to drinking water in the comparable larger population. Other ongoing studies include a community intervention study comparing the occurrence of gastrointestinal disease in a community before and after the installation of a filtration plant; and a study comparing serum *Cryptosporidium* antibody response in two communities (one with a ground water, and the other with a surface water source of drinking water) to determine what percentage of the population has been exposed to the microbe.

Discussion of Approaches Towards a National Estimate

Participants discussed several types of studies as well as issues to be addressed regarding study designs and information needed to develop a national estimate. This discussion also focused on the use of epidemiological studies to confirm the magnitude of calculated risk estimates based on source water quality and treatment information. Opportunities for epidemiologists and water utilities to collaborate in the planning and implementation of epidemiological studies at sites where extensive microbial occurrence and treatment data will be collected were also discussed. Other study approaches presented by participants included a randomized community trial, a time series study, and a randomized national household intervention study. Participants recommended these approaches be included in a "portfolio" of studies that would be used in developing a national estimate of waterborne disease incidence.

NEXT STEPS

The Agencies plan on using the workshop comments and ideas to plan the next series of research studies to develop a national estimate of waterborne disease incidence.

The workshop summary is available upon request by contacting Valerie Blank at 401 M St., S.W., MC 4607, Washington, D.C. 20460 or by e-mail at: blank.valerie@epamail.epa.gov, or by calling the SDWA Hotline at 1-800-426-4791.