

Direct from CDC

Environmental Health Services Branch

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Improving Environmental Assessments During Foodborne Outbreaks

Editor's note: NEHA strives to provide up-to-date and relevant information on environmental health and to build partnerships in the profession. In pursuit of these goals, we feature a column from the Environmental Health Services Branch (EHSB) of the Centers for Disease Control and Prevention (CDC) in every issue of the Journal.

In this column, EHSB and guest authors from across CDC will highlight a variety of concerns, opportunities, challenges, and successes that we all share in environmental public health. EHSB's objective is to strengthen the role of state, local, and national environmental health programs and professionals to anticipate, identify, and respond to adverse environmental exposures and the consequences of these exposures for human health. The services being developed through EHSB include access to topical, relevant, and scientific information; consultation; and assistance to environmental health specialists, sanitarians, and environmental health professionals and practitioners.

The conclusions in this article are those of the author(s) and do not necessarily represent the views of the Centers for Disease Control and Prevention.

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Although an investigation of an outbreak can be initiated quickly, an outbreak may be over by the time public health officials know of its existence (e.g., a local church supper outbreak). An outbreak can also occur via a contaminated ingredient moving in interstate commerce and affect persons in multiple states. The complexity of these events and the myriad avenues of response required are well known within the public health community, as is the importance of a strong public health team approach to meeting the challenges. But once an outbreak is over, how do environmental health (EH) service programs prevent similar future outbreaks?

Understanding Environmental Factors in Outbreaks

To prevent similar future events, we must develop a full understanding of the environmental factors involved in current outbreaks. To fully understand those factors, EH specialists must have the knowledge and skills to treat an outbreak event very differently from a day-to-day inspection. Environmental assessments are different from inspections in that the EH specialist

- begins with a blank sheet of paper and an open mind instead of an inspection form,
- describes the environment as a forensic investigator might, and
- closely collaborates with laboratory and epidemiology team members.

Inspections focus on potential hazards recognized and accepted by the public health community and appropriately implementing accepted control measures to mitigate those hazards. Environmental assessments, howev-

er, result in a description of the likely events that led to an outbreak. They reveal hazards recognized by the public health community and the circumstances related to implementing accepted controls for those hazards. In addition, environmental assessments reveal

- previously unrecognized hazards,
- circumstances associated with unrecognized hazards,
- unusual circumstances associated with known hazards, and
- other important information that can prevent similar outbreaks.

These distinctions between inspections and environmental assessments of outbreaks are often missed by EH specialists.

Training

To improve environmental assessments during foodborne outbreak events, the Environmental Health Services Branch (EHSB) is collaborating with federal, state, local, and industry stakeholders to develop a training course on how to conduct these assessments. This training is based on the experience of partners in the EHSB Environmental Health Specialists Network (EHS-Net). The training course is expected to launch in 2010. It will be available to EH specialists and others interested in environmental public health. Information about this training course will be posted on the EHS-Net Web site (www.cdc.gov/nceh/ehs/EHSNet) and widely disseminated.

As a follow-up to the training course, case studies focused on the environmental assessments conducted in real outbreak events will be posted on the EHS-Net Web site. These case studies will provide ongoing insights on

how environmental assessments are conducted in different scenarios and how information from these assessments should be reported to disease surveillance programs.

Existing Centers for Disease Control and Prevention (CDC) computer-based training modules related to foodborne outbreak investigation are available at www2a.cdc.gov/epicasestudies/.

Surveillance

Over 1,200 foodborne outbreaks were reported in 2006 to CDC via the National Foodborne Disease Outbreak Surveillance System. In 611 of the 1,247 foodborne outbreaks, "restaurant" was listed as the location of food consumption. These data suggest that restaurants are responsible for almost half of the foodborne outbreaks reported to CDC, and a number of studies indicate that restaurants play a role in the epidemiology of foodborne disease. Without more environmental information to put outbreak events in context, however, it is hard to know which events result from contaminated food coming into restaurants and which events originate with restaurants themselves.

Efforts are under way at CDC to address this and other challenges to our foodborne disease surveillance system. A means to systematically collect, analyze, interpret, and disseminate environmental data from foodborne disease outbreak investigations is also needed to strengthen the ability of EH service programs at all levels to formulate food safety actions and assess the effectiveness of those actions. EHSB, in collaboration with the Conference for Food Protection and other stakeholders, is working to establish such a system. The proposed National Voluntary Environmental Assessment Information System (NVEAIS) will capture detailed information regarding environmental factors identified in foodborne outbreaks and will be linked to the existing foodborne disease outbreak surveillance system at CDC. Objectives for the proposed NVEAIS are to

- establish a detailed characterization of food vehicles and monitor food vehicle trends,
- identify and monitor contributing factors and their environmental antecedents,
- establish the basis for hypothesis generation regarding factors that may support foodborne outbreak events, and

- guide the planning, implementation, and evaluation of food safety programs.

The collaborators plan to report on NVEIAS at the April 9–14, 2010, meeting of the Conference for Food Protection in Providence, Rhode Island.

Share Your Ideas

With the economic challenges they face today, EH service programs must find new ways accomplish their disease prevention goals. To begin to meet this challenge, we must entertain bold new approaches. Share your thoughts regarding the approaches described here or recommend other ways EHSB can support the important work you do every day by sending us an e-mail at ehsb@cdc.gov.

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