DIRECT FROM CDC ENVIRONMENTAL HEALTH SERVICES BRANCH

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Improving Foodborne Disease Prevention

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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Data for action is a simple public health definition of surveillance. By this definition, one form of surveillance is when food safety regulatory programs collect environmental assessment data from food establishment inspections and foodborne illness outbreak responses. These environmental assessments provide valuable data concerning the causes and antecedents of outbreaks. Program officials take action, such as a regulatory, educational, or other response, based on these data.

Food safety program officials may not consider their data collection activities to be surveillance. Yet, the importance of the data collected by these programs goes beyond the immediate regulatory or educational response that is a daily part of food safety regulation. Understanding the environmental causes of foodborne illness and outbreaks and measuring the health impact of interventions developed to prevent them require the triangulation of information from several surveillance sources. Foodborne outbreak investigations, laboratory isolation of pathogens from people who are ill, sentinel site community studies, and hazard surveillance are examples of these data sources. Food safety regulatory programs are important sources of information that can improve foodborne disease prevention and establish a foundation for measuring program health impact.

Currently, the Centers for Disease Control and Prevention (CDC) maintain three surveillance systems that capture some of the data needed to understand the epidemiology of foodborne disease. These systems are PulseNet (laboratory isolation of pathogens), FoodNet (sentinel community studies), and the National Outbreak Reporting System (NORS) (foodborne outbreaks), which is discussed in detail below.

NORS is a Web-based platform designed to support reporting of waterborne, foodborne, enteric person-to-person, and animal contact-associated disease outbreaks to CDC by state and territorial public health agencies. The system does capture some environmental factors associated with outbreaks but not in the level of detail that regulatory authorities need to take meaningful action. For example, NORS collects data on factors known to contribute to foodborne outbreaks (called *contributing factors*), such as employees cooking food at improper temperatures or working while ill. It does not, however, capture information that would explain why those factors occurred. This explanatory information would be very helpful to regulators to prevent illness and outbreaks. Many factors influence the events that lead to foodborne disease and outbreaks. Understanding this convergence of factors would help the food safety industry and regulators affect food safety educational activities, inspection practices, and policies.

Any surveillance system can capture only a limited amount of information or specific details before users become overwhelmed and find the system unacceptable. Public health au-

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thorities report to NORS the epidemiologic and clinical laboratory information from outbreaks as well as limited environmental data, such as food vehicle, contributing factors, and place of exposure. A communicable disease authority usually reports this information because it likely carried out the epidemiologic and/or clinical laboratory aspects of an outbreak investigation. Often, these authorities do not have staff dedicated to investigating and reporting foodborne outbreaks. Instead, they are most often responsible for all communicable disease investigations and reporting for their state. Adding the detailed information from the environmental assessment of a foodborne outbreak to their reporting responsibilities would be so overwhelming that those data would likely rarely be reported. At present, even the limited environmental data currently included in NORS, such as food vehicle and contributing factors, are often not reported to CDC.

In 2011, CDC will launch a companion surveillance system to NORS to capture environmental assessment data. These data will help identify factors that food safety programs can routinely monitor to prevent or reduce the risk for foodborne outbreaks associated with food service establishments. This system, called the National Voluntary Environmental Assessment Information System (NVEAIS), will enable food safety regulatory programs, the primary users of the data collected, to report their foodborne outbreak environmental assessment data directly to CDC. NVEAIS will be linked to NORS at CDC. Detailed food vehicle information, contributing factors, and other data to fill current gaps will be captured. After NVEAIS is launched and food safety programs establish their participation, CDC anticipates dropping environmental data from NORS, eliminating the minor redundancy that will initially exist.

During the April 2010 Conference for Food Protection, conference members recommended that the U.S. Food and Drug Administration (FDA) encourage food safety program participation in NVEAIS in Standard 5, Foodborne Illness and Food Defense Preparedness and Response, of the FDA Voluntary National Retail Food Regulatory Program Standards. These program standards guide regulatory retail food program managers in designing and managing a retail food regulatory program. Food safety officials accepting NVEAIS is evidence that they are determined to improve and better use data from foodborne outbreak environmental assessments. In the process, food safety officials position their data collection activities to go beyond an immediate regulatory or educational response. Instead, these activities will provide key pieces of information required to improve foodborne disease prevention and establish a foundation for measuring program health impact.

For more information on NVEAIS, please visit http://www.cdc.gov/nceh/ehs/EHSNet/nveais.htm.

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