

Committee: Infectious Diseases

Title: Expanding Foodborne and Waterborne Outbreak Reporting to Include Other Enteric Disease Outbreaks

Statement of the Problem:

The CDC has collected reports of foodborne and waterborne diseases outbreaks since the early 1970s. Foodborne and waterborne outbreak reports are collected using different reporting forms (CDC form 52.13 for foodborne outbreaks and CDC form 52.12 for waterborne outbreaks). Currently, there is no system for routinely collecting reports of enteric diseases outbreaks other than those in which the vehicle of transmission is food or water. This position statement proposes to integrate foodborne, waterborne and other enteric diseases outbreaks in one outbreak surveillance system.

The electronic Foodborne Outbreak Reporting System (eFORS) currently collects approximately 1,300 foodborne outbreaks that are reported each year from all 50 states and some large cities and territories. Foodborne outbreak reports are published on the web annually, and periodic foodborne outbreak surveillance summaries are published in the MMWR.

CDC has collected information concerning outbreaks due to *Salmonella* Enteritidis (SE) since 1985 and Shiga toxin-producing *E. coli* (STEC) since 1982, independent of the mode of transmission (i.e., foodborne, waterborne, zoonotic and person-to-person). These two pathogens received particular public health attention because of their dramatic emergence in the 1980s and 1990, and they remain important public health concerns. Before 2005, data concerning non-foodborne SE and STEC outbreaks were collected ad hoc and maintained in separate databases. In 2005, the CDC form 52.13 was amended to capture data for non-foodborne SE and STEC outbreaks and data collection was incorporated into the recent version of eFORS.

CDC, in partnership with the National Association of Public Health Veterinarians (NASPHV), has also collected information about enteric disease outbreaks from animal contact in public venues (county and state fairs, petting zoos, etc.). Since 2004, a summary of these outbreaks has been published each year in the NASPHV "Compendium of Guidelines to prevent human illness associated with animal contact in public venues". In the 2006 Compendium, the NASPHV recommended that CDC systematically and routinely collect information about enteric diseases outbreaks resulting from animal contact.

Since 1971, the CDC, the U.S. Environmental Protection Agency and the Council of State and Territorial Epidemiologists have maintained a collaborative surveillance program for the collection and periodic reporting of data on the occurrence and causes of waterborne disease outbreaks. These outbreaks have a variety of etiologies, including bacterial, parasitic, viral and chemical causes. These agents produce a wide spectrum of illness associated with waterborne disease, including but not limited to enteric, respiratory, dermatologic and neurologic illness. This system uses paper-based reporting, in which CDC 52.12 paper forms are sent to CDC by mail or facsimile. In 2001-2002, 99 waterborne disease outbreak reports were collected at CDC. Waterborne diseases outbreak surveillance summaries are published biannually in the MMWR.

Non-foodborne and non-waterborne enteric diseases outbreaks are important public health concerns, especially those due to person-to-person and environmental transmission of *E. coli*, *Shigella* and caliciviruses. Many of these outbreaks when identified, such as norovirus outbreaks in long-term care facilities, result in implementation of control measures with limited epidemiologic investigations. With the advent of molecular diagnostics for enteric viruses, particularly for noroviruses, many state public health laboratories are able to identify and confirm the etiology of a higher proportion of enteric diseases outbreaks than previously. Among foodborne outbreaks

reported on eFORS, those due to viruses more than doubled from 109 (~5,000 cases) in 2000 to 251 (~10,000 cases) in 2004, becoming the most common etiology of foodborne outbreaks. However, many additional enteric disease outbreaks are due to non-foodborne transmission, such as norovirus outbreaks in nursing homes and *Shigella* outbreaks in daycare facilities. The frequency and size of these outbreaks, often among vulnerable populations, are thought to constitute a large public health burden. Yet, these outbreaks are infrequently reported to states and are not reported to CDC. Systematic surveillance will serve to determine the magnitude of burden, trends over time and the effect of interventions for outbreaks due to these important pathogens.

Statement of the desired action(s) to be taken:

Integrate the Investigation of a Foodborne Outbreak reporting form (CDC form 52.13) and the Waterborne Diseases Outbreak Report form (CDC form 52.12); and, expand the surveillance data collection to include reports of all other enteric disease outbreaks, regardless of transmission mode, with data for these outbreaks limited, as available and collected, to such indicators as setting, agent if known, estimated number affected, and date. CSTE and CDC will collaborate to develop the report elements for these additional types of outbreaks.

Public Health Impact:

While national surveillance for foodborne and waterborne disease outbreaks currently exists, there is no routine surveillance for other vehicles in enteric disease outbreaks, such as zoonotic transmission (petting zoos, fairs, etc.) and person-to-person or environmental transmission in hospitals, daycare facilities, and conveyances (e.g., cruise ships and planes), all of which are important settings for transmission of enteric diseases. Hand washing and other environmental interventions are well-documented as measures to prevent and control this type of zoonotic or person-to-person transmission. Currently, we have no systematic means of monitoring the impact that promotion of hand washing and other measures may have on the frequency of outbreaks over time.

Surveillance for foodborne and waterborne diseases outbreaks has served to provide crucial data for the determination of the burden of disease for many pathogens, including pathogens for which case surveillance does not exist. Important benchmark studies, such as the determination of food-related illnesses and death in the United States (1), have drawn heavily from outbreak surveillance data. The attribution of illnesses to specific vehicles allows for the enhancement of policies, interventions and priorities for local, state and federal government agencies as well as consumer groups and industry. Trends in the attribution of illnesses to specific disease vehicles over time also allows for the measurement of policy and intervention effectiveness.

1. Mead PS, Slutsker L, Dietz V, et al. Food-related illness and death in the United States. *Emerg Infect Dis* 1999;5:607-25.

Coordination:

Agencies for Response:

- (1) Julie L. Gerberding, MD
Director
Centers for Disease Control and Prevention
1600 Clifton Road
Atlanta, GA, 30333
404-639-7000
jyg2@cdc.gov

Submitting Author:

- (1) Bela T. Matyas, MD
Medical Director, Epidemiology Program
Massachusetts Department of Public Health
305 South Street
Room 506
Boston, MA 02130
617-983-6847
bela.matyas@state.ma.us

Co-Author:

- (1) Christopher R. Braden, MD
Medical Epidemiologist
Centers for Disease Control and Prevention
1600 Clifton Road
Mailstop A38
Atlanta, GA 30333
404-639-2206
crb5@cdc.gov