

Q&A for the FoodNet MMWR with data from 2008

1) According to data from 2008, are we on track to reach the national targets, as specified in Healthy People 2010, for reducing foodborne illness by 2010?

There are national targets for foodborne infections caused by *Campylobacter*, *Listeria*, *Salmonella*, and Shiga toxin-producing *Escherichia coli* (STEC) O157. Although there have been significant declines in the incidence of some pathogens since surveillance began in 1996, these declines all occurred before 2004. Since then, our progress has stalled. None of these targets were met in 2008. *Salmonella* is the pathogen furthest from its national target, suggesting that reaching it will require new approaches.

2) Why has the incidence of infections caused by STEC O157 (*E. coli* O157) not changed when compared with previous years?

The incidence of STEC O157 infections has not changed in the previous three years; but there has been a significant decrease in incidence compared to the first years of surveillance (1996-1998). Reasons for the lack of change in the incidence of infections caused by STEC O157 in recent years are not fully understood. A marked decrease in STEC O157 infections occurred in 2003 and 2004, but these declines have not been maintained. One possible explanation may be a shift in the food vehicles causing illness. STEC O157 lives in the intestines of healthy cattle, and not (to any great extent) in other food animals. While ground beef continues to be an important source of STEC O157 infections, it is safer now than it was five years ago. STEC O157 from cattle ranches can get into the environment and can contaminate other animals, plant crops, and water supplies. Therefore, additional efforts to control STEC O157 in cattle and to prevent its spread to other food animals and to the environment are necessary.

3) Why has the incidence of infections caused by *Salmonella* not changed compared with previous years?

The incidence of *Salmonella* infections has not changed in the previous three years and has remained unchanged compared to the first years of surveillance. Additionally, the incidence of *Salmonella* is twice its national health objective. Reasons for the lack of change in the incidence of infections caused by *Salmonella* in recent years are not fully understood. *Salmonella* is carried in the intestines of many types of food animals and transmission of *Salmonella* to humans can occur by many routes, including consumption of food animal products (e.g., poultry, other meat, eggs), consumption of raw produce contaminated with food animal or wild animal waste, direct contact with animals and their environment, and contaminated water. Efforts are needed to more effectively prevent contamination of a variety of foods from farm-to-table. Large, multi-state outbreaks of illness associated with the consumption of new vehicles of transmission in 2008 (e.g., peanut butter and peanut paste) highlight the need to prevent contamination of commercially produced food products. Also, the outbreak associated with imported produce in 2008 highlights the need to consider imported food products. Regulatory agencies are working to introduce initiatives to respond to these trends.

4) How does the incidence of infections differ in children under 4 years of age, and what are some risk factors for these infections?

The reported incidence of *Campylobacter*, *Cryptosporidium*, *Listeria*, *Salmonella*, *Shigella*, STEC O157, and *Yersinia* infections remains highest among children aged <4 years highlighting the need for targeted interventions among this age group. FoodNet studies have shown that some of the risk factors for bacterial enteric illness among young children include riding in a shopping cart next to raw meat or poultry, visiting or living on a farm, living in a home with a reptile, and attending a day care venue. Young children are most likely to visit the doctor, which may contribute to a higher incidence of reported illnesses. Breastfeeding protects young infants and should continue to be encouraged.

5) How does outcome differ in persons over 50 years of age?

For most pathogens under surveillance, persons aged ≥ 50 years are at greater risk than are other age groups for hospitalization and death, highlighting the need for aggressive diagnosis in this age group. Clinicians should be particularly aware of diagnosing a foodborne bacterial or parasitic infection in this age group and initiating treatment early to prevent hospitalization and death due to this infection.

6) How is the incidence of infections described by FoodNet influenced by outbreaks of foodborne diseases?

Outbreaks can also cause the incidence of infections to increase. In 2004, FoodNet began collecting data on which laboratory-confirmed infections were associated with outbreaks. From 2004-2008, between 9% and 26% of STEC O157 cases each year were associated with outbreaks, and 5-7% of *Salmonella* cases were associated with outbreaks. FoodNet will continue to collect data on which infections were outbreak-associated. In future years, this will allow FoodNet to comment on how outbreaks have affected the overall incidence of foodborne disease.

7) What does the FoodNet data from 2008 tell us about the human health burden of foodborne diseases?

The FoodNet data from 2008 tell us that the incidence of infections caused by *Campylobacter*, *Cryptosporidium*, *Cyclospora*, *Listeria*, Shiga toxin-producing *Escherichia coli* O157 (STEC O157), *Salmonella*, *Shigella*, *Vibrio*, and *Yersinia* did not change significantly compared with the previous three years. The lack of recent progress points to gaps in the current food safety system and the need to develop and evaluate food safety practices at multiple levels in the farm-to-table continuum. Further measures are needed to reduce the human health burden of certain foodborne pathogens.

8) How many cases of foodborne disease are there in the United States?

While it is difficult to precisely estimate the incidence of foodborne disease, in 1999 CDC estimated that 76 million cases of foodborne disease occur each year in the United States. Although many of these cases are mild and cause symptoms for only a day or two and most people do not seek medical help, some infections result in serious illnesses. Each year, foodborne diseases are estimated to result in 325,000 hospitalizations and 5,000 deaths. The most severe cases tend to occur in the elderly, the very young, those who

already have an illness that reduces their immune system function, and in healthy people exposed to a high dose of an organism.

9) What is CDC doing to control and prevent foodborne disease?

CDC performs surveillance, investigates outbreaks, conducts research, identifies prevention measures, and provides consumer education on foodborne illnesses. CDC researchers develop new methods for identifying, characterizing and fingerprinting the pathogens or germs that cause disease. CDC also provides expert consultation to health departments and other federal agencies and assesses the effectiveness of prevention efforts.

10) What other efforts are underway to reduce foodborne illness?

Efforts to reduce contamination of meat, poultry, produce, and other foods are ongoing. In 2006, the U.S. Department of Agriculture's Food Safety and Inspection Service implemented a *Salmonella* initiative program to prevent *Salmonella* contamination of meat and poultry. Industry response to the program has resulted in a decrease in the percent-positive rate for *Salmonella* in broiler chicken from 11.4% in 2006 to 7.3% in 2008. Additionally, the percentage of broiler chicken slaughter establishments with *Salmonella* contamination rates at half or below half of the performance standard increased from 49% in 2006 to 82% in 2008 (2010 target is 90%). However, the percent of ground beef samples yielding STEC O157 increased from 0.24% in 2007 to 0.47% in 2008; it is unknown whether the increase was related to focused sampling of higher risk facilities, a change in laboratory methods, or whether the microbial load was actually higher. In August 2008, the Food and Drug Administration (FDA) published a rule allowing irradiation of fresh iceberg lettuce and fresh spinach to help protect consumers from *Salmonella* and STEC O157. FDA also piloted an advanced screening system to identify food safety threats at all borders.

Enhanced and food-specific measures are needed to 1) control or eliminate pathogens in domestic and imported food; 2) reduce or prevent contamination during growing, harvesting, and processing; and 3) continue the education of restaurant workers and consumers about risks and prevention measures. In particular, continued efforts are needed to understand how contamination of fresh produce and processed foods occurs and to develop and implement measures that reduce it. More outbreaks can be recognized and their causative foods identified with rapid and complete subtyping of pathogens and with rapid standardized interviews of ill persons and appropriately selected controls.

11) What are some limitations of the FoodNet data?

- FoodNet relies on laboratory diagnoses and changing laboratory practices may affect incidence for some pathogens, especially STEC.
- Many foodborne illnesses (e.g., norovirus) are not reported to FoodNet. Also, illnesses might have been acquired through non-food sources, so incidence rates do not reflect foodborne transmission exclusively.

- There are differences in health-care seeking behaviors by age groups and this may contribute a higher incidence of reported illnesses in certain age groups (e.g. young children).
- Although the FoodNet population is similar to the U.S. population, the findings might not be generalizable to the entire U.S. population.

12) Are the data from FoodNet representative of the entire United States?

FoodNet is a useful gauge that provides valid and reliable information about incidence and trends of foodborne illness in the United States. Since its launch in 1996, FoodNet has increased from five sites to the current ten sites, which has improved representativeness. A comparison of FoodNet data from 2005 to national census data suggested that differences in characteristics between persons who live within the FoodNet surveillance area and persons who live in the United States overall were limited. The only notable difference was the under-representation of the Hispanic population at FoodNet sites. Otherwise, data from FoodNet are generally representative of the entire United States.

13) What can consumers do to reduce the risk for foodborne illness?

Consumers can reduce their risk for foodborne illness by following safe food-handling and preparation recommendations and by avoiding consumption of unpasteurized milk, raw or undercooked oysters, or other raw or undercooked foods of animal origin such as eggs, ground beef, and poultry. Risk also can be decreased by choosing pasteurized eggs, high pressure-treated oysters, and irradiated produce. Everyone should wash hands before and after contact with raw meat, raw foods derived from animal products, and animals and their environments. More detailed information on food safety practices is available at www.foodsafety.gov and www.fightbac.org.