

Q&A for the FoodNet MMWR with data from 2009

1) According to data from 2009, are we on track to reach the national targets, as specified in Healthy People 2010, for reducing foodborne illness by 2010?

Healthy People 2010 set national targets for foodborne infections caused by *Campylobacter*, *Listeria*, *Salmonella*, and Shiga toxin-producing *Escherichia coli* (STEC) O157. The target for STEC O157 infection was met in 2009. Although there have been significant declines in the incidence of infection with *Campylobacter*, *Listeria* and STEC O157 since FoodNet surveillance began in 1996, the most marked declines for these infections occurred before 2004. Since then, progress in reduction of incidence of these infections has been minimal. The incidence of both *Campylobacter* and *Listeria* infections is still above Healthy People 2010 targets. A modest reduction in the incidence of *Salmonella* infection has occurred since 1996; the incidence of *Salmonella* infection remains the farthest from its national target. Meeting these targets will likely require new approaches to prevention.

2) Why is the incidence of infections caused by *Salmonella* the farthest away from its target?

Salmonella infection is a complicated problem that is not likely to be controlled by any one measure. There are different types of *Salmonella* that are carried in the intestines of many different kinds of food animals and wild animals, and transmission of *Salmonella* to humans can occur in a number of different ways. *Salmonella* can spread through contaminated food, including foods of animal origin, raw produce, and processed foods but can also be spread by contact with animals that carry *Salmonella* as seen in recent outbreaks involving turtles, water frogs, and chicks. Comparing 2009 with the first three years of FoodNet surveillance (1996-1998), there has been a modest but statistically significant decrease in the incidence of *Salmonella* infection. However, there has been no substantial change in recent years. More efforts are needed to prevent contamination of a variety of foods from farm-to-table. Regulatory agencies are working to introduce initiatives to reduce contamination. *Salmonella* can also spread through contact with reptiles and frogs and, rarely, through water.

3) What is happening with *Listeria* infections?

The modest increase in the incidence of *Listeria* infection from 2008 to 2009 is concerning; however, the incidence of *Listeria* infection continues to be substantially lower than at the start of FoodNet surveillance. The increase in incidence of *Listeria* infection observed between 2008 and 2009 occurred primarily among persons aged ≥ 50 years; the incidence in other age groups has not changed substantially.

4) What is happening with *Shigella* infections?

In 2009, compared with the preceding three years (2006-2008), we observed significant decreases in the incidence of *Shigella* infection (27%). This decrease is not likely to be related to any foodborne disease prevention efforts as *Shigella* infections are most often transmitted directly from one person to another (rather than through contaminated food) and are known to increase and decrease over multiple-year periods. In 2009, compared to

2008, fewer *Shigella* infections were reported in all age groups, with the most dramatic decrease in reports in children aged <11 years.

5) Why is the incidence of so many of these infections higher in young children, and what are some risk factors for these infections in young children?

The reported incidences of *Salmonella*, *Campylobacter*, *Shigella*, *Cryptosporidium*, STEC O157, STEC non-O157, and *Yersinia* infections were highest among children aged <4 years. Young children are more likely than persons in other age groups to be brought to medical attention for diarrheal illness, and this is part of the explanation. However, young children also have little immunity and are at highest risk for many infections. Studies in young children have identified various food and non-food exposures that can increase the risk of infection with these pathogens including visiting a farm, riding in a shopping cart alongside meat and poultry, and contact with baby chicks, turtles, and water frogs. Breastfeeding provides important protection to young infants and should continue to be encouraged.

6) How do people get *Vibrio* infections and how can they be prevented?

Vibrio is a naturally occurring organism commonly found in marine waters, including the Gulf, Atlantic, and Pacific. Most *Vibrio* infections are due to eating raw oysters. Infections are most common during the warm months, when oysters often contain high numbers of *Vibrio* organisms. Infections can be prevented or reduced by rapidly refrigerating oysters after harvest, treating oysters at processing plants with heat, freezing or high pressure, or by thorough cooking. Continued *Vibrio* illnesses highlights the lack of implementation of readily available control measures.

7) Why are the hospitalization and death rates for so many of these infections higher in older adults?

For infections with most pathogens under FoodNet surveillance, persons aged ≥ 50 years are at greater risk than are other persons for hospitalization and death, probably reflecting the fact that many older adults have other health issues that put them at higher risk for severe illness if they get one of these infections. These data highlight the need for prompt diagnosis and treatment in this age group.

8) How is the incidence of infections in FoodNet influenced by outbreaks of foodborne diseases?

In 2004, FoodNet began routinely tracking which of the laboratory-confirmed infections reported were associated with outbreaks. The great majority of cases are not related to outbreaks. From 2004-2009, 9-27% of cases of STEC O157 infection and 5-8% of cases of *Salmonella* infection were associated with outbreaks each year. The overall trends described in the *MMWR* report are not substantially different if outbreak-related cases are excluded from the totals.

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

CDC is part of the U. S. Public Health Service, with a mission to use the best scientific methods and information available to monitor, investigate, control and prevent public health problems. Using the tools of epidemiology and laboratory science, CDC provides

scientific assessment of public health threats. CDC works closely with state health departments to monitor the frequency of specific diseases and conducts national surveillance for them. CDC provides expert epidemiologic and microbiologic consultation to health departments and other federal agencies on a variety of public health issues, including foodborne diseases. At the invitation of state public health officials, CDC can also send a team into the field to help conduct emergency field investigations of large or unusual outbreaks. CDC researchers develop new methods for identifying, characterizing and fingerprinting the microbes that cause disease and translate laboratory research into practical field methods that can be used by public health authorities in States and counties.

CDC is not a regulatory agency. Government regulation related to food safety is the responsibility of the Food and Drug Administration (FDA), the Food Safety and Inspection Service of the U.S. Department of Agriculture (USDA), the National Marine Fisheries Service, and other regulatory agencies. CDC maintains regular contact with the regulatory agencies.

When new public health threats appear, CDC, in collaboration with its public health partners, conducts epidemiologic and laboratory investigations to determine what they are and how they can be controlled. These results are then shared widely, including with the food industry. Although CDC does not regulate the safety of food, CDC assesses the effectiveness of current prevention efforts. CDC provides independent scientific assessment of what the problems are, how they can be controlled, and where gaps exist in our knowledge.

While much of CDC's efforts focus on innovations in detecting outbreaks and tracking foodborne illnesses in the US, we also provide our health information when, where, and how people need it in order to make decisions that can protect their health. You can find more information on foodborne illness and CDC's prevention activities at http://www.cdc.gov/ncidod/dbmd/diseaseinfo/foodborneinfections_g.htm

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

There are many partners in prevention of foodborne illness, including state and federal public health authorities, the federal food regulatory authorities, the food industry, consumer and patient advocacy groups, and consumers themselves. Enhanced measures are needed to 1) control or eliminate pathogens in domestic and imported food; 2) reduce or prevent contamination of food during growing, harvesting, and processing; and 3) continue the education of all food-handlers, including 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. CDC is working with state health departments on ways to detect and investigate outbreaks more quickly, to identify the foods that cause them so more disease can be prevented.

11) What are some limitations of the FoodNet data?

- FoodNet relies on diagnoses made in clinical laboratories. Changing laboratory practices may affect the reported incidence of infection for some pathogens, even if the true incidence doesn't change. FoodNet is monitoring the impact of these changes. In addition, some infectious agents, such as norovirus, that are transmitted commonly through food are not under surveillance in FoodNet, because these pathogens are not identified routinely in clinical laboratories.
- Some illnesses might have been acquired from non-food sources, so incidence rates do not reflect foodborne transmission exclusively.
- Although the FoodNet population is similar demographically to the U.S. population, the findings might not be representative of the entire U.S. population.
- Hospitalizations and deaths reported to FoodNet may or may not be due to the specific infection, since hospitalization and death are reported to FoodNet whenever they occur within 7 days of the diagnosis of infection.

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

FoodNet is a useful tool that provides valid and reliable information about incidence and trends of foodborne illness in the United States; however it does not include the entire country. Since its launch in 1996, FoodNet has increased from five sites to ten sites, which has improved its representativeness. It now covers about 15% of the US population, more than 46 million people. A comparison of FoodNet demographic data from 2005 with national census data shows that persons who live within the FoodNet surveillance area resemble the entire United States population demographically. The only notable difference was the under-representation of the Hispanic population in FoodNet sites.

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 raw or undercooked foods of animal origin such as eggs, ground beef, and poultry; unpasteurized milk; and raw or undercooked oysters. Risk also can be decreased by choosing pasteurized milk and eggs, high pressure-treated oysters, and irradiated food products. Everyone should also wash hands after contact with animals and their environments.

Food preparers should follow the easy lessons of "Clean, Separate, Cook, and Chill":

- Clean - Wash hands, utensils, and cutting boards before and after contact with raw meat, poultry, seafood, and eggs to avoid spreading bacteria when preparing food.
- Separate - Use different cutting boards for meat, poultry, seafood, and vegetables and keep raw meat, poultry, seafood, and eggs apart from foods that won't be cooked.
- Cook – Use a food thermometer - you can't tell if a food item is done by how it looks.
- Chill - Keep your refrigerator at 40 degrees or below to keep bacteria from growing and chill leftovers and takeout foods within 2 hours.

More detailed information on food safety issues and practices, including steps consumers can take to protect themselves, is available at www.foodsafety.gov, and www.foodsafetyworkinggroup.gov.