



Senior Citizens and Foodborne Diseases

The U.S. Centers for Disease Control and Prevention, or CDC, estimates that each year, 1 in 6 Americans—48 million people—suffers from a foodborne illness, resulting in 128,000 hospitalizations and 3,000 deaths.¹ Senior citizens (those age 65 and older) are particularly at risk and may experience conditions such as chronic illness or disability and undergo major surgeries, which can exacerbate susceptibility to foodborne illnesses and their resulting complications. Some die from these preventable illnesses, and many others suffer lasting health problems.

Factors that put senior citizens at higher risk for foodborne illness²

- Immune system function decreases with age, which makes it harder for the body to fight infections.
- Chronic diseases and ailments such as malnutrition and immobility occur at high rates in seniors and can increase their vulnerability to infections.
- Changes in the digestive system of older adults can reduce their production of stomach acid, which is an important defense against foodborne pathogens. The frequent use of antacids and antibiotics can further hamper acid production and can disrupt beneficial bacteria in the gut that offer some protection from harmful foodborne contaminants. Older adults also typically exhibit slower digestion, giving pathogens an extended amount of time to colonize and infect the body.

By the numbers: Seniors and foodborne illness

- According to CDC's most recent surveillance data, the highest percentages of persons who were hospitalized with foodborne illness and who eventually died from infection were those age 65 and older.³

Senior citizens are especially vulnerable to infections caused by *Listeria*, *Salmonella*, *Escherichia coli* O157:H7, and *Vibrio*.

- From 2011 to 2013, seniors were affected by 30 of the 31 multistate foodborne outbreaks listed on CDC's website* that identified the age range of patients and the food source of transmission, including two outbreaks of *Listeria monocytogenes* infections in 2011 and 2012 linked to imported ricotta cheese and cantaloupe grown in the United States. In these outbreaks, the median age of the victims was 77.⁴
- According to the CDC database, from 1998 to 2012 nearly 200 foodborne outbreaks, with confirmed and suspected sources, occurred in nursing homes, and/or assisted-living facilities, resulting in 6,415 illnesses, 330 hospitalizations, and 54 deaths.⁵
 - These constitute only a small fraction of the total estimated number of foodborne illnesses among seniors. A vast majority of the illnesses do not occur during outbreaks and often go underreported and underdiagnosed.⁶
- Senior citizens are especially vulnerable to infections caused by *Listeria*, *Salmonella*, *Escherichia coli* O157:H7, and *Vibrio*. (See Figures 1 and 2.)
- The most recent data from 2013 found that the highest incidences of *Cyclospora*, *Listeria*, and *Vibrio* infections appeared in adults age 65 or older.⁷
 - In 2013, 12 percent of foodborne infections, 23 percent of hospitalizations, and 51 percent of deaths captured in the Foodborne Diseases Active Surveillance Network (FoodNet) system† occurred among adults 65 years of age or older.⁸
 - A recent study using data from FoodNet found that the risk of contracting a *Listeria* infection increases dramatically with age. Individuals ages 70 to 79, 80 to 84, and 85 and older are, respectively, almost 29, 38, and 54 times more likely to get sick than those ages 15 to 44.⁹
 - Elderly people have higher rates of invasive *Salmonella* infections.‡
 - In FoodNet surveillance sites, people age 60 years and older with invasive *Salmonella* infections experienced the highest hospitalization rates. In addition, 45 percent of the deaths from this illness occurred in people in this age group.¹⁰
- Seniors are not any more susceptible to illnesses from *Campylobacter* than the general population. However, hospitalizations and long-term health consequences such as Guillain-Barré syndrome occur at higher rates in older individuals.¹¹ (See Figure 2.)

* The selected multistate outbreaks listed on CDC's website do not represent the totality of those reported to the agency during that period.

† The Foodborne Diseases Active Surveillance Network (FoodNet) conducts surveillance for *Campylobacter*, *Cryptosporidium*, *Cyclospora*, *Listeria*, *Salmonella*, Shiga toxin-producing *Escherichia coli* (STEC) O157:H7 and non-O157, *Shigella*, *Vibrio*, and *Yersinia*. The network is a collaborative program among CDC, 10 state health departments, the U.S. Department of Agriculture's Food Safety and Inspection Service, and the Food and Drug Administration. The surveillance area includes 15 percent of the U.S. population (about 48 million people).

‡ An "invasive infection" arises when the bacterium enters the bloodstream or other parts of the body that are usually sterile, such as the brain, and causes a systemic infection.

Policy recommendations

Infants and young children, pregnant women, older adults, and people with weakened immune systems are at highest risk for serious foodborne illnesses. Therefore:

- When setting food safety standards, policymakers and regulators should consider the greater impact of these illnesses on at-risk populations.
- Congress must ensure that the Food and Drug Administration receives adequate resources to fully implement the FDA Food Safety Modernization Act, which includes new requirements that food producers must adopt to reduce the incidence and spread of foodborne diseases

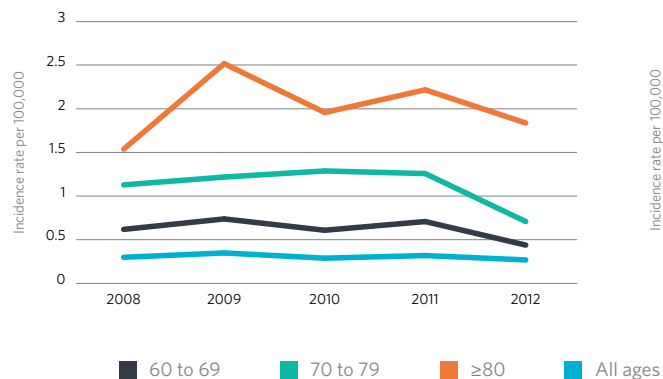
Learn more at www.pewtrusts.org/foodsafety.

Figure 1

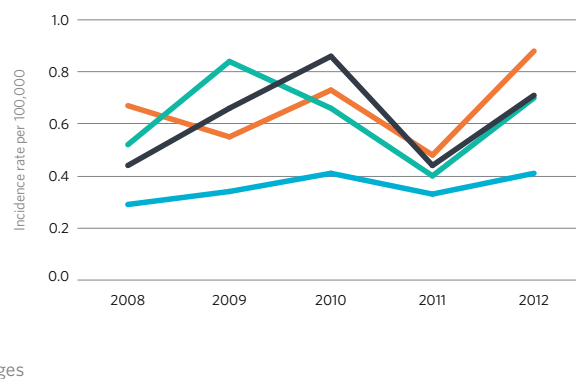
People Age 60 and Up Are Especially Vulnerable to *Listeria* and *Vibrio* Infections

Incidence of *Listeria* and *Vibrio* illnesses per 100,000 people, 2008-12

Listeria



Vibrio



Source: FoodNet Annual Reports-final data, <http://www.cdc.gov/foodnet/data/reports.html>.

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For information on safe food handling practices that can minimize the risk of contracting a foodborne illness, go to:

<http://www.fightbac.org/safe-food-handling>

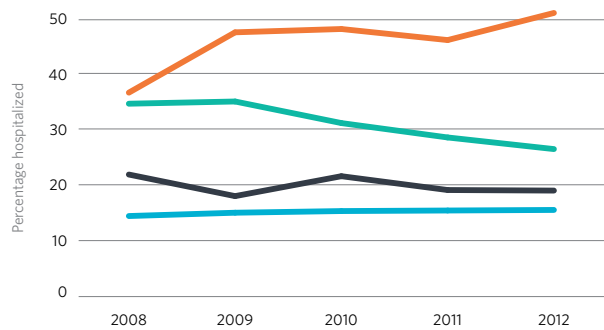
In FoodNet surveillance sites, people aged 60 years and older with invasive *Salmonella* infections experienced the highest hospitalization rates. In addition, 45 percent of the deaths from this illness occurred in people in this age group.

Figure 2

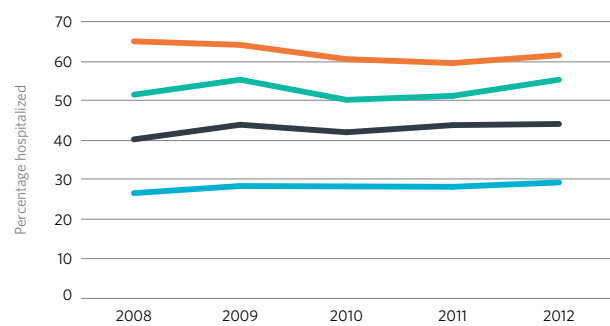
Foodborne Illnesses Often Lead to Hospital Stays for People Age 60 and Up

Proportion of people hospitalized for *Campylobacter*, *Salmonella*, *E. coli* O157:H7, and *Vibrio* illnesses, 2008-2012

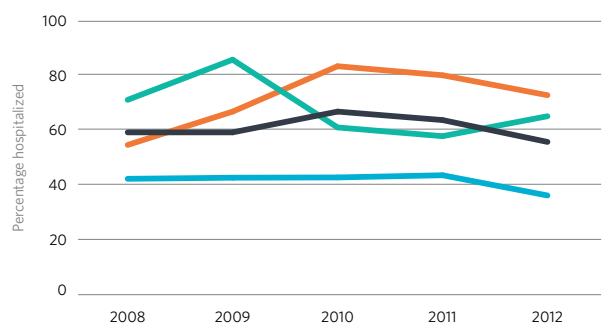
Campylobacter



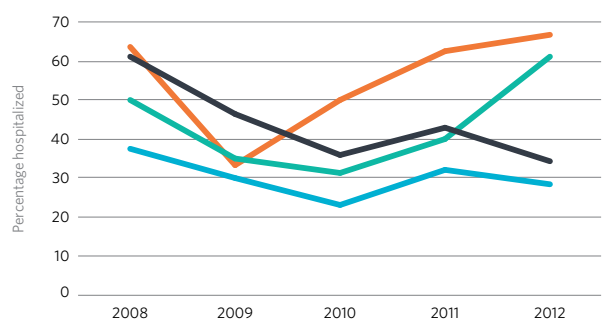
Salmonella



E. coli O157:H7



Vibrio



60 to 69
 70 to 79
 ≥80
 All ages

Sources: FoodNet Annual Reports-final data, <http://www.cdc.gov/foodnet/data/reports.html>.

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Endnotes

- 1 Elaine Scallan, et al., "Foodborne Illness Acquired in the United States—Major Pathogens," *Emerging Infectious Diseases* 17 (2011): 7–15, doi:10.3201/eid1701.P11101; and Elaine Scallan et al., "Foodborne Illness Acquired in the United States—Unspecified Agents," *Emerging Infectious Diseases* 17 (2011): 16–22, doi:10.3201/eid1701.P21101.
- 2 Patricia A. Kendall, et al., "Food Safety Guidance for Older Adults," *Clinical Infectious Diseases* 9 (2006): 1298–1304, doi:10.1086/503262; and Extension Service, "Seniors and Food Safety: Why Are Seniors at Risk for Foodborne Illness?" North Dakota State University, accessed May 1, 2014, <http://www.ag.ndsu.edu/pubs/yf/foods/fn698.pdf>.
- 3 Centers for Disease Control and Prevention, "Tables and Figures—2013 Preliminary Data," accessed May 1, 2014, <http://www.cdc.gov/foodnet/data/trends/tables-2013.html>.
- 4 Centers for Disease Control and Prevention, "List of Selected Multistate Foodborne Outbreak Investigations," accessed May 1, 2014, <http://www.cdc.gov/foodsafety/outbreaks/multistate-outbreaks/outbreaks-list.html>; Centers for Disease Control and Prevention, "Multistate Outbreak of Listeriosis Linked to Imported Frescolina Marte Brand Ricotta Salata Cheese (Final Update)," accessed May 5, 2014, <http://www.cdc.gov/listeria/outbreaks/cheese-09-12/index.html>; and Centers for Disease Control and Prevention, "Multistate Outbreak of Listeriosis Linked to Whole Cantaloupes From Jensen Farms, Colorado," accessed May 5, 2014, <http://www.cdc.gov/listeria/outbreaks/cantaloupes-jensen-farms/120811/index.html>.
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- 8 Centers for Disease Control and Prevention, "Tables and Figures—Preliminary Data 2013," accessed May 27, 2014, <http://www.cdc.gov/foodnet/data/trends/tables-2013.html>.
- 9 Regis Pouillot et al., "Relative Risk of Listeriosis in Foodborne Diseases Active Surveillance Network (FoodNet) Sites According to Age, Pregnancy, and Ethnicity," *Clinical Infectious Diseases* 54 (2012): S405–S410, doi: 10.1093/cid/cis269.
- 10 Duc J. Vugia et al., "Invasive Salmonella Infections in the United States, FoodNet, 1996–1999: Incidence, Serotype Distribution, and Outcome," *Clinical Infectious Diseases* 38 (2004): S149–S156.
- 11 James L. Smith, "Foodborne Illness in the Elderly," *Journal of Food Protection* 9 (1998): 1229–39.

For further information, please visit:

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