

Outbreak of *Salmonella* Associated with a Restaurant—Connecticut, May 2014

On May 23, 2014, the Connecticut Department of Public Health (DPH) Epidemiology Program was notified by a hospital epidemiologist of two hospitalized patients, one with culture confirmed *Salmonella* and the other with illness clinically compatible with salmonellosis from whom a culture was pending. Both patients reported eating at the same food service establishment (FSE) before their illness onsets. Separately, the DPH Food Protection Program (FPP) received food complaints from two individuals with illnesses clinically compatible with salmonellosis following meals at the same FSE. This report summarizes the findings of the foodborne outbreak investigation conducted by the DPH and the local health department (LHD).

Epidemiologic Investigation. The two hospitalized patients were interviewed to characterize their illness and exposures. Patients from the geographic area who tested positive for *Salmonella* Enteritidis (SE) were interviewed to determine exposure to the FSE and any food items consumed from the establishment. A confirmed case was defined as a Connecticut resident with laboratory confirmed SE who ate at the FSE during May 2014. A probable case was defined as a clinically compatible illness without culture confirmation in a person who ate at the FSE during May 2014. A total of 6 confirmed and 2 probable cases were identified; all were from one county. The mean age of all cases was 32 (range 18-63) years; 5 (57%) were male.

All case-patients reported eating items containing cooked chicken at the FSE during May 15-21, 2014. Illness onsets occurred during May 16-25 (Figure 1). The median time between meal consumption and onset of symptoms was 28 (range 7-84) hours. Of the 8 confirmed and probable cases, 8 (100%) involved diarrhea, vomiting, and fever greater than 101°F; 1 (13%) involved bloody diarrhea. Three (38%) patients were hospitalized for 1 to 7 days (median 6 days).

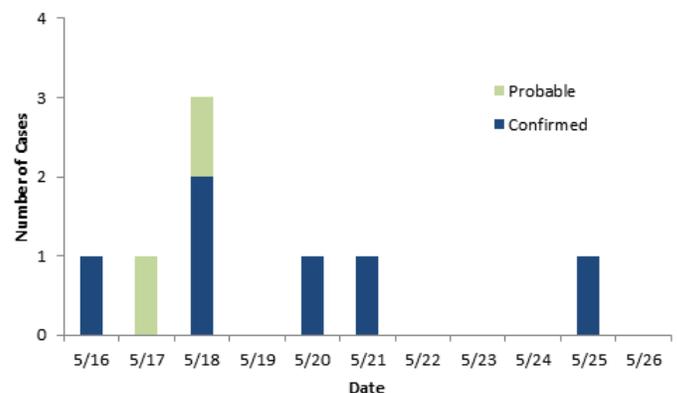
In this issue...

Outbreak of <i>Salmonella</i> Associated with a Restaurant—Connecticut, May 2014	21
Connecticut's Progress in Meeting National HIV/AIDS Strategy Goals	23
Influenza Testing Procedures During the 2014-2015 Flu Season	24

Laboratory Investigation. Clinical *Salmonella* isolates underwent serotyping and pulsed field gel electrophoresis (PFGE) at the DPH State Laboratory. Of the 6 confirmed cases, 4 had PFGE pattern A and 2 had PFGE pattern B. Food worker stool samples were collected and tested at the DPH State Laboratory for *Campylobacter*, *Escherichia coli* O157:H7, *Salmonella*, and *Shigella*. Three of the 14 food workers had stool cultures that yielded *S. Enteritidis* pattern A. Samples of cooked chicken, raw marinated chicken, raw breaded chicken, and environmental swabs obtained from the FSE were tested at the DPH Laboratory. Multiple *Salmonella* serotypes were isolated from the chicken samples. Environmental swabs tested negative. *S. Kentucky* was isolated from cooked chicken, raw breaded chicken and raw marinated chicken. *S. Typhimurium* was isolated from raw marinated chicken. *S. Enteritidis*, including the predominant PFGE pattern A, was isolated from raw marinated chicken.

Environmental Investigation. On May 23, 2014, the LHD obtained samples of cooked chicken, raw marinated chicken, and raw breaded chicken

Figure 1. *Salmonella* Enteritidis cases by date and time of onset—Connecticut, May 2014.



from the FSE. All employees were interviewed about their health status and food preparation practices and given stool collection kits to test for enteric pathogens, including *Salmonella*. One food worker admitted to gastrointestinal symptoms. Practices observed that may have contributed to the outbreak included undercooking of chicken, improper hot and cold holding of chicken, and bare hand contact with raw and cooked chicken.

The FSE closed voluntarily to allow time for the investigation and for cleaning; it reopened on May 24. On May 30, the restaurant closed voluntarily after laboratory results for 3 food workers yielded *Salmonella*; the LHD obtained environmental samples and issued a closure order. Positive food workers again denied having any symptoms. The restaurant was allowed to reopen May 31 after cleaning by a commercial company, exclusion of positive employees, and other control measures. Based on additional *Salmonella*-positive food worker results, the LHD issued a closure order on June 20. Reopening, which occurred on July 28, was based on fulfillment of specified requirements including retraining of the Qualified Food Operator (a person who has demonstrated food safety knowledge usually by passing an approved national certified food manager exam) and of all food workers, modifying the menu to include only commercially precooked chicken, replacing all food, two negative stool cultures from all food workers, supervision of kitchen activities by a food safety consultant, and the provision of written standard operating procedures.

Reported by

J. Mullins DVM, MPH, PhD, T. Rabatsky-Ehr, MPH, and Q. Phan, MPH Epidemiology and Emerging Infections Program; C. Applewhite, RS, T. Weeks, MS, RS Food Protection Program; A. Eslinger, L. Mank, K. Holmes-Talbot, C. Nishimura, State Public Health Laboratory, Connecticut Department of Public Health; FoodCORE student interview team, Yale Emerging Infections Program, New Haven, CT; Local Health Department staff

Editorial

Salmonella can be transmitted through contaminated food or water and is a common cause of diarrheal illness and food-borne outbreaks. Symptoms associated with *Salmonella* infections include fever, abdominal cramps, and diarrhea. Typically, illness begins 12 to 72 hours after a person consumes a contaminated food or beverage and lasts 4 to 7 days. Most persons recover without antibiotic treatment; some persons may require hospitalization.

Salmonella serotype Enteritidis (SE) is one of the most commonly reported serotypes. In the United States during 2009-2010, 76 food-borne outbreaks were associated with the serotype (1). Outbreaks of SE are often associated with eggs and poultry, primarily chicken. Chickens raised for food can carry the bacteria without becoming ill; meat can become contaminated during slaughter. Inadequate cooking, inadequate holding temperature, contamination of food preparation surfaces, or improper hand washing can increase risk of infection with SE.

Epidemiological evidence suggested contaminated cooked chicken from the FSE was consumed by ill persons. No cases of salmonellosis with meals consumed after the LHD removed chicken from the restaurant were identified. Because it is estimated that fewer than 3% of *Salmonella* infections are reported, this outbreak likely involved more persons than the 8 identified (2). The finding of *Salmonella* in already cooked chicken indicates the chicken was either undercooked or became cross-contaminated after cooking. Inadequate cooking and holding temperatures were noted during the environmental investigation. The observed bare hand contact could also have led to contamination of cooked chicken.

This investigation was complicated when a food worker submitted a stool sample under another food worker's name. As a result, all food workers were tested again. Food worker testing is an important component of foodborne outbreak investigations. The cooperation of restaurant owners and food workers is essential to outbreak investigations and reduces the impact on businesses.

This outbreak highlights the importance of timely reporting of suspected outbreaks by health care providers and the public. Investigations of foodborne outbreaks such as this one are critical in assessing the burden of foodborne disease in Connecticut and nationally. The identification of specific factors during this investigation led to the control of the outbreak.

References

1. CDC. [Surveillance for Foodborne Disease Outbreaks—United States, 2009-2010](#). MMWR. 2013; 62(03);41-47.
2. Voetsch AC, Van Gilder TJ, Angulo FJ, et al. [FoodNet estimate of the burden of illness caused by nontyphoidal *Salmonella* infections in the United States](#). Clin Infect Dis 2004;38:S127--34.

Connecticut's Progress in Meeting National HIV/AIDS Strategy Goals

The HIV Surveillance program at the State Department of Public Health (DPH) has monitored HIV in Connecticut for over 30 years. Surveillance has changed over time from collecting data that initially captured basic demographic and risk information, to a system that collects specific laboratory tests that can identify stages of disease, connections to healthcare, and specific care outcomes.

Federal and state goals have shifted from using surveillance data only as way to identify the burden of disease and how it is transmitted, to using data to determine utilization of health care and prevention services. In 2010, the federal government implemented a [National HIV/AIDS Strategy](#) with 3 primary goals that included 1) reducing HIV incidence, 2) increasing access to care and optimizing health outcomes for people living with HIV, and 3) reducing HIV related health disparities (1). HIV surveillance plays an integral part in tracking progress towards those goals. This report gives an overview on how Connecticut is progressing to meet the National HIV/AIDS Strategy goals.

HIV first became reportable to the DPH in 2002. Since then, the DPH, in conjunction with its public and private sector partners such as Ryan White agencies, community health centers, and private clinicians, has reduced the number of HIV infections in Connecticut residents. From 2002-2012, the number of newly diagnosed cases dropped 64% (827 in 2002 to 295 in 2012). During 2008-2012, rates of new diagnoses have remained relatively stable with an average of 353 cases diagnosed each year.

Connecticut is currently meeting a National Strategy 2015 goal with 85% of newly diagnosed cases linked to care within three months in 2011, and 87% in 2012. Even higher rates are seen with linkage within twelve months of diagnosis with 93% linked within a year for 2011 and 2012.

Recent trends have shown a widening gap between men who have sex with men (MSM) and injection drug users (IDU) with 53% of cases attributed to MSM in 2012 versus 14% IDU. MSM as a transmission category increased from 22% of newly reported cases in 2002 to 53% in 2012.

Reported by

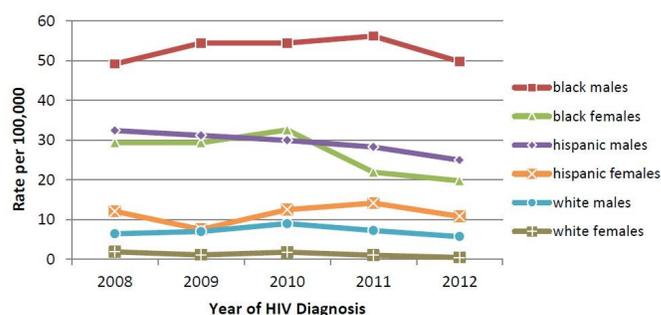
S. Speers, MPH, L. Sosa, MD, TB-HIV-STD & Viral Hepatitis; S. Major, HIV Prevention, Connecticut Department of Public Health

Editorial

The DPH, in line with the National HIV/AIDS Strategy, recently published the [DPH State Health Improvement Plan](#) that calls for a reduction in newly diagnosed HIV infections (2). Although newly diagnosed cases of HIV have been on the decline, disparities still exist. Black/African Americans and Hispanics/Latinos, were diagnosed in 2012 at a rate of approximately 12 and 6 times respectively that of whites, with consistently higher rates in current years being seen in black/African American males (Figure 1). In addition to racial and ethnic disparities, disparities also exist in risk populations. Prevention efforts aimed at IDU, which was the largest HIV at risk population during the early years of the epidemic, have proven effective. To reach the current goals, the DPH recently adjusted its prevention strategies to focus on education, condom distribution, outreach testing and linkage, routine testing in healthcare settings, and cost effective interventions aimed at MSM and minority groups. These high impact prevention strategies are supported and recommended by the Centers for Disease Control and Prevention (CDC).

Racial and at risk disparities are also seen nationally. The HIV/AIDS Strategy targets for 2015 look to increase by 20% the proportion of HIV positive MSM, black/African American and Hispanic/Latino individuals with undetectable viral loads. The DPH began monitoring this indicator in 2011 and has seen an increase in each of the cohorts (Figure 2, page 24). As a requirement of funding, the DPH, working with public partners, ensures newly diagnosed cases are linked to a healthcare provider within three months of diagnosis, with the

Figure 1. Rate of newly diagnosed HIV cases by sex and race, Connecticut, 2008-2012.



ultimate goal of treatment. Research has found that care and treatment lead to reduced HIV transmission and allow people living with the disease to live longer and healthier lives (3). Increasing access to care and improving health outcomes is a national and state goal.

Lost to follow-up and re-linkage to care for people living with HIV is a difficult challenge for the DPH and other providers. In 2015, the DPH and Yale University will launch a pilot program, funded by a CDC grant, that will link people living with HIV who currently do not receive healthcare, to providers.

Using HIV surveillance data to monitor the progress towards obtaining the goals and objectives outlined in the National HIV/AIDS Strategy, the [Health and Human Services Performance Measures](#), and the State Health Improvement Plan will allow the DPH and its partners to re-assess and adjust its programs and outreach as necessary. Reaching these goals will be key to preventing new infections and reducing HIV morbidity and mortality.

References

1. National HIV/AIDS Strategy for the United States, July 2010, accessed at <http://www.whitehouse.gov/administration/eop/onap/nhas>.
2. Connecticut Department of Public Health. 2014. *Healthy Connecticut 2020. 2: State Health Improvement Plan*. Hartford, CT: Connecticut Department of Public Health, p.77.
3. Cohen MS, Chen YQ, McCauley M, et al. Prevention of HIV-1 infection with early antiretroviral therapy. *N Engl J Med* 2011;365:493-505.

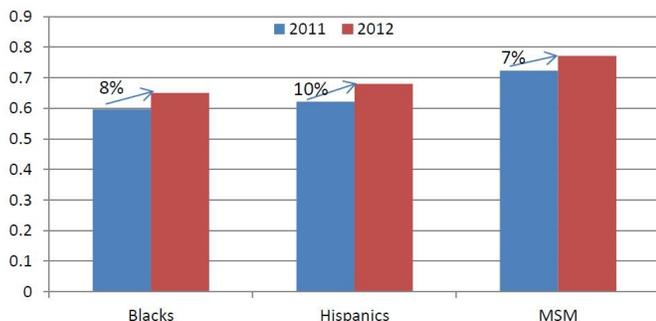
Influenza Testing Procedures During the 2014-2015 Flu Season

To identify influenza virus types, subtypes and strains circulating in Connecticut during the influenza season, the Department of Public Health (DPH) offers influenza testing for:

1. Hospitalized patients with influenza-like illness (ILI) (request influenza testing)
2. Patients (especially children less than 18 years of age) with ILI and recent exposure to swine at farms and agricultural fairs (request influenza testing, note possible swine exposure)
3. Patients with pneumonia and/or Acute Respiratory Distress Syndrome (ARDS) developing within 10 days of travel to Southeast Asia or within 14 days of travel to the Arabian Peninsula (request flu testing, note travel history, contact the DPH Epidemiology Program at 860-509-7994 regarding possible Middle East Respiratory Syndrome Coronavirus [MERS-CoV] testing)
4. Selected non-hospitalized patients with ILI associated with outbreaks in long-term care facilities or schools, if approved by the DPH Epidemiology Program at 860-509-7994.

Health care providers may call the DPH Laboratory at 860-920-6662 for questions on preparing specimens for shipping. Testing is provided at no cost for patients in one of the above listed categories. Viral reference collection kits (VR-C) can be ordered from the DPH laboratory at 860-920-6674 or 860-920-6675. All other questions regarding influenza and respiratory virus testing may be directed to the DPH Epidemiology and Emerging Infection Program at 860-509-7994.

Figure 2. Adolescent and adult residents in care and living with HIV with undetectable viral load, Connecticut, 2011-2012.



<p>Jewel Mullen, MD, MPH, MPA Commissioner of Public Health</p> <p>Matthew L. Cartter, MD, MPH State Epidemiologist</p> <p>Lynn Sosa, MD Deputy State Epidemiologist</p>	<p>Epidemiology and Emerging Infections 860-509-7995 Healthcare Associated Infections 860-509-7995 HIV & Viral Hepatitis 860-509-7900 Immunizations 860-509-7929 Sexually Transmitted Diseases (STD) 860-509-7920 Tuberculosis Control 860-509-7722</p>	<p>Connecticut Epidemiologist</p> <p>Editor: Matthew L. Cartter, MD, MPH</p> <p>Assistant Editor & Producer: Starr-Hope Ertel</p>
--	---	--