

Investigation of Salmonellosis Among Attendees of a Pig Roast, Connecticut, 2016

On June 3, 2016, the Connecticut Department of Public Health (DPH) Epidemiology and Emerging Infections Program (EEIP) received reports of 4 salmonellosis infections from one hospital. All case-patients were interviewed, and 3 reported attending the same pig roast in May, 2016. Staff of the EEIP, Local Health Department (LHD), and Yale FoodCORE Program conducted interviews among the known attendees of the pig roast using a standardized questionnaire. Active case finding was done by contacting clinical laboratories. This report summarizes the epidemiologic, laboratory, and environmental findings of the investigation.

Epidemiologic Investigation

A confirmed case was defined as an attendee at the pig roast with culture-confirmed *Salmonella* I 4, [5],12:i:-infection of the designated outbreak pulsed-field gel electrophoresis (PFGE) patterns identified during May 22-28 following the event. A probable case was defined as an attendee with diarrhea (3 or more loose stools in a 24-hour period) and symptom onset during May 22-28 who did not have a culture-confirmed *Salmonella* infection.

Of the approximate 130 attendees, 25 completed the questionnaire. Of these, 11 (40%) met the case definition; 6 were confirmed and 5 were probable cases. Among the confirmed case-patients, one handled food for the pig roast and reported illness onset after the event. One additional confirmed case-patient declined a follow-up interview. Of the 11 case-patients, 7 (64%) sought medical care, 3 (27%) were hospitalized, and no deaths were reported. All cases resided in the same county. Case-patients ranged in age from 40 – 81 years (median 62 years); 5 (45%) were female. Among the case-patients, 10 (91%) were interviewed and reported symptoms of diarrhea (100%), fever (57%), bloody diarrhea (17%), and vomiting (11%). Illness onset ranged from May 23 – May 27, 2016 (Figure 1). Median

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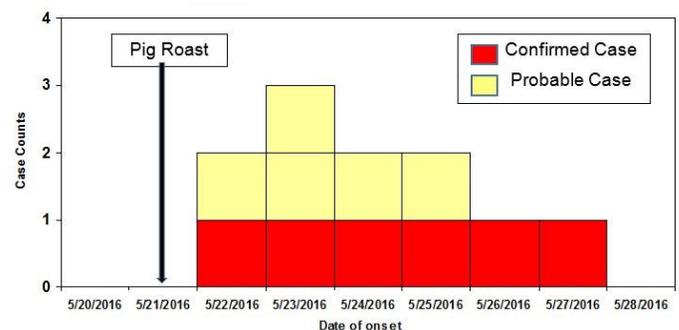
duration of illness was 8 days (range 6-11 days). Among case-patients with known onset dates, the median incubation period was 3 days (range 2 – 6 days).

A case control study conducted among survey respondents assessed if consuming any specific food was associated with illness. Univariate analysis indicated that eating potato salad (OR=10.5, 95% CI 1.36-81.05, $p < 0.05$) was statistically associated with illness (Table 1).

Laboratory Investigation

The DPH Public Health Laboratory performed testing on specimens of 6 case-patients submitted by one clinical laboratory; all isolates were confirmed positive for *Salmonella* I 4,[5],12:i:-and had matching PFGE patterns by two different enzymes. Stool samples were also collected from 13 food workers. Of the 13 samples, 1 (8%) yielded *Salmonella* I 4,[5],12:i:-,and had matching PFGE patterns by two different enzymes.

Figure 1. Onset of illness among cases at a pig roast, Connecticut—May, 2016.



One food sample consisting of the mixed leftover cooked pork butt and roasted pig, and 6 environmental samples were collected. All of the environmental samples tested negative for *Salmonella*. The food sample yielded *Salmonella* I 4, [5],12:i-with matching PFGE patterns to the case-patient isolates at the DPH Public Health Laboratory.

Environmental Investigation

During June 3-10, 2016, the LHD and DPH Food Protection Program (FPP) conducted onsite environmental assessments. The meal was served “picnic style” outside the facility for approximately 130 people. The hog was purchased from a United States Department of Agriculture slaughterhouse and the butts were purchased from a commercial vendor. Staff prepared the food for the event, which consisted of roasted pig, hamburgers, hotdogs, macaroni salad, potato salad, corn on the cob, baked beans, Cobb salad, clams on the half shell, and watermelon that reportedly was not served. Further into the investigation, it was learned that two brined pork butts were also cooked and served with the pork from the roasted pig.

The staff began cooking the hog at 3am on the day of the event and it was served at approximately 6pm. Because the analysis found an illness association with the potato salad, the person who prepared the potato salad was interviewed. The eggs and potatoes used in the potato salad were boiled the evening before the event, rinsed with cold water, sat in ice water until “cool to the touch”, then were placed in the refrigerator overnight. The potato salad was assembled at approximately 11:00am the day of the pig roast by chopping the potatoes and eggs, and mixing them with chopped onion, mayo and mustard. Foil pans used to store the mixed salad were placed in a reach-in cooler until served.

The kitchen had one designated food prep sink located central to the food preparation tables. Based on information collected through food worker interviews, cross-contamination most likely occurred inside the kitchen during storage and/or preparation. On the morning of May 21, after the pork butts were removed from the container they were stored in, the brine was discarded into the food prep sink. Afterwards, a colander was placed in the same sink to capture the potatoes and the eggs as the ice water they were individually stored in was discarded. It

was determined that between these two activities the sink had not been rinsed, washed or sanitized. Water contaminated with raw pork brine, may have splashed back onto the ready-to-eat cooked potatoes.

Reported by

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Editorial

Most people infected with *Salmonella* develop diarrhea, fever, and abdominal cramps between 12 to 72 hours after infection, and the illness duration generally ranges from 4 to 7 days. The CDC estimates approximately 1.2 million illnesses, and approximately 450 deaths occur annually in the United States due to non-typhoidal *Salmonella* spp. (1). Among some cases, diarrhea may be so severe that the patient requires hospitalization, and the infection may spread to the blood stream. With prompt antibiotic treatment, deaths due to blood stream infections can be prevented. Those more likely to have severe illness include the elderly, infants, and individuals with impaired immune systems.

The epidemiologic, environmental, and laboratory evidence suggest that a foodborne outbreak among attendees of a pig roast occurred during May 2016. This outbreak most likely occurred as a result of cross-contamination of potato salad from raw or undercooked pork inside the kitchen during storage and/or preparation activities.

To prevent future outbreaks at the establishment, the LHD made the following recommendations: (1) Food for future events are to be prepared by persons with food safety training under the direct supervision of a Qualified Food Operator or Designated Alternate(s). (2) Staff training records must remain on file. (3) Prohibit all food items not included on the approved menu. (4) Clean and sanitized all food and non-food contact surfaced before and after every use. (5) Provide an approved sanitizing solution and sanitizing solution test strips in all food preparation areas. (6) Regularly schedule thorough cleaning of the premises to

remove dirt and grime buildup. (7) Prohibit ill food workers from preparing foods while symptomatic.

Reference

1. CDC. What is Salmonellosis? – Available at: <https://www.cdc.gov/salmonella/general/>

Influenza Testing Procedures During the 2016-2017 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. All hospitalized patients with influenza-like-illness (ILI) (request influenza testing),
2. All patients with ILI and recent close exposure to swine, sick poultry at farms and agricultural settings, or migratory birds (request influenza testing, note exposure to swine, poultry, or other birds);
3. All patients with pneumonia and/or Acute Respiratory Distress Syndrome (ARDS) developing within 17 days of travel to Southeast Asia or within 14 days of travel in or near the Arabian Peninsula, contact the DPH Epidemiology Program at **860-509-7994** regarding possible avian flu or Middle East Respiratory Syndrome Coronavirus [MERS-CoV] testing (provide travel history);
4. Selected non-hospitalized patients with ILI, including patients of ILI network (ILINet) providers, as well as patients associated with outbreaks in long-term care facilities or schools or severe respiratory illness with or without fever in children, contact the DPH Epidemiology Program at **860-509-7994** to discuss possible respiratory viral panel testing for enterovirus and other respiratory viruses.

Health care providers may call the DPH Laboratory at **860-920-6662** for questions on preparing specimens for testing. Testing is provided at no cost for patients in one of the above categories. Influenza PCR specimen collection kits can be ordered by calling 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**.

Influenza Surveillance, 2016-2017 Season: Summary of Instructions for Hospitals

Hospitalized patients and influenza-associated deaths are reportable to the Connecticut Department of Public Health (DPH). This information is shared with relevant local health departments through the CT Electronic Disease Surveillance System (CTEDSS).

Influenza associated hospitalizations have been reportable in Connecticut since October 2009. During the 2015-2016 influenza season, a total of 1,538 persons hospitalized with influenza-associated illness were reported, including 1,196 (78%) Type A and 342 (22%) Type B influenza. Of the 326 Type A isolates that were subtyped, 306 (94%) were Type A (2009 H1N1), with only 20 (6%) being Type A (H3N2) influenza. Summary data from the past four seasonal influenza seasons are shown in Figures 1-4 on Page 20.

The Emerging Infections Program (EIP) at the Yale School of Public Health conducts enhanced surveillance activities for residents of Middlesex and New Haven Counties on behalf of the DPH and in this capacity is acting as an agent of the State. The goals of enhanced surveillance are to determine age-specific rates of influenza-associated hospitalizations, rates and risk factors for serious complications, effect of surveillance methods, and level of adherence to vaccination recommendations. Staff of the DPH or Yale EIP may request supplemental information on patients. If you have questions, please contact Alan Siniscalchi (DPH: 860-509-7994) or Kim Yousey-Hindes (Yale: 203-764-5942).

Influenza-associated Hospitalizations - The case report form is available on the DPH website at: http://www.ct.gov/dph/lib/dph/infectious_diseases/pdf_forms/icp_flu_hosp_deaths_form.pdf

- Must be reported **within 12 hours** on the day of recognition or strong suspicion of possible influenza infection (i.e. patients with compatible illness regardless of the results of the initial rapid antigen and/or DFA test), all cases should be tested for influenza by rRT-PCR; do not wait for the testing to report cases.
- For after hours or holiday reporting, report on the next normal business day.

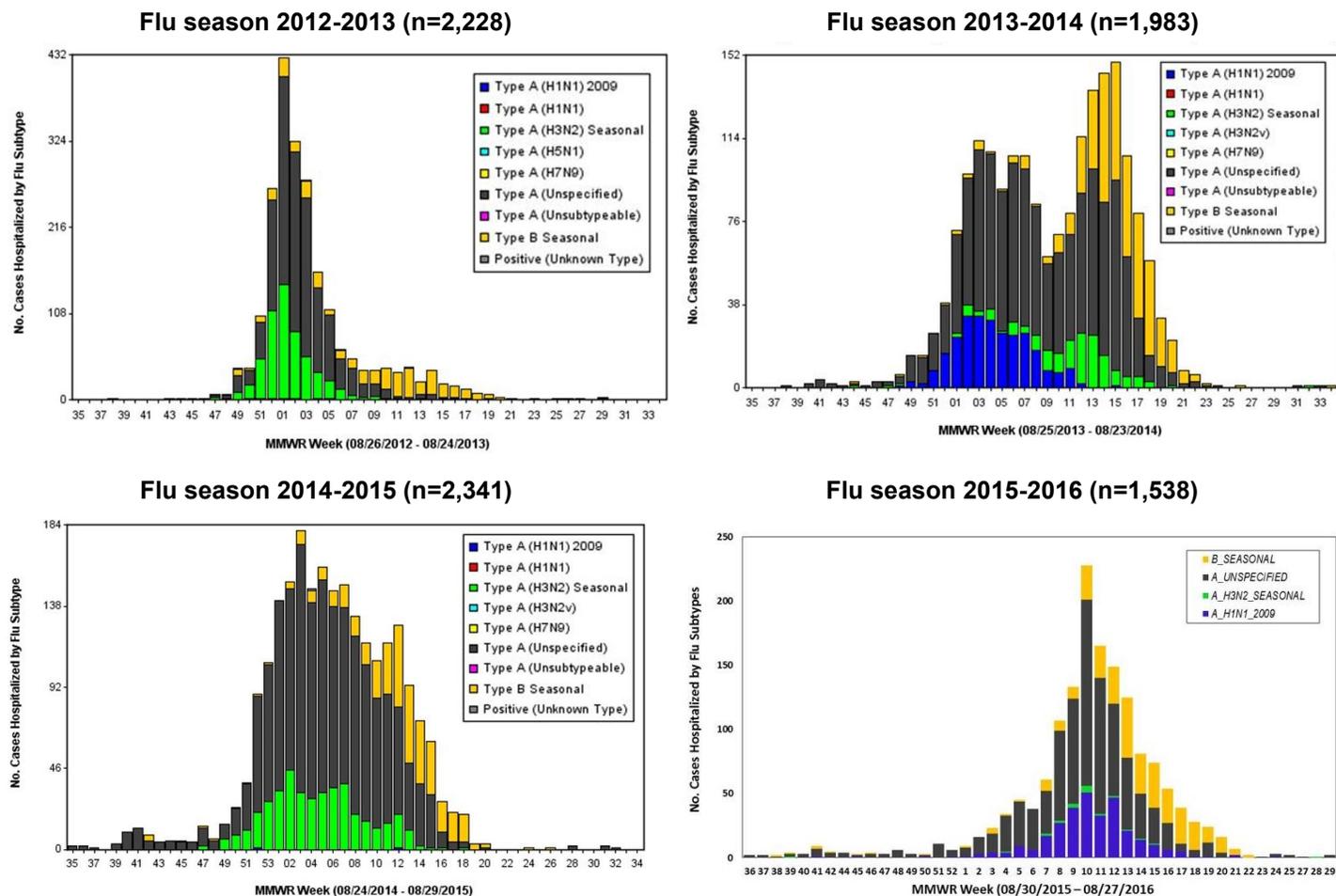
Direct reporting is available through the web-based CTEDSS and *we encourage you to use this option as it will help speed dissemination of information.* See: <https://edss.dph.ct.gov>. Reporting is also done by sending the case report form via fax to the DPH Epidemiology Program at **860-509-7910**.

Influenza-associated Deaths (Using the above form, provide both date and causes of death). All possible influenza-associated deaths must be reported to the DPH **within 12 hours**, even if influenza was not the primary cause of death. Please save respiratory specimens for post-mortem PCR

testing. Reporting is done by web-based entry into CT EDSS at: <https://edss.dph.ct.gov> or by faxing reports to the DPH Epidemiology Program at 860-509-7910.

**For Public Health Emergencies
After 4:30 P.M. or on Weekends
Call the Department of
Public Health at
860-509-8000.**

Figures 1-4: Hospitalized patients with positive laboratory test results by flu season, subtype and week of specimen collection.



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