



General

National Outbreak Reporting System



Foodborne Disease Transmission, Person-to-Person Disease Transmission, Animal Contact

This form is used to report enteric foodborne, person-to-person, and animal contact-related disease outbreak investigations. This form has 5 sections, General, Laboratory, Person to Person, Animal contact, and Food, as indicated by tabs at the top of each page. Complete the General and Laboratory tabs for all modes of transmission and complete additional sections as indicated by the mode of transmission. Please complete as much of all sections as possible.

CDC USE ONLY

CDC Report ID

State Report ID
IL2011-122

Form Approved
OMB No. 0920-0004

General Section

Primary Mode of Transmission (check one)

- Food (Complete General, Lab, and Food tabs)
- Water (Complete CDC 52.12)
- Animal contact (Complete General, Lab, and Animal Contact tabs)
- Person-to-person (Complete General, Lab, and Person-to-Person tabs)
- Environmental contamination other than food/water (Complete General and Lab tabs)
- Indeterminate/Other/Unknown (Complete General and Lab tabs)

Investigation Methods (check all that apply)

- Interviews only of ill persons
- Case-control study
- Cohort study
- Food preparation review
- Water system assessment: Drinking water
- Water system assessment: Nonpotable water
- Treated or untreated recreational water venue assessment
- Investigation at factory/production/treatment plant
- Investigation at original source (e.g., farm, water source, etc.)
- Food product or bottled water traceback
- Environment/food/water sample testing
- Other

Comments

Dates (mm/dd/yyyy)

Date first case became ill (required) 7/7/11 Date last case became ill 7/11/11
 Date of initial exposure 7/6/11 Date of last exposure 7/14/11
 Date of report to CDC (other than this form) ____/____/____
 Date of notification to State/Territory or Local/Tribal Health Authorities 7/11/11

Geographic Location

Reporting state: IL
 Exposure occurred in multiple states
 Exposure occurred in a single state, but cases resided in multiple states
 Other states: _____
 Reporting county: Cook
 Exposure occurred in multiple counties in reporting state
 Exposure occurred in a single county, but cases resided in multiple counties in reporting state
 Other counties: _____
 City/Town/Place of exposure: Chicago
Do not include proprietary or private facility names

Primary Cases

| Number of Primary Cases | | | Sex (estimated percent of the primary cases) | | | |
|--|---------|---|--|------|-------------|------|
| # Lab-confirmed cases | 32 | (A) | Male | | 43 % | |
| # Probable cases | 16 | (B) | Female | | 57 % | |
| # Estimated total primary ill | 48 | | | | | |
| | # Cases | Total # of cases for whom info is available | Approximate percent of primary cases in each age group | | | |
| # Died | 0 | 48 | <1 year | 0 % | 20-49 years | 71 % |
| # Hospitalized | 22 | 46 | 1-4 years | 2 % | 50-74 years | 8 % |
| # Visited Emergency Room | 18 | 46 | 5-9 years | 2 % | ≥ 75 years | 2 % |
| # Visited health care provider (excluding ER visits) | 0 | 46 | 10-19 years | 10 % | Unknown | 4 % |

General

Incubation Period, Duration of Illness, Signs or Symptoms for Primary Cases only

| Incubation Period (circle appropriate units) | | | Duration of Illness (among recovered cases-circle appropriate units) | | |
|--|-------|------------------|--|----|------------------|
| Shortest | 2.25 | Min, Hours, Days | Shortest | 3 | Min, Hours, Days |
| Median | 17.25 | Min, Hours, Days | Median | 6 | Min, Hours, Days |
| Longest | 83.5 | Min, Hours, Days | Longest | 12 | Min, Hours, Days |
| Total # of cases for whom info is available | 34 | | Total # of cases for whom info is available | 17 | |
| <input type="checkbox"/> Unknown incubation period | | | <input type="checkbox"/> Unknown duration of illness | | |

Signs or Symptoms (*refer to terms from appendix, if appropriate, to describe other common characteristics of cases)

| Feature | # Cases with signs or symptoms | Total # cases for whom info available |
|------------------|--------------------------------|---------------------------------------|
| Vomiting | 34 | 48 |
| Diarrhea | 47 | 48 |
| Bloody stools | 1 | 35 |
| Fever | 36 | 46 |
| Abdominal cramps | 39 | 44 |
| HUS | 0 | 48 |
| Asymptomatic | 0 | 48 |
| * | Nausea 33 | 40 |
| * | Myalgia 25 | 42 |
| * | | |

Secondary Cases

| Mode of Secondary Transmission (check one) | Number of Secondary Cases | |
|---|--|-------|
| <input type="checkbox"/> Food <input type="checkbox"/> Water <input type="checkbox"/> Animal contact <input type="checkbox"/> Person-to-person <input type="checkbox"/> Environmental contamination other than food/water <input type="checkbox"/> Indeterminate/Other/Unknown | # Lab-confirmed secondary cases | (A) 0 |
| | # Probable secondary cases | (B) 0 |
| | Total # of secondary cases | 0 |
| | Total # of cases (Primary + Secondary) | 48 |

Environmental Health Specialists Network (if applicable)

EHS-Net Evaluation ID: 1.) _____ 2.) _____ 3.) _____

Traceback (for food and bottled water only, not public water)

Please check if traceback conducted

| Source name (if publicly available) | Source type (e.g. poultry farm, tomato processing plant, bottled water factory) | Location of source | | Comments |
|--|--|--------------------|---------|----------|
| | | State | Country | |
| | | | | |
| | | | | |
| | | | | |

Recall

Please check if any food or bottled water product was recalled

Type of item recalled:

Comments:

Reporting Agency

Agency name: Chicago Department of Public Health E-mail: kathleen.ritger@cityofchicago.org
 Contact name: Kathy Ritger, MD, MPH Contact title: Medical Director
 Phone no.: (312) 746-5992 Fax no.: (312) 746-6388

Remarks Briefly describe important aspects of the outbreak not covered above. Please indicate if any adverse outcomes occurred in special populations (e.g., pregnant women, immunocompromised persons)

See supplement

Laboratory SectionEtiology known? Yes NoIf etiology is *unknown*, were patient specimens collected? Yes No Unknown

If yes, how many specimens collected? (provide numeric value) 32

What were they tested for? (check all that apply) Bacteria Chemicals/Toxins Viruses Parasites**Etiology** (Name the bacterium, chemical/toxin, virus, or parasite. If available, include the serotype and other characteristics such as phage type, virulence factors, and metabolic profile. Confirmation criteria available at http://www.cdc.gov/foodborneoutbreaks/guide_fd.htm or MMWR2000/Vol. 49/SS-1/App. B)

| Genus | Species | Serotype | Confirmed outbreak etiology | Other Characteristics | Detected in* | # Lab-confirmed cases |
|------------|----------|----------|---|-----------------------|--------------|-----------------------|
| Salmonella | Enterica | Newport | <input checked="" type="checkbox"/> yes <input type="checkbox"/> yes <input type="checkbox"/> yes <input type="checkbox"/> yes | | 1, 2, 4 | 32 |

*Detected in (choose all that apply): 1 - patient specimen 2 - food specimen 3 - environment specimen 4 - food worker specimen

Isolates (For bacterial pathogens, provide a representative for each distinct pattern; provide lab ID for all specimens submitted for viral sequencing)

| State Lab ID | PulseNet Outbreak Code | CDC PulseNet Pattern Designation for Enzyme 1 | CDC PulseNet Pattern Designation for Enzyme 2 | Other Molecular Designation | Other Molecular Designation |
|--------------|------------------------|---|---|-----------------------------|-----------------------------|
| | 1107ILJJP-1 | JJPX01.0166 | JJPA26.0146 | | |

Person to Person

Major setting of exposure (choose one)

- | | | | |
|---|---|---|------------------------------------|
| <input type="checkbox"/> Camp | <input type="checkbox"/> Hotel | <input type="checkbox"/> Private setting (residential home) | <input type="checkbox"/> School |
| <input type="checkbox"/> Child day care | <input type="checkbox"/> Nursing home | <input type="checkbox"/> Religious facility | <input type="checkbox"/> Ship |
| <input type="checkbox"/> Community-wide | <input type="checkbox"/> Prison or detention facility | <input type="checkbox"/> Restaurant | <input type="checkbox"/> Workplace |
| <input type="checkbox"/> Hospital | <input type="checkbox"/> Other, please specify: | | |

Attack rates for major settings of exposure

| Group (based on setting) | Estimated exposed in major setting* | Estimated ill in major setting | Crude attack rate [(estimated ill / estimated exposed) x 100] |
|--------------------------|-------------------------------------|--------------------------------|---|
|--------------------------|-------------------------------------|--------------------------------|---|

residents, guests, passengers, patients, etc.

staff, crew, etc.

*e.g., number of persons on ship, number of residents in nursing home or affected ward

Other settings of exposure (choose all that apply)

- | | | | |
|---|---|---|------------------------------------|
| <input type="checkbox"/> Camp | <input type="checkbox"/> Hotel | <input type="checkbox"/> Private setting (residential home) | <input type="checkbox"/> School |
| <input type="checkbox"/> Child day care | <input type="checkbox"/> Nursing home | <input type="checkbox"/> Religious facility | <input type="checkbox"/> Ship |
| <input type="checkbox"/> Community-wide | <input type="checkbox"/> Prison or detention facility | <input type="checkbox"/> Restaurant | <input type="checkbox"/> Workplace |
| <input type="checkbox"/> Hospital | <input type="checkbox"/> Other, please specify: | | |

Animals and their environment

| Setting of exposure | Type of animal | Remarks |
|---------------------|----------------|---------|
|---------------------|----------------|---------|

Food-specific data

Food vehicle undetermined Total # of cases exposed to implicated food

| Food | 1 | 2 | 3 |
|---|---|---|---|
| Name of food <i>(excluding any preparation)</i> | | | |
| Ingredient(s) <i>(enter all that apply)</i> | | | |
| Contaminated ingredients <i>(enter all that apply)</i> | | | |
| Reason(s) suspected <i>(enter all that apply from list in appendix)</i> | | | |
| Method of processing <i>(enter all that apply from list in appendix)</i> | | | |
| Method of preparation <i>(select one from list in appendix)</i> | | | |
| Level of preparation <i>(select one from list in appendix)</i> | | | |
| Contaminated food imported to US? | <input type="checkbox"/> Yes, Country <input type="checkbox"/> Yes, Unknown <input type="checkbox"/> No | <input type="checkbox"/> Yes, Country <input type="checkbox"/> Yes, Unknown <input type="checkbox"/> No | <input type="checkbox"/> Yes, Country <input type="checkbox"/> Yes, Unknown <input type="checkbox"/> No |
| Was product <i>both</i> produced under domestic regulatory oversight <i>and</i> sold? | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown |
| Location where food was prepared <i>(Check all that apply)</i> | Location of exposure (where food was eaten) <i>(Check all that apply)</i> | | |

- Restaurant – 'Fast-food' *(drive up service or pay at counter)*
- Restaurant – Sit-down dining
- Restaurant – Other or unknown type
- Private home
- Banquet Facility *(food prepared and served on-site)*
- Caterer *(food prepared off-site from where served)*
- Fair, festival, other temporary or mobile services
- Grocery store
- Workplace, not cafeteria
- Workplace cafeteria
- Nursing home, assisted living facility, home care
- Hospital
- Child day care center
- School
- Prison, jail
- Church, temple, religious location
- Camp
- Picnic
- Other *(describe in Prepared/Remarks)*
- Unknown

Remarks:
Restaurant is take-out only

- Restaurant – 'Fast-food' *(drive up service or pay at counter)*
- Restaurant – Sit-down dining
- Restaurant – Other or unknown type
- Private home
- Banquet Facility *(food prepared and served on-site)*
- Caterer *(food prepared off-site from where served)*
- Fair, festival, other temporary or mobile services
- Grocery store
- Workplace, not cafeteria
- Workplace cafeteria
- Nursing home, assisted living facility, home care
- Hospital
- Child day care center
- School
- Prison, jail
- Church, temple, religious location
- Camp
- Picnic
- Other *(describe in Eaten/Remarks)*
- Unknown

Remarks:
Most case-patients reported taking the food home to eat. Some may have eaten in their car or in the immediate vicinity of the restaurant.

Contributing Factors (Check all that contributed to this outbreak) Contributing factors unknown**Contamination Factor** C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15 C-N/A**Proliferation/Amplification Factor** (bacterial outbreaks only) P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 P12 P-N/A**Survival Factor** S1 S2 S3 S4 S5 S-N/A**The confirmed or suspected point of contamination** (Check one) Before preparation PreparationIf 'before preparation': Pre-Harvest Processing Unknown**Reason suspected** (Check all that apply) Environmental evidence Laboratory evidence Epidemiologic evidence Prior experience makes this a likely sourceWas food-worker implicated as the source of contamination? Yes No**If yes, please check only one of the following** Laboratory **and** epidemiologic evidence Epidemiologic evidence Laboratory evidence Prior experience makes this a likely source**School Questions**

(Complete this section only if school is checked in either sections "Location where food was prepared" or "Location of exposure (where food eaten)")

1. Did the outbreak involve a single or multiple schools? Single Multiple (If yes, number of schools _____)**2. School characteristics** (for all involved students in all involved schools)**a. Total approximate enrollment**
(number of students) Unknown or undetermined**b. Grade level(s)** Preschool Grade school (grades K-12)Please check all grades affected: K 1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th 11th 12th College/university/technical school Unknown or Undetermined**c. Primary funding of involved schools** Public Private Unknown**3. Describe the preparation of the implicated item:**
(check all that apply) Heat and serve (item mostly prepared or cooked off site, reheated on-site) Served a-la-carte Serve only (preheated or served cold) Cooked on-site using primary ingredients Provided by a food service management company Provided by a fast-food vendor Provided by a pre-plate company Part of a club or fundraising event Made in the classroom Brought by a student/teacher/parent Other (describe in General/Remarks) Unknown or Undetermined**4. How many times has the state, county or local health department inspected this school cafeteria or kitchen in the 12 months before the outbreak?*** Once Twice More than two times Not inspected Unknown or Undetermined**5. Does the school have a HACCP plan in place for the school feeding program?*** Yes No Unknown or Undetermined

*If multiple schools are involved, please answer according to the most affected school

6. Was implicated food item provided to the school through the National School Lunch/Breakfast Program?

- Yes
 No
 Unknown or Undetermined

If yes, was the implicated food item donated/purchased by:

- USDA through the Commodity Distribution Program
 The state/school authority
 Other (*describe in General/Remarks*)
 Unknown or Undetermined

Ground Beef

1. What percentage of ill persons (*for whom information is available*) ate ground beef raw or undercooked? %
2. Was ground beef case-ready? Yes No Unknown
(Case-ready ground beef is meat that comes from a manufacturer packaged for sale that is not altered or repackaged by the retailer)
3. Was the beef ground or reground by the retailer?
 Yes No Unknown
- If yes, was anything added to the beef during grinding (*such as shop trim or any product to alter the fat content*)?:

Additional Salmonella Questions

(Complete this section for Salmonella outbreaks)

1. Phage type(s) of patient isolates:
- if RDNC* then include #*
- if RDNC* then include #*
- if RDNC* then include #*
- if RDNC* then include #*

* Reacts, Does Not Conform

Eggs

1. Were eggs (*check all that apply*)
- in shell, unpasteurized?
 in shell, pasteurized?
 packaged liquid or dry?
 stored with inadequate refrigeration during or after sale?
 consumed raw?
 consumed undercooked?
 pooled?
2. Was Salmonella enteritidis found on the farm? Yes No Unknown

Comment (*e.g., eggs and patients isolates matched by phage type*):

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BACKGROUND

Notification. On the night of Sunday, July 10, 2011, the Chicago Department of Public Health (CDPH) on-call physician was notified by an emergency department physician at Mount Sinai Hospital (Chicago) about an unusual number of patients presenting to the ED with complaints of vomiting and diarrhea during the weekend. The physician was aware of at least four patients that had been admitted to the hospital and estimated that another 10 had been evaluated in the ED and released. According to the ED physician, multiple patients reported having eaten at Restaurant A prior to their illness.

Initial interviews. The CDPH Communicable Disease (CD) Program began an investigation on Monday, July 11, 2011. By the end of the day on July 11 CD Program staff had interviewed five ill persons. All five reported onset of watery diarrhea on either July 7 or 8 along with one or more additional symptom, including nausea, vomiting and fever. Three had been admitted to Mount Sinai Hospital for dehydration. All five reported eating Mexican-style food items (e.g., steak tacos, burritos, and taco salad) from Restaurant A on July 6 or 7, for a preliminary incubation period range of 10-18 hours. No other common exposures were identified among these patients; therefore, the investigation remained focused on Restaurant A.

Restaurant. Restaurant A is a take-out grill located on the near southwest side of Chicago. The restaurant is open 7 days per week, and typical menu items include hamburgers, hot dogs, sausages, French fries, and Mexican-style items such as tacos, burritos, and tortas (Mexican sandwiches). According to the manager, most patrons reside in the immediate neighborhood. Two other restaurants (Restaurants B and C) are owned and operated by family members of the manager of Restaurant A and are located in other neighborhoods in Chicago. All three restaurants in this chain serve the same menu and use the same food suppliers.

METHODS

Case Finding. Multiple case finding methods were used. On July 11, 2011, CD Program staff requested a line list of all patients seen at the Mount Sinai ED for gastrointestinal complaints during July 8-10, and the Infection Control staff provided a list of 33 individuals. CD Program staff attempted to contact each person on the list for an interview. Each person interviewed was asked about eating companions, which

led to interviews of additional ill individuals. Three nearby hospitals were contacted to see if they experienced an unusually high number of ED patients with GI illness during early July and if they had any unreported *Salmonella* cases. CD Program epidemiologists reviewed ED GI illness trends via the ESSENCE syndromic surveillance system for a fourth nearby hospital. On July 15, 2011, CDPH issued a Health Alert message to all Chicago hospitals to notify them of the outbreak and to request prompt reporting of *Salmonella* cases.

Case interviews. On July 11, 2011, a standard questionnaire was created that included sections about signs and symptoms of GI illness, healthcare visits and laboratory testing, and a list of Restaurant A foods (taken from the Restaurant A menu). CD Program investigators interviewed case-patients by phone, or in-person in a few instances, and recorded responses on the questionnaire. CD Program epidemiologists entered data from the questionnaires in an Access database and summarized the responses using SAS.

Laboratory. Clinical cultures were performed by area hospital microbiology laboratories. *Salmonella* isolates were forwarded by hospital laboratories to the IDPH Division of Laboratories for serotyping. The IDPH Laboratory also performed molecular testing (pulsed-field gel electrophoresis, PFGE) of all *Salmonella* isolates identified as well as cultures of food and environmental samples collected during the course of the investigation.

Environmental. CDPH Food Protection Division staff performed sanitary inspections of Restaurant A and B, collected food samples and environmental swabs from Restaurant A, collected initial information about restaurant employees and food preparation, and collected copies of invoices for suspected food items. CD Program staff performed in-depth interviews of the owners/managers of the restaurant chain and of all available employees of Restaurant A and B and collected stool swabs from these restaurant staff to screen for *Salmonella*.

RESULTS

Case definition

- A confirmed case is a person who had onset of vomiting or diarrhea after eating foods at Restaurants A, B, or C and who had *S ser.* Newport with the outbreak PFGE pattern identified.

- A probable case is a person who had onset of vomiting or diarrhea after eating foods at Restaurants A, B, or C and who did not have *S ser.* Newport identified (i.e., either did not have stool culture performed or had a negative culture result).

Case finding and interviews. No unusual trends in GI illness among ED patients were identified at the four other hospitals located in the vicinity of Restaurant A.

Thirty-two confirmed and 16 probable cases were identified as part of this outbreak. Initially Restaurant A was the sole focus of the investigation, but on July 28, 2011, a case-patient (reported through routine *Salmonella* laboratory surveillance) stated that he had eaten food from Restaurant B on July 14, 2011, three days prior to his illness onset. He repeatedly denied having gone to or eaten food from Restaurant A; therefore, the CD Program extended the investigation to include interviews and testing of employees of Restaurant B. One additional laboratory-confirmed case reported that she and various family members ate from Restaurant B on July 8, 2011, but neither she nor other family members responded to multiple CDPH attempts to confirm that information. Restaurant C was not named by any case-patient during the course of the investigation.

Food items that were consumed by at least 50% of confirmed and probable cases that had information available for the specific food item are listed in the table below.

| Food Item | % reporting haven eaten the food item |
|---|--|
| Shredded lettuce | 93 |
| Shredded cheese | 81 |
| Steak taco/burrito/torta/nacho salad (a combined variable representing any steak containing item) | 80 |
| Diced tomatoes | 80 |
| Sour cream | 70 |
| Steak taco | 61 |
| Salsa (green or red) | 54 |

To identify controls for an analytic study CD Program staff asked confirmed cases about their meal companions. Because a large proportion of the meal companions were also reported to be ill, the CD Program was able to identify and interview only five well meal companions. The results of the case-

control analysis are found in the attached food table. The only items significantly associated with illness were the combined “any steak” variable (relative risk 1.67, p-value 0.0), steak taco (relative risk 1.27, p-value 0.035), and sour cream (relative risk 1.42, p-value 0.005). However, the small number of controls limits the validity of these findings.

The CD Program attempted to identify other possible control groups; however, Restaurant A does not do delivery or catering. Credit card receipts, which account for approximately 20% of Restaurant A’s sales according to the manager, were requested but ultimately could not be produced by restaurant management.

Laboratory. The first confirmation of *Salmonella* came on July 12, 2011 by the Mount Sinai Hospital laboratory. The IDPH Division of Laboratories made a preliminary identification of the serotype as *S ser.* Newport on July, 14, 2011; the serotype was later confirmed in multiple cases. Since some of the earliest reported case-patients had bloody diarrhea and elevated creatinine levels the CD Program arranged for shiga toxin testing of three specimens at the IDPH Division of Laboratories; all three tested negative.

IDPH Division of Laboratories performed pulsed-field gel electrophoresis (PFGE) on all *S ser.* Newport isolates and identified the Xba pattern JJPX01.0166 in common to all cases associated with this outbreak. Some of the isolates also had testing with the Bln enzyme, and the pattern associated with these isolates was JJPA26.0146.

All of the food items collected from Restaurant A on July 12, 2011, tested negative for *Salmonella*. These items included pre-cooked steak (also referred to as carne asada), shredded lettuce, diced tomato, red salsa, and green salsa. Environmental samples taken from a meat grinder and produce slicer on the same day also tested negative for *Salmonella*.

On July 12, 2011, a CD investigator collected leftover taco salad from the home refrigerator of one of the confirmed case-patients. This food item tested positive for *S ser.* Newport and had the outbreak PFGE pattern. The taco salad had been ordered from Restaurant A on July 7 and consisted of a fried flour tortilla, steak, shredded cheese, diced tomato, sour cream, and avocado.

Environmental investigation: sanitary inspection. On July 11, 2011, sanitarians from the CDPH Food Protection Division inspected Restaurant A, and no critical violations were identified. Given that CDPH had just begun the epidemiologic investigation that day and could not exclude the possibility of an ongoing public health threat associated with food served by Restaurant A, CDPH recommended that the restaurant voluntarily cease operations until more information about the source of the contamination was

known. The manager agreed, and at approximately 5 p.m. on July 11, 2011, Restaurant A voluntarily closed. Restaurants B and C were inspected on July 13, 2011, and no critical violations were identified at either restaurant.

Environmental investigation: food preparation and handling. CD Program staff interviewed the manager of Restaurant A multiple times, both in-person and by telephone, regarding general staffing practices; typical customer volume and food item preferences; and food ordering, receiving, storage, and preparation practices.

Staffing at Restaurant A had been stable, with the exception of a cashier who abruptly quit during the first week of July 2011 and reportedly moved out-of-state. Food workers may perform a variety of tasks depending on the day, including working the grill, cooking French fries and preparing sandwiches, and produce prep work. The cashier reportedly never performed food preparation or cooking. Restaurant A staff routinely ate foods from the restaurant they prepared themselves during their meal breaks. Review of food items consumed by three of the workers during July 6-7, 2011, did not help narrow the investigation.

According to the manager, Mexican-style items made up approximately 80% of their sales, with steak far outnumbering chicken and pork as the meat choice for the tacos, burritos, and tortas. An item called cheese steak fries reportedly is very popular and is made with the same steak that is used in the tacos and burritos. However, none of the case-patients reported eating cheese steak fries.

Given that the steak is cooked at the time of order it was unlikely to be vehicle itself, and the investigation focused on the uncooked toppings for the Mexican-style items. This included tomatoes, lettuce, cilantro, onion, jalapeño, avocado, chile de arbol, tomatillos, sour cream, and mozzarella cheese. A review of receiving, storage, and preparation for these items did not reveal information to further narrow the investigation. Vendor A provided all fresh produce items served at the restaurants in this chain and reportedly had been their produce vendor for many years. Vendor B supplied the sour cream, which is a commercially sourced pasteurized product. The manager reported that they mix the sour cream with a small amount of milk to make a sauce that is used in the burritos and tortas. Vendor C supplied the mozzarella cheese, also a commercially sourced pasteurized product. The mozzarella is shredded and is a topping for the Mexican-style food items. The manager denied use of “queso fresco” or other soft or unpasteurized cheese in any food item. Restaurant A serves both red and green salsa (called “hot sauce” on the menu). Both kinds are made in-house using a base of boiled tomatillo and onion. The red version additionally contains grilled chile de arbol. For each version the base ingredients are chopped in a blender

and then fresh cilantro and spices are mixed in. They make approximately 20 gallons of red and 10 gallons of green salsa each week.

Environmental investigation: food handler testing. CDPH requested that all Restaurant A staff be screened for *Salmonella* by stool culture and should not be allowed to return to work until proven negative on two consecutive cultures. During July 12-13, 2011, CDPH CD Program members individually interviewed the eight Restaurant A workers (including the manager) about gastrointestinal illness symptoms, work duties and hygiene practices, and other employment, and collected a stool sample from each. Of the eight workers, seven tested positive for the outbreak strain of *S ser.* Newport. Only two of the seven reported any recent history of gastrointestinal illness. Six of the workers had >1 specimen test positive for *S ser.* Newport. Restaurant A reopened to the public on July 28, 2011, after sufficient staff was cleared to return to work. The CDPH Food Protection Program performed a re-inspection on July 26 and 27 during which the sanitarian provided instruction on hand hygiene, ensured that food contact surfaces were adequately sanitized, and directed the management to discard previously opened spices, oils, and sauces.

During August 8-11, 2011, seventeen food workers from Restaurant B were interviewed by CD Program members and had stool specimens collected for *Salmonella* testing. All 17 workers tested negative for *Salmonella*. Restaurant B was allowed to remain open while stool culture results were pending.

Environmental investigation: food traceback. Invoices from Vendor A showed produce deliveries to Restaurant A on June 28 and July 6, 2011. Vendor A purchased from two Chicago-area produce suppliers during late June and early July, and this supplier information was provided to IDPH and FDA. The complete list of restaurants supplied by Vendor A was obtained, and CDPH checked for any complaints or *Salmonella* cases associated with these restaurants and found none.

Expansion of outbreak. On July 21, 2011, IDPH uploaded a file to PulseNet of an example of the Xbal pattern identified in the outbreak. Foodborne disease epidemiologists in two states saw the posting and recognized that they had recent *S ser.* Newport cases that matched the outbreak pattern. On August 4, 2011, CDC held the first multi-state conference call regarding this outbreak.

During mid-July and August, cases of *S ser.* Newport continued to be reported in Chicago even though Restaurant A was closed. Despite matching the outbreak PFGE Xbal pattern, these cases denied eating at Restaurants A, B, or C. Therefore, these case-patients were interviewed with a hypothesis-generating questionnaire rather than the outbreak-specific questionnaire, but no other establishments or events were

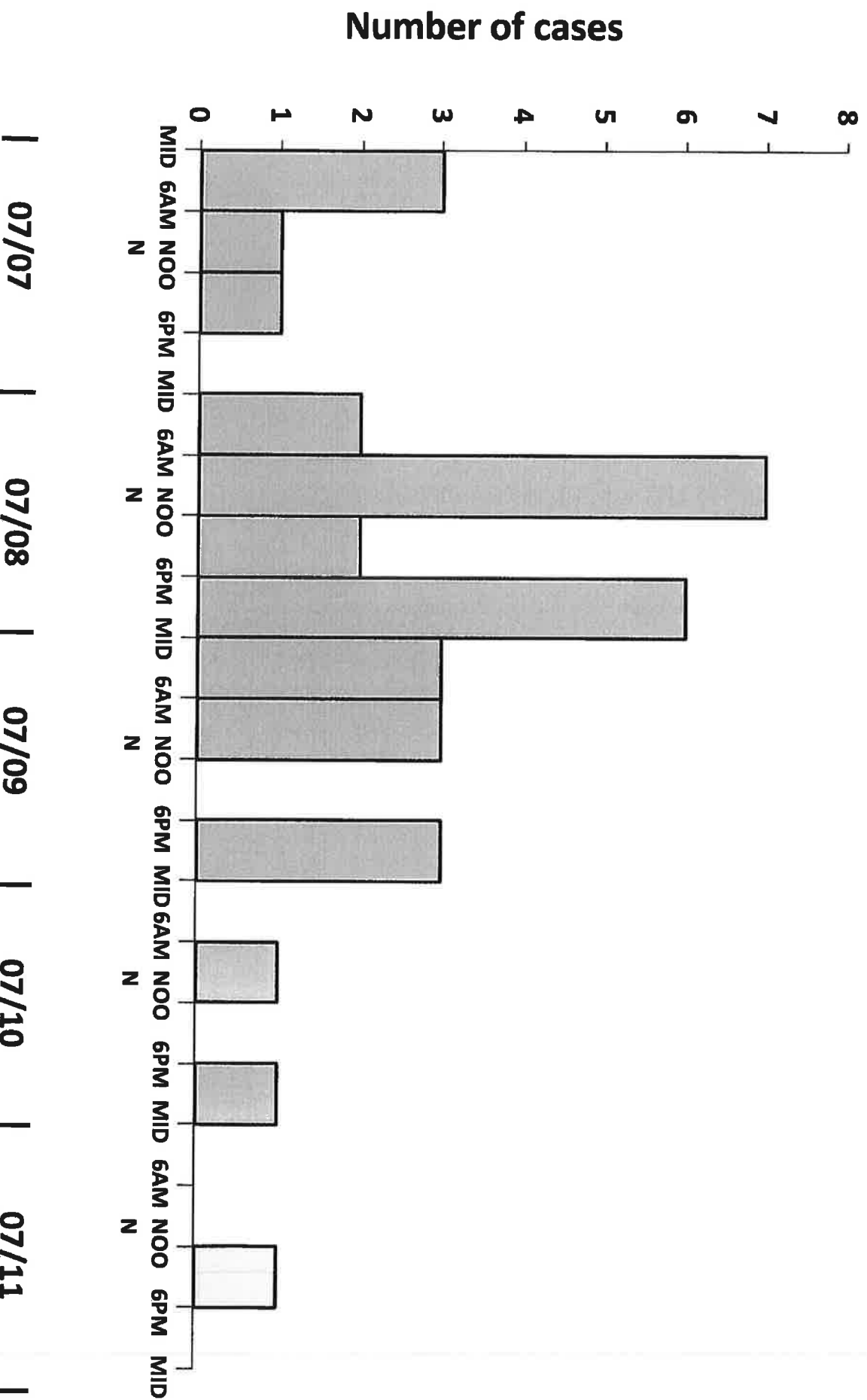
identified in common among these cases. Ultimately, nine *S ser.* Newport cases with the outbreak PFGE pattern but not known to be associated with the restaurant chain were identified in Chicago in 2011.

CDC continued to hold multi-state conference calls from August to October 2011. By early November 2011 the PFGE pattern associated with this outbreak had returned to baseline level, and CDC closed the investigation. A total of 209 cases that matched the outbreak PFGE pattern were reported from 21 states. Investigation of several restaurant clusters identified tomatoes and jalapeños as possible vehicles; however, traceback efforts by the FDA did not identify a common supplier for either of these items.

CONCLUSION

Prompt reporting from a Chicago hospital to public health officials led to early investigation of this large restaurant-associated *S ser.* Newport outbreak. Closure of the restaurant on the first day of the investigation likely prevented additional cases of illness from occurring. Despite intensive investigation the etiology of this outbreak was not determined, although the most likely vehicle was one of the uncooked produce items used as a topping on the Mexican-style food items or in the salsa. The meal dates for ill individuals were tightly clustered and the attack rate among meal companions was high, suggesting recent delivery to the restaurant of a heavily contaminated product. Seven of eight Restaurant A workers were found to test positive for *S ser.* Newport matching the outbreak pattern. Given that the outbreak eventually extended to many states, suggesting a widely distributed product as the source, the workers could not have been the source of the contamination. Rather, they were likely infected by eating or handling a contaminated food item at the restaurant.

GI Illness Among Confirmed and Probable Cases, by Date and Time of Symptom Onset (N=34)



Associations between items and illness, Risk Ratio as measure

| Item | Ate item | | | % Ill | Did NOT eat item | | | % Ill | Risk ratio | P-value | |
|----------------|----------|---------|-------|-------|------------------|---------|-------|-------|------------|---------|---|
| | Ill | Not ill | Total | | Ill | Not ill | Total | | | | |
| ANYSTEAK | 36 | 0 | 36 | 100% | 9 | 6 | 15 | 60% | 1.67 | .000 | * |
| AVOCADO | 10 | 0 | 10 | 100% | 20 | 4 | 24 | 83% | 1.20 | .296 | * |
| BEANS | 13 | 1 | 14 | 93% | 17 | 3 | 20 | 85% | 1.09 | .627 | * |
| BREADSTKTORTA | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| CHBURGER | 1 | 4 | 5 | 20% | 32 | 0 | 32 | 100% | 0.20 | .000 | * |
| CHDOG | . | . | . | . | 31 | 4 | 35 | 89% | . | . | * |
| CHEESE | 30 | 2 | 32 | 94% | 7 | 1 | 8 | 88% | 1.07 | .498 | * |
| CHFRIES | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| CHICKENBURRITO | 3 | 0 | 3 | 100% | 31 | 4 | 35 | 89% | 1.13 | 1.00 | * |
| CHICKENTACO | 3 | 1 | 4 | 75% | 29 | 4 | 33 | 88% | 0.85 | .456 | * |
| CHICKENTORTA | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| CHICKSAND | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| CHICKWINGS | 1 | 0 | 1 | 100% | 32 | 4 | 36 | 89% | 1.13 | 1.00 | * |
| CHILCHDOG | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| CHILLI | 2 | 0 | 2 | 100% | 30 | 4 | 34 | 88% | 1.13 | 1.00 | * |
| CHILIBOAT | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| CHILCHFRIES | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| FISHSAND | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| FRIES | 5 | 0 | 5 | 100% | 29 | 4 | 33 | 88% | 1.14 | 1.00 | * |

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| Item | Ata item | | | | Did NOT eat item | | | | Risk ratio | P-value | * |
|--------------|----------|---------|-------|-------|------------------|---------|-------|-------|------------|---------|---|
| | III | Not III | Total | % III | III | Not III | Total | % III | | | |
| GRAVYBREAD | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| HAMBURGER | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| HOTDOG | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| ITALBEEF | 2 | 0 | 2 | 100% | 31 | 4 | 35 | 89% | 1.13 | 1.00 | * |
| ITALCOMBO | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| ITALSAUS | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| JALEPENO | 10 | 0 | 10 | 100% | 23 | 4 | 27 | 85% | 1.17 | .557 | * |
| JUMBODOG | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| LETTUCE | 37 | 4 | 41 | 90% | 3 | 1 | 4 | 75% | 1.20 | .387 | * |
| MALT | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| MEXTAMALE | 1 | 0 | 1 | 100% | 31 | 4 | 35 | 89% | 1.13 | 1.00 | * |
| MILKSHAKE | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| NACHOS | 1 | 0 | 1 | 100% | 32 | 4 | 36 | 89% | 1.13 | 1.00 | * |
| NACHOSUPREME | 2 | 0 | 2 | 100% | 31 | 4 | 35 | 89% | 1.13 | 1.00 | * |
| OTHERBURRITO | 1 | 0 | 1 | 100% | 31 | 4 | 35 | 89% | 1.13 | 1.00 | * |
| OTHERTACO | 0 | 1 | 1 | 0% | 32 | 3 | 35 | 91% | . | .111 | * |
| OTHERTORTA | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| PIZZAPUFF | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| POLISHSAUS | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |
| PORKBURRITO | . | . | . | . | 32 | 4 | 36 | 89% | . | . | * |

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Ate item

Did NOT eat item

| Item | III | Not III | Total | % III | III | Not III | Total | % III | Risk ratio | P-value |
|--------------|-----|---------|-------|-------|-----|---------|-------|-------|------------|---------|
| PORKTACO | . | . | . | . | 32 | 4 | 36 | 89% | . | . |
| PORKTORTA | . | . | . | . | 31 | 4 | 35 | 89% | . | . |
| PRIMERIBSAND | . | . | . | . | 32 | 4 | 36 | 89% | . | . |
| SALSA | 19 | 1 | 20 | 95% | 16 | 3 | 19 | 84% | 1.13 | .342 |
| SOURCREAM | 28 | 0 | 28 | 100% | 12 | 5 | 17 | 71% | 1.42 | .005 |
| STEAKBURRITO | 10 | 0 | 10 | 100% | 25 | 4 | 29 | 86% | 1.16 | .556 |
| STEAKTACO | 23 | 0 | 23 | 100% | 15 | 4 | 19 | 79% | 1.27 | .035 |
| STEAKTORTA | 4 | 0 | 4 | 100% | 28 | 4 | 32 | 88% | 1.14 | 1.00 |
| STKSAND | . | . | . | . | 32 | 4 | 36 | 89% | . | . |
| TAMALETOMTOM | . | . | . | . | 32 | 4 | 36 | 89% | . | . |
| TOMATOES | 32 | 4 | 36 | 89% | 8 | 1 | 9 | 89% | 1.00 | 1.00 |