

***Vibrio* spp. Infections Associated with a Restaurant**

August

Hennepin County

On August 26, 2011, the Minnesota Department of Health (MDH) notified the Hennepin County Human Services and Public Health Department (HSPHD) epidemiology unit and the Minneapolis Division of Environmental Health (MDEH) of a *Vibrio parahaemolyticus* case identified through routine MDH surveillance. All *V. parahaemolyticus* cases reported to MDH are interviewed about food consumption and other potential exposures as part of enteric disease surveillance in Minnesota. The case reported eating raw oysters at a restaurant on August 19. An investigation was initiated on August 26.

On September 1, MDH notified the HSPHD epidemiology unit and MDEH that the manager of the restaurant received a complaint of gastrointestinal illness in two persons who were part of a group of six people who ate at the restaurant on August 20. A stool specimen from one of the complainants tested positive for *Vibrio* spp. and had been forwarded to MDH for confirmation. The case was later found to have *Vibrio fluvialis*. The case indicated eating raw oysters at the restaurant on August 20. The investigation was expanded.

MDH interviewed both *Vibrio* cases and their dining companions about symptoms and exposures. The restaurant provided credit card receipts and reservation lists from people who ate at the restaurant on

August 19 and 20. HSPHD epidemiologists interviewed the restaurant patrons about food consumption and illness history.

A case was defined as a restaurant patron who had *Vibrio* spp. isolated from a stool culture or who developed vomiting and/or diarrhea (≥ 3 loose stools in a 24-hour period) within 4 days after eating at the restaurant.

On August 26, MDEH sanitarians visited the restaurant to gather records and tags of oysters sold. On September 1, MDEH sanitarians and a representative of the U.S. Food and Drug Administration (FDA) visited the restaurant to conduct a full inspection and gather additional information pertinent to a traceback of the oysters consumed by the second case.

A total of 18 patrons were interviewed, and 4 met the case definition. All cases reported diarrhea, three (75%) reported cramps, two (50%) reported vomiting, two (50%) reported fever, and one (25%) reported bloody stools. One case tested positive for *V. parahaemolyticus* and one tested positive for *V. fluvialis*; both were hospitalized. The median incubation period was 19 hours (range, 6 to 40 hours). The duration of illness was 11 hours and 9 days for two cases, while the other two cases (both of the culture-confirmed cases) were still experiencing symptoms at the time of interview, 8 and 10 days after onset, respectively. Two of the cases ate at the restaurant on August 19 (the *V. parahaemolyticus* case and a case identified from credit card receipts), and two cases ate at the restaurant on August 20 (the *V. fluvialis* case and a dining companion).

All four cases reported eating raw oysters. Cases reported eating a variety of raw oysters: one case (the *V. parahaemolyticus* case) reported eating Blue Point oysters; two other cases (the *V. fluvialis* and the dining companion case) ate Blue Point oysters, Mexican-style oysters, and several different varieties of oysters sold as 2-per-serving; the case identified from credit card receipts only had Buckley Bay oysters. Twelve controls were interviewed. Six (50%) controls reported eating oysters, but most of these controls did not remember the specific types of oysters eaten or ate dishes like the Chef's Dozen that included a variety of oysters. No food item or single oyster type or dish was found to be statistically associated with illness.

Copies of invoices and all tags from oysters served on August 19 and 20 were obtained. The restaurant maintained records on the types of oysters served each day; however, there were no records of specific oysters ordered by each patron.

The menus were printed each day listing the types of oysters available that day. Oysters served on those days were Blue Point (Delaware Bay, NJ), Conway Royal (Prince Edward Island, Canada), Malapeques (Prince Edward Island, Canada), Baynes Sound (Baynes Sound, BC, Canada, farm raised), Buckley Bay (Vancouver, BC, Canada, farm raised), Gooseberry Point (Baynes Sound, BC, Canada, farm raised), and Pacific Kiss (Vancouver, BC, Canada, farm raised). Invoices also showed the restaurant had Totten Inlet (WA, farm raised), and Tree Island (Vancouver, BC, Canada, farm raised) oysters. Mexican Oysters and Japanese oysters were mixes of oysters from west coast harvest areas served with different toppings because of their bowl-like shape. The specific oysters included in those dishes varied based on the oysters available at the time. The Chef's Dozen varied and may have included west coast or east coast varieties. The Blue Point oysters were the same oysters whether served 2-per-serving or whether by the dozen.

Oyster handling at the restaurant was evaluated, and no deficiencies were noted. Oysters were received fresh from the distributor, held in the fish walk-in cooler, and held at an oyster bar cooler before serving. Cooler temperatures and oyster temperatures were checked, and they were below the required 41° F. Oysters were shucked to order. All oyster tags were maintained in a shell stock box according to the month received.

The FDA collected records and tags, including harvest zone for each of the types of oysters eaten by the cases. However, since the epidemiological investigation was unable to implicate a single type of oyster, the harvest zone of contaminated oysters was not identified. FDA officials did not share additional information with MDH regarding commonalities with harvest zones in concurrent *Vibrio* investigations in other states.

The *Vibrio* isolates from the two confirmed cases, as well as *V. parahaemolyticus* and *V. fluvialis* isolates from a non-restaurant associated case reported in Minnesota earlier in the summer were sent to the Centers for Disease Control and Prevention for pulsed-field gel electrophoresis (PFGE). PFGE for *Vibrio* is considered experimental. No PFGE matches were found among the isolates or with other domestically acquired cases in 2011.

This was a foodborne outbreak of vibriosis associated with eating raw oysters at a restaurant in Minneapolis. It is unclear if the cases were caused by oysters from the same source contaminated with both organisms or if contaminated oysters from different harvest areas served at the restaurant in the 2-day period resulted in the different *Vibrio* infections.