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Update on *Vibrio parahaemolyticus* Infections — Alaska, 2005–2018

Background

Vibrio parahaemolyticus (*Vp*) is a gram-negative bacterium found naturally in coastal waters and is an important cause of acute gastroenteritis worldwide. Symptoms typically develop within 24 hours (range: 4–90 hours), and include watery diarrhea, abdominal cramping, nausea, vomiting, and fever. Most people recover without incident; infrequently, septicemia can occur (particularly in persons with liver disease).¹ The diagnosis of *Vp* infection is confirmed by isolation of the bacteria in selective media such as thiosulfate citrate bile-salts (TCBS) agar.

Illness due to *Vp* infection is typically linked to the consumption of raw or undercooked oysters and other shellfish.¹ Bacterial counts in the environment and in shellfish tend to increase as water temperatures rise (especially above 60°F).² Inadequate refrigeration during shipping, holding, and handling can also promote *Vp* growth in shellfish after harvest.²

During the warm summer of 2004, Alaska experienced a large and unprecedented outbreak of *Vp* gastroenteritis linked to the consumption of Alaska-grown oysters.³ Prior to this outbreak, Alaska ocean waters were presumed to be too cold to pose a risk for *Vp* infection from consumption of Alaska-grown oysters. In response to this outbreak, the Alaska Department of Environmental Conservation (DEC) implemented a *Vp* Control Plan in 2005 to reduce the probability of *Vp* infection by requiring water temperature monitoring at harvest sites and temperature control requirements after harvest.² These control measures are in effect annually from June 15 through September 15, when ocean water temperatures can rise to concerning levels. The purpose of this *Bulletin* is to provide an update on *Vp* infection in Alaska since the 2004 outbreak.

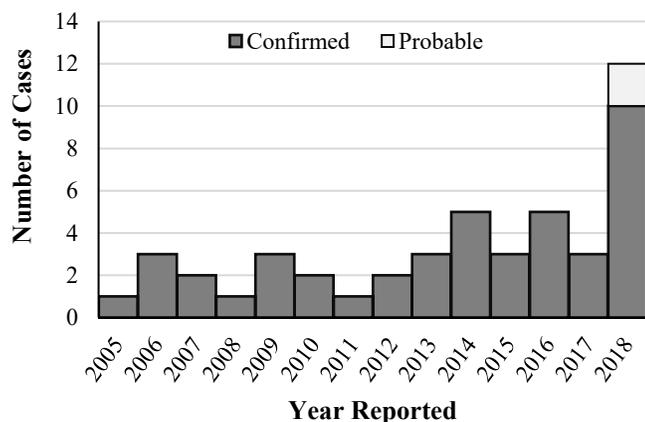
Methods

Vibrio infections became reportable to SOE in December 2006.⁴ All *Vp* infection reports received by SOE during 2005–2018 were reviewed. Cases were classified as confirmed when *Vp* was isolated in culture. Cases were classified as probable when a patient had a vibrio-like illness and an epidemiologic link to a laboratory-confirmed case.⁵ Per national convention, cases are assigned by patient residency rather than where the implicated oysters were harvested or consumed.

Results

During 2005–2018, 46 (2 probable and 44 confirmed) cases of *Vp* infection were reported to SOE (Figure). The average annual count was 3 cases (range: 1–12 cases). Most (25; 54%) *Vp* infection cases occurred in males and all were adults (Table). Case counts were highest in residents of Anchorage/Mat-Su, followed by the Southeast and Interior regions (Table).

Figure. Confirmed and Probable Cases of *Vibrio parahaemolyticus* Infection — Alaska, 2005–2018



The largest number of *Vp* infection cases reported in any year was in 2018; eight of the 12 cases reported that year were associated with two small outbreaks linked to Alaska-grown oysters. Upon identifying the implicated oyster farms, DEC closed those areas to harvest, audited temperature monitoring logs, and worked with farmers to evaluate operations and take corrective actions. DEC also worked with secondary dealers and food services involved in the outbreak, reiterating appropriate handling and recordkeeping practices. Farmers were allowed to return to normal practices once they met criteria outlined in the Alaska *Vp* Interim Control Plan.²

Table. Demographic Characteristics of Confirmed or Probable *V. parahaemolyticus* Cases — Alaska, 2005–2018

Residence	# of cases (%)	Age (years)	# of cases (%)
Anch/Mat-Su	19 (41%)	0–18	0 (0%)
Gulf Coast	3 (7%)	19–34	15 (33%)
Interior	9 (20%)	35–49	10 (22%)
Northern	1 (2%)	50–64	16 (35%)
Southeast	12 (26%)	≥65	4 (9%)
Southwest	2 (4%)	Unknown	1 (2%)

Discussion

The fact that Alaska has not experienced a sizeable *Vp* outbreak subsequent to the 2004 outbreak may be due in large part to DEC’s effective implementation of a *Vp* Control Plan. Two small *Vp* outbreaks identified during the summer of 2018 involved oysters grown in Southeast Alaska. In both situations, DEC staff quickly identified the implicated farms and closed the areas to harvest until corrective actions were taken.

DEC also plays an active role in ensuring interstate tracebacks involving oysters harvested out-of-state that are served in Alaska food establishments and linked to human illness.

Lastly, it is important to note that the *Vp* case counts reported here likely represent a subset of Alaska cases that actually occurred due to some degree of under-recognition and under-reporting of potential cases.

Recommendations

1. Health care providers and laboratories should report suspected and confirmed cases of *Vp* to SOE within 2 working days by fax (907-561-4293).
2. Consumers should be aware of the risks of eating raw oysters; adequately cooking oysters and other shellfish before consumption will kill *Vibrio* bacteria.
3. Shellfish dealers, food services, and markets that distribute, sell, or handle oysters should only accept oysters from permitted dealers, keep accurate records, and minimize “time out of temperature” control.²
4. Oyster harvesters should refer to and follow the *Vibrio parahaemolyticus* Control Plan produced and published by the Alaska DEC Food Safety and Sanitation Program.²

References

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