State of Alaska Epidemiology **Bulletin**

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Outbreak of *Vibrio parahaemolyticus* Gastroenteritis Associated with Consumption of Alaskan Oysters—Summer, 2004

Background

Vibrio parahaemolyticus is a bacterium that naturally inhabits coastal waters in North America. It causes gastrointestinal illness in humans characterized by watery diarrhea often with abdominal cramping, nausea, vomiting, fever, and chills. These symptoms typically occur within 24 hours of ingestion. Illness is usually self-limited and lasts 3 days. Severe disease is rare and occurs more commonly in persons with weakened immune systems. Most people become infected by eating raw or undercooked shellfish, particularly oysters.

Introduction

On July 16, the Section of Epidemiology (SOE) was notified by the Alaska Department of Environmental Conservation (DEC) of several cases of gastroenteritis among passengers of a cruise ship (Ship A) that sails in Prince William Sound (PWS). On July 19, a health official from the Nevada Office of Epidemiology notified SOE that a Nevada resident who sailed onboard Ship A this summer tested positive for *V. parahaemolyticus*. This passenger stated that his illness started one day after consuming raw PWS oysters. In collaboration with the US Food and Drug Administration (FDA), we began an investigation.

Epidemiologic Investigation

In collaboration with the Municipality of Anchorage, Department of Health and Human Services staff, we conducted a case-finding investigation to identify additional persons who developed gastroenteritis after consuming Alaskan oysters this summer. This was facilitated in the following ways: on August 2, we issued a Public Health Alert, notifying health care providers in Alaska of the outbreak and asking them to report cases; on August 3, an article appeared in the Anchorage Daily News, notifying readers of the persons who experienced gastroenteritis after consuming oysters this summer to report their illness to SOE. Acutely ill persons were asked to submit a stool sample for laboratory analysis.

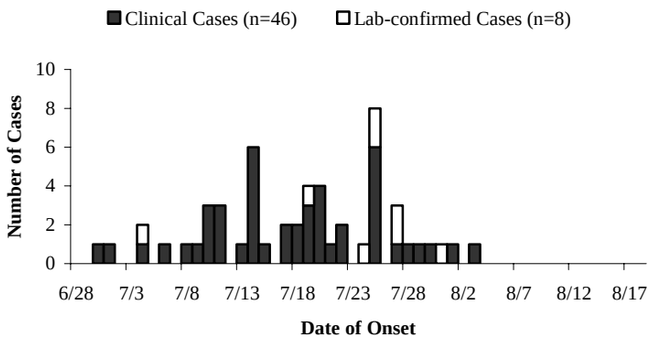
Environmental Investigation

FDA sanitarians performed a detailed investigation of the cruise ship, including monitoring disinfection practices and food handling, and obtaining food and water samples for laboratory testing. On July 21, DEC staff traveled to Farm A, the Ship A oyster supplier, to collect water temperatures and samples of oysters, water, and sediment for laboratory analysis.

Case-finding Results

SOE identified 54 persons who met the case definition of having new onset of three or more episodes of watery diarrhea in a 24-hour period that started within 2 days of consumption of raw oysters collected from Alaskan waters (Figure 1). Forty (74%) case-patients were male. The median age was 48 years (range, 7-53). In addition to diarrhea, symptoms included abdominal cramping (83%), chills (43%), feverishness (42%), myalgias (37%), headache (33%), vomiting (27%), mucousy diarrhea (26%), and bloody diarrhea (8%). A total of eight case-patients submitted stool samples for testing. All eight were culture-positive for *V. parahaemolyticus.*

Figure 1. Cases of *V. parahaemolyticus* Gastroenteritis by Date of Illness Onset (N=54)



Environmental Results

Water surface temperatures at Farm A were 62-63ºF. Two water, one sediment, and six oyster samples collected from Farm A were culture-positive for *V. parahaemolyticus*. Per the National Shellfish Sanitation Plan, *V. parahaemolyticus* Interim Control Plan, Farm A was closed pending further analysis. On August 2, DEC initiated a *V. parahaemolyticus* monitoring program of all other active shellfish farms in Alaska. If any other growing areas are closed as a result of this monitoring program, DEC will issue a press release.

Discussion

To our knowledge, this is the first recorded *V. parahaemolyticus* outbreak that has been associated with consumption of Alaskan oysters. *V. parahaemolyticus* requires a minimum water temperature of 62ºF in order to thrive. Although *V. parahaemolyticus* has been isolated from southeast Alaskan seafood at one time in the past,[1] Alaskan waters have traditionally been considered too cold for pathogenic concentrations of these bacteria to accumulate in seafood.

Recommendations

1. Persons who eat raw seafood, particularly oysters, should be educated about the possible health risks associated with consumption.
2. Seafood should be cooked at ≥145ºF for at least 15 seconds, and if not ingested immediately, it should be refrigerated.[2]
3. Report additional cases of *V. parahaemolyticus* gastroenteritis to SOE staff at (907) 269-8000 during working hours or (800) 478-0084 after hours.
4. Persons seeking additional information on *V. parahaemolyticus* should visit the following websites:
   a. www.epi.Alaska.gov
   b. www.cdc.gov/ncidod/dbmd/diseaseinfo/vibrioparahaemolyticus_g.htm

References

1. Vasconcelos GJ, Stang WJ, Laidlaw RH. Isolation of Vibrio parahaemolyticus and Vibrio alginolyticus from estuarine areas of Southeastern Alaska. *Appl Microbiol.* 1975;29(4):557.
2. Available at: http://www.cfsan.fda.gov/~dms/fc01-3.html#3-4

We thank all agencies that participated in this investigation for their valuable assistance.

(Contributed by Joe McLaughlin, MD, MPH and Karen Martinek, RN, MPH.)