

# Vibrio Parahaemolyticus

## Revision Dates

Case Definition	August 2011
Reporting Requirements	July 2018
Remainder of the Guideline (i.e., Etiology to References sections inclusive)	October 2005

## Case Definition

### Confirmed Case

Clinical illness<sup>(A)</sup> with laboratory confirmation of infection<sup>(B)</sup>

- Isolation of *Vibrio parahaemolyticus* from urine, stool or blood

OR

- Isolation of *Vibrio parahaemolyticus* from implicated food(s).

*\*This probable case definition is provided as a guideline to assist with case finding and public health management, and should not be reported to Alberta Health.*

### Probable Case\*

Clinical illness<sup>(A)</sup> in a person who is epidemiologically linked to a confirmed case.

<sup>(A)</sup> Clinical illness is characterized by watery diarrhea and abdominal cramps, but may also include nausea, emesis, fever and headache.

<sup>(B)</sup> Laboratory testing for this organism is performed only upon request.

## Reporting Requirements

### 1. Physicians, Health Practitioners and Others

Physicians, health practitioners and others shall notify the Medical Officer of Health (MOH) (or designate) of the zone, of all confirmed cases in the prescribed form by mail, fax or electronic transfer within 48 hours (two business days).

### 2. Laboratories

All laboratories shall report all positive laboratory results by mail, fax or electronic transfer within 48 hours (two business days) to the:

- Chief Medical Officer of Health (CMOH) (or designate), and
- MOH (or designate) of the zone.

### 3. Alberta Health Services and First Nations Inuit Health Branch

- The MOH (or designate) of the zone where the case currently resides shall forward the initial Notifiable Disease Report (NDR) of all confirmed cases to the CMOH (or designate) within two weeks of notification and the final NDR (amendment) within four weeks of notification.
- For out-of-province and out-of-country reports, the following information should be forwarded to the CMOH (or designate) by phone, fax or electronic transfer within 48 hours (two business days):
  - name,
  - date of birth,
  - out-of-province health care number,
  - out-of-province address and phone number,
  - positive laboratory report, and
  - other relevant clinical / epidemiological information.

## Etiology

*Vibrio parahaemolyticus* is a gram negative bacilli; halophilic (salt-requiring). The strains that are pathogenic may produce a characteristic hemolytic reaction known as the “Kanagawa phenomenon”.

## Clinical Presentation

*Vibrio parahaemolyticus* has the ability to produce both an enterotoxin and cause inflammation of the small bowel mucosa. Infection is generally characterized by gastroenteritis including watery diarrhea and abdominal cramps within 24 hours of ingestion of the contaminated seafood. On occasion nausea, vomiting, mild fever, and headache may be present. Rarely, bloody or mucoid stools, high fever, and high WBC count (dysentery-like illness) occur. The illness is self-limited lasting one to seven days. Deaths are rare. The infective dose for most individuals is relatively high. Asymptomatic cases are not common.

## Diagnosis

The diagnosis is made by isolation of Kanagawa positive *V. parahaemolyticus* from the feces or vomitus of the case or identification of the organism in implicated foods (typically seafood).

## Epidemiology

### Reservoir

The natural habitat for this organism is marine coastal waters. They are found in marine silt during the cold season and in coastal water, fish, and shellfish during the warmer season. There is no mammalian reservoir.

### Transmission

*V. parahaemolyticus* is not passed from person to person but rather through the ingestion of infected raw or inadequately cooked seafood or any other food contaminated by handling raw seafood. Food may become contaminated by washing or rinsing with seawater on ships. A total dose of greater than one million organisms has the potential to cause disease.(1)

### Incubation Period

The incubation period is generally between 12 and 24 hours but may range between four and 30 hours.

### Period of Communicability

It is not communicable person to person.

### Host Susceptibility

It is thought that most people are susceptible.

## Occurrence

### General

Cases occur primarily in the warmer months. There have been outbreaks and sporadic cases reported from many parts of the world, most commonly Japan, southeast Asia, and the US.

### Canada

The majority of cases reported are in travellers, however, raw oysters have been implicated in outbreaks in Canada.(2,3)

#### Alberta (4)

From 1999 to 2004, 45 cases of *Vibrio parahaemolyticus* were reported in Alberta. The majority of cases (42 cases) were in adults over the age of 20. In approximately one third of the reported cases the source of infection was identified as foodborne.

### Key Investigation

#### Single Case/Household Cluster

- Determine the possible source of infection considering the incubation period, reservoir, and mode of transmission. Assessment may include:
  - determining contact with a potential source (reservoir), especially a history of consumption of raw or undercooked fish or seafood.
  - obtaining a food history, and
  - identifying history of travel.
- Assess for history of similar symptoms in other members in the household.
- Obtain implicated food samples, if possible.
- Suspected contaminated food may be held to prevent consumption.
- Suspected contaminated food may be destroyed.

### Control

#### Management of a Case

- All cases should be instructed about disease transmission and appropriate personal hygiene.
- Symptomatic and asymptomatic individuals are generally not excluded from work or daycare.
- Routine practices should be used in healthcare settings.

#### Treatment of a Case

- No treatment is necessary or useful for the majority of patients. Treatment has not been shown to lessen the duration, severity of illness or reduce the excretion of the organism.
- Tetracycline and cefotaxime may benefit those with severe diarrhea.
- Fluid and electrolyte replacement may be beneficial to some individuals.
- Anti-motility medications are not beneficial.

#### Management of Contacts

- The infection is not passed person to person.
- Individuals exposed to the suspected source of the infection should be instructed about disease transmission and appropriate personal hygiene.
- Individuals exposed to the suspected source of the infection may be monitored during the incubation period and offered treatment as necessary.

#### Preventive Measures

- Educate food handlers about proper food handling, preparation and hygiene.
- Cook seafood to high temperature (>80°C) and ensure all portions of the seafood are exposed to these high temperatures.
- Refrigerate cooked seafood if it will not be ingested immediately after cooking. *Vibrio parahaemolyticus* can multiply rapidly to reach high counts in contaminated foods held at room temperature for just a few hours.
- Avoid the use of untreated seawater for washing foods.
- Avoid the consumption of raw oysters.
- All children and persons with liver disease or immunodeficiency should avoid consumption of raw or undercooked seafood.

## References

- (1) *Foodborne Pathogenic Microorganisms and Natural Toxins 1992 - Vibrio Parahaemolyticus*. US Food and Drug Administration Centre for Food Safety and Applied Nutrition. Bad Bug Book. January 1992. <http://www.cfsan.fda.gov/~mow/chap9.html>
- (2) Public Health Agency of Canada. *Risk of Enteric Illness Associated with Travel: A Case Review of Gastroenteritis Among Canadian Travellers: January to April, 2000*. Ottawa: CCDR 2001; 27-06. <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/01vol27/dr2706ea.html>
- (3) Public Health Agency of Canada. *Outbreak of Vibrio Parahaemolyticus Related to Raw Oysters in British Columbia*. Ottawa: CCDR 1997; 23-19. <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/97vol23/dr2319ea.html>
- (4) Alberta Health and Wellness, Disease Control and Prevention. *Notifiable Diseases – Alberta*. Communicable Disease Reporting System. March 2003.