

Vibrio Cholerae (non-O1, non-O139)

Revision Dates

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

Case Definition

Confirmed Case

Clinical illness^[1] with laboratory confirmation of infection:

- Isolation of non-O1, non-O139 *Vibrio cholerae* in an appropriate clinical specimen (e.g., urine, stool or blood)^[2].

**The following probable case definition is provided as a guideline to assist with case finding and public health management, and should not be reported to AHW.*

Probable Case*

Clinical illness^[1] in a person who is epidemiologically linked to a confirmed case.

^[1] Clinical illness is characterized by gastroenteritis (watery diarrhea, abdominal cramps, nausea, emesis, fever, headache), wound infection or septicemia. The latter usually only develop in hosts who are immunocompromised, have chronic liver disease or are severely malnourished.

^[2] Refer to the [National Microbiology Laboratory \(NML\) Guide to Services](#) for current specimen collection and submission information.

Reporting Requirements

1. Physicians, Health Practitioners and others

Physicians, health practitioners and others listed in Sections 22(1) or 22(2) of the *Public Health Act* shall notify the Medical Officer of Health (MOH) (or designate) of all confirmed cases in the prescribed form by mail, fax or electronic transfer within 48 hours (two days).

2. Laboratories

All laboratories, including regional laboratories and the Provincial Laboratory for Public Health (PLPH) shall in accordance with Section 23 of the *Public Health Act*, report all positive laboratory results by mail, fax or electronic transfer within 48 hours (two days) to the:

- Chief Medical Officer of Health (CMOH) (or designate),
- MOH (or designate) and
- Attending/ordering physician.

3. Alberta Health Services and First Nations Inuit Health

- The MOH (or designate) of the zone where the case currently resides shall forward the preliminary 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-zone reports, the MOH (or designate) first notified shall notify the MOH (or designate) of the zone where the client currently resides by mail, fax or electronic transfer and fax a copy of the positive laboratory report within 48 hours (two days).
- 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 days) including:
 - name,
 - date of birth,
 - out-of-province health care number,
 - out-of-province address and phone number,
 - attending physician (locally and out-of-province) and
 - positive laboratory report (faxed).

Etiology

V. cholerae non-O1, non-O139 is a gram negative bacilli; nonhalophilic (trace amounts of salt are tolerated).

Clinical Presentation

This organism produces a wide spectrum of diarrheal illness ranging from mild to severe. Infection is characterized by gastroenteritis (diarrhea, abdominal cramps, nausea and vomiting, fever, and headache). Infection may also develop in contaminated wounds and, for immunocompromised hosts, rapid and extensive necrosis may occur. Persons with liver disease, severe malnutrition or immunodeficiency may develop septicemia from bowel or skin lesions. The disease is generally self-limited lasting two to five days.

Diagnosis

The organism is isolated by culture from vomitus or stool of individuals with diarrhea, from blood, urine and from wounds. Identification requires special techniques and specific testing for *V. cholerae* must be requested.

Epidemiology

Reservoir

The reservoir for non-O1, non-O139 is aquatic environments worldwide. It predominantly occurs in brackish (salty) waters where they are found adherent to zooplankton and shellfish. They can also proliferate in fresh water (e.g., lakes). *V. cholerae* counts tend to be highest in warm seasons.

Transmission

Cases are most commonly linked to consumption of raw or undercooked seafood, in particular, shellfish. Wound infections may result from exposure of cuts or abrasions to contaminated seawater or from injuries sustained while handling contaminated shellfish. It is not known whether these infections can be transmitted person to person or by humans contaminating food. It is suspected that large numbers (more than one million) of the organism must be ingested to cause Disease.(1)

Incubation Period

The incubation period is short, ranging from 12 to 24 hours.

Period of Communicability

It is not known whether these infections may be passed person to person or by contamination of food vehicles from humans.

Host Susceptibility

All humans are susceptible. Hosts, who are immunocompromised, have chronic liver disease or severe malnutrition may develop septicemia.

Occurrence

General

Vibrio cholerae non-O1, non-O139 is uncommon in developed countries but may account for 2 to 3% of cases of diarrhea in tropical developing countries. Infection in tourists or travellers from developed countries is extremely rare. No major outbreaks in North America have been attributed to this organism, however, sporadic cases occur frequently along the coast of the US and are most often associated with the consumption of raw oysters during the warmer months.(1)

Canada

During the period of April 1996 to March 1997, six cases were reported. The majority of these cases originated from within Canada, possibly from lakes.(2)

Alberta (3)

No cases of *V. cholerae* were reported from 1985 to 2002. Six cases were reported in 2003 and one case in 2004. All were reported from large urban regions. The source of infection was identified as foodborne in two cases and unknown/other in four cases. Ages affected were children under the age of seven and adults 40 to 65 years of age.

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), in particular, a history of consumption of raw or undercooked seafood
 - obtaining a food history,
 - identifying recent contact with lake water, 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 of 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 antimicrobial treatment is necessary or useful in shortening the illness, however, in persons with severe diarrhea tetracycline and cefotaxime may be used.
- Fluid and electrolyte replacement may be beneficial to some individuals.
- Antimotility medications are not beneficial.

Management of Contacts

- It is not known if the infection is 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 temperatures (>80°C) and ensure all portions of the seafood are exposed to these high temperatures.
- Avoid the consumption of raw oysters.

- All children and persons with liver disease or immunodeficiency should avoid consumption of raw or undercooked seafood.

Superseded

References

1. *Foodborne Pathogenic Microorganisms and Natural Toxins Handbook - Cholerae Non-O1*. US Food and Drug Administration. Centre for Food Safety and Applied Nutrition. Bad Bug Book. January 1992.
<http://www.cfsan.fda.gov/~mow/chap8.html>
2. Public Health Agency of Canada. *Vibrio Cholerae Non-O1 on Blood Culture, Saskatchewan*. Ottawa: CCDR 1998;24-22.
<http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/98vol24/dr2422eb.html>
3. Alberta Health and Wellness, Disease Control and Prevention. *Communicable Disease Reporting System*. March 2003.

Superseded