

2015 Case Definition

Vibriosis (any species of the family Vibrionaceae, other than toxigenic *Vibrio cholerae* O1 or O139)

CSTE Position Statement(s)

11-ID-12

Clinical Description

An infection of variable severity characterized by watery diarrhea, primary septicemia, or wound infection. Asymptomatic infections may occur, and the organism may cause extra-intestinal infection.

Laboratory Criteria for Diagnosis

Isolation of a species of the family Vibrionaceae (other than toxigenic *Vibrio cholerae* O1 or O139, which are reportable as cholera) from a clinical specimen.

Case Classification

Probable

A clinically compatible case that is epidemiologically linked to a confirmed case.

Confirmed

A case that meets the laboratory criteria for diagnosis. Note that species identification and, if applicable, serotype designation (i.e., *Vibrio cholerae* non-O1, non-O139 or *Grimontia hollisae*) should be reported.

Comment(s)

Genera in the family Vibrionaceae (not all have been recognized to cause human illness) currently include:

- Aliivibrio
- Allomonas
- Catenococcus
- Enterovibrio
- Grimontia
- Listonella
- Photobacterium
- Salinivibrio
- Vibrio

In addition to reporting through the National Notifiable Diseases Surveillance System (NNDSS), CDC requests that states collect and report the information on the standard form for Cholera and Other *Vibrio* Illness Surveillance (COVIS), available at:

http://www.cdc.gov/nationalsurveillance/cholera_vibrio_surveillance.html. CDC intends to integrate the COVIS form into the National Electronic Diseases Surveillance System (NEDSS) in the future. Reporting sites should use the COVIS reporting form until the integration is successfully implemented.

CDC requests that all *Vibrio* isolates be forwarded to the Enteric Diseases Laboratory Branch (EDLB) for characterization. EDLB (specifically the Epidemic Investigations Laboratory) requests that state public health labs immediately forward all suspect *V. cholerae* isolates for serogrouping and cholera toxin testing as well as biotype and antimicrobial susceptibility testing.

References

- <http://www.cdc.gov/nczved/divisions/dfbmd/diseases/vibriop/>
- Control of Communicable Diseases Manual, 19th Edition
- Red Book, 2006 Report of the Committee on Infectious Diseases, 27th Edition
- Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee. 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings. Available at <http://www.cdc.gov/hicpac/pdf/isolation/isolation2007.pdf>

Vibrio Cholerae

- Organism:** *Vibrio cholerae* is a gram negative, curved, mobile bacillus with many serogroups. Only serogroups O1 and O139 cause clinical cholera associated with enterotoxin.
- Incubation Period:** Usually is 1 to 3 days, with a range of a few hours to 5 days.
- Infectious Period:** As long as stools are positive, usually only a few days after recovery. Occasionally the carrier state may persist for several months. Antibiotics known to be effective against the infecting strains shorten the period of communicability but are not recommended for treatment. Rarely, chronic biliary infection lasting for years, associated with intermittent shedding of vibrios in the stool, has been observed in adults.
- Transmission Route:** Humans are the only documented natural host, but free-living *V. cholerae* organisms can exist in the aquatic environment. The usual mode of infection is ingestion of large numbers of organisms from contaminated water or food (particularly raw or undercooked shellfish, raw or partially dried fish, or moist grains or vegetables held at ambient temperature). Direct person-to-person spread has not been documented.
- Treatment:** Supportive care with aggressive oral and intravenous rehydration. An antibiotic given orally will reduce the volume and duration of diarrhea. No other drugs for treatment of diarrhea or vomiting should be given.

Appropriate oral antibiotics (give one of these, see NOTE below)

- Doxycycline Adult: 300 mg in one dose
- Tetracycline Adult: 500 mg, 4 times a day for 3 days Child: 12.5 mg/kg, 4 times a day for 3 days
- Trimethoprim-sulfamethoxazole (TMP-SMX) Adult: 160 mg TMP and 800 mg SMX, 2 times a day for 3 days Child: 5 mg/kg TMP and 25 mg/kg SMX, 2 times a day for 3 days
- Furazolidone Adult: 100 mg, 4 times a day for 3 days Child: 1.25 mg/kg, 4 times a day for 3 days

NOTE: Doxycycline is the antibiotic of choice for adults (except pregnant women) because only one dose is required. TMP-SMX is the antibiotic of choice for children. Furazolidone is the antibiotic of choice for pregnant women. Erythromycin may be used when other antibiotics are not available, or the organism is resistant to them.

Information Needed for the Investigation

Verify the Diagnosis

- Clinical history: Cholera is characterized by painless voluminous diarrhea without abdominal cramps or fever. Stools are colorless, with small flecks of mucous (“rice-water”). Most infected people with toxigenic *V. cholerae* O1 have no symptoms, and some have only mild to moderate diarrhea lasting 3 to 7 days; fewer than 5% have severe watery diarrhea, vomiting, and dehydration.
- Laboratory: Diagnosis is confirmed by isolating *V. cholerae* of the serogroups O1 or O139 from stool specimen.

Determine the Extent of Illness:

- Most of our cholera reports are sporadic cases from overseas. Use CDC cholera case form for interview.
- If appears endemic to Alaska:
 - Use a foodborne outbreak questionnaire, and ask all identified case-patients to name others known to have symptoms.
 - Investigation of contacts and source of infection: Investigate possibilities of infection from polluted drinking water and contaminated food. Meal companions for the 5 days prior to onset should be interviewed.
 - Retrieve and refrigerate implicated food(s).
 - Notify DEC, PHN, CHAs as appropriate.

Laboratory Specimens

- Collect stool and place in Enteric Transport Media (ETM). If *V. cholerae* is suspected, this **must** be requested on the requisition form at time of specimen collection. *V. cholerae* requires special media to grow.
- Alaska State Public Health Laboratory can identify the common *Vibrio* species that affect humans, and serotype for *V. cholerae* to determine if it is O1 or non-O1. Further characterization and PFGE is done at CDC.
- Contact DEC for food or water specimen submission requests.

Contact and Control Measures

- Surveillance of persons who shared food and drink with a cholera patient for five days from last exposure. If there is evidence or high likelihood of secondary transmission within households, household members can be given chemoprophylaxis; in adults, tetracycline (500 mg 4 times daily) for 3 days or doxycycline a single dose of 300 mg, unless local strains are known to be resistant. Children may also be given tetracycline (50mg/kg/day in 4 divided doses for 3 days or doxycycline as single dose of 6mg/kg). There is no risk of staining teeth with such short courses of tetracyclines.
- Appropriate hand hygiene after using the bathroom and before preparing or eating food is important for preventing transmission.
- Disinfection or boiling of water prevents transmission. Thoroughly cooking shellfish before eating is recommended to decrease the likelihood of transmission.
- Notify DEC (907-269-7501), PHN, CHAs as appropriate.

Hospital Considerations

- Use Standard Precautions.
- Contact Precautions are indicated for diapered or incontinent children or adults for the duration of illness or to control institutional outbreaks.

Reporting Requirements

- AK-STARS: all resident cases.
- Complete CDC's Cholera and other Vibrio Illness Surveillance Form available at: http://www.cdc.gov/nationalsurveillance/PDFs/CDC5279_COVISvibriosis.pdf
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- FTR for unusual clusters or occurrences.

References

- <http://www.cdc.gov/cholera/index.html>
- Control of Communicable Diseases Manual, 19th Edition
- Red Book, 2006 Report of the Committee on Infectious Diseases, 27th Edition
- Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee. 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings. Available at <http://www.cdc.gov/hicpac/pdf/isolation/isolation2007.pdf>

Cholera (*Vibrio cholerae*)

1996 Case Definition

CSTE Position Statement Number: 09-ID-03

Clinical description

An illness characterized by diarrhea and/or vomiting; severity is variable.

Laboratory criteria for diagnosis

- Isolation of toxigenic (i.e., cholera toxin-producing) *Vibrio cholerae* O1 or O139 from stool or vomitus, or
- Serologic evidence of recent infection

Case classification

Confirmed: a clinically compatible illness that is laboratory confirmed

Comment

Illnesses caused by strains of *V. cholerae* other than toxigenic *V. cholerae* O1 or O139 should not be reported as cases of cholera. The etiologic agent of a case of cholera should be reported as either *V. cholerae* O1 or *V. cholerae* O139. Only confirmed cases should be reported to NNDSS by state health departments.

The 1996 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-03. Thus, the 1996 and 2010 versions of the case definition are identical.

See also:

[1995 Case Definition](#)

[1990 Case Definition](#)



Cholera Fact Sheet

What is cholera?

Cholera is an acute, diarrheal illness caused by infection of the intestine with the bacterium *Vibrio cholerae*. The infection is often mild or without symptoms, but sometimes it can be severe.

Approximately one in 20 infected persons has severe disease characterized by profuse watery diarrhea, vomiting, and leg cramps. In these persons, rapid loss of body fluids leads to dehydration and shock. Without treatment, death can occur within hours.

How does a person get cholera?

A person may get cholera by drinking water or eating food contaminated with the cholera bacterium. In an epidemic, the source of the contamination is usually the feces of an infected person. The disease can spread rapidly in areas with inadequate treatment of sewage and drinking water.

The cholera bacterium may also live in the environment in brackish rivers and coastal waters. Shellfish eaten raw have been a source of cholera, and a few persons in the United States have contracted cholera after eating raw or undercooked shellfish from the Gulf of Mexico. The disease is not likely to spread directly from one person to another; therefore, casual contact with an infected person is not a risk for becoming ill.

What is the risk for cholera in the United States?

In the United States, cholera was prevalent in the 1800s but has been virtually eliminated by modern sewage and water treatment systems. However, as a result of improved transportation, more persons from the United States travel to parts of Africa, Asia, or Latin America where epidemic cholera is occurring. U.S. travelers to areas with epidemic cholera may be exposed to the cholera bacterium. In addition, travelers may bring contaminated seafood back to the United States; foodborne outbreaks have been caused by contaminated seafood brought into this country by travelers.

What should travelers do to avoid getting cholera?

The risk for cholera is very low for U.S. travelers visiting areas with epidemic cholera. When simple precautions are observed, contracting the disease is unlikely.

All travelers to areas where cholera has occurred should observe the following recommendations:

- Drink only water that you have boiled or treated with chlorine or iodine. Other safe beverages include tea and coffee made with boiled water and carbonated bottled beverages with no ice.
- Eat only foods that have been thoroughly cooked and are still hot, or fruit that you have peeled yourself.
- Avoid undercooked or raw fish or shellfish, including ceviche.
- Make sure all vegetables are cooked avoid salads.
- Avoid foods and beverages from street vendors.
- Do not bring perishable seafood back to the United States.

A simple rule of thumb is "*Boil it, cook it, peel it, or forget it.*"

Can cholera be treated?

Cholera can be simply and successfully treated by immediate replacement of the fluid and salts lost through diarrhea. Patients can be treated with oral rehydration solution, a prepackaged mixture of sugar and salts to be mixed with water and drunk in large amounts. This solution is used throughout the world to treat diarrhea. Severe cases also require intravenous fluid replacement. With prompt rehydration, less than 1% of cholera patients die.

Antibiotics shorten the course and diminish the severity of the illness, but they are not as important as rehydration. Persons who develop severe diarrhea and vomiting in countries where cholera occurs should seek medical attention promptly.

Where can a traveler get information about cholera?

The global picture of cholera changes periodically, so travelers should seek updated information on countries of interest. The Centers for Disease Control and Prevention maintains a travelers information telephone line on which callers can receive recent information on cholera and other diseases of concern to travelers. Data for this service are obtained from the World Health Organization. The number is 877-FYI-TRIP (394-8747) or check out <http://www.cdc.gov/travel> .

Vibrio parahaemolyticus

- Organism:** *Vibrio parahaemolyticus*, a halophilic (salt-requiring) gram-negative bacterium naturally and commonly found in warm marine and estuarine environments.
- Incubation Period:** Usually between 12 and 24 hours, but can range from 4 to 30 hours.
- Infectious Period:** Not normally communicable from person-to-person (except fecal-oral transmission).
- Transmission Route:** Ingestion of raw or inadequately cooked seafood, or any food contaminated by handling raw seafood, or by rinsing with contaminated water. Less commonly, wound infections may occur when wounds or soft tissues are exposed to warm seawater.
- Treatment:** Most episodes of diarrhea are mild and self-limited and do not require treatment other than oral rehydration. Antimicrobial therapy may benefit people with severe diarrhea, wound infection, or septicemia. Most organisms are susceptible to doxycycline, tetracycline, cefotaxime, fluoroquinolones and chloramphenicol.

Information Needed for the Investigation

Verify the Diagnosis

- Clinical History: Watery diarrhea, often with abdominal cramping, nausea, vomiting, and fever. Less commonly, wound or soft tissue infections. Occasionally bloodstream infections.
- Laboratory: Diagnosis is confirmed by isolating *Vibrio parahaemolyticus* from the patient's stool; or identifying 10^5 or more organisms per gram of an epidemiologically incriminated food (usually seafood).

Determine the Extent of Illness

- Use the 'Cholera and Other Vibrio Illness Surveillance Report (COVIS)' questionnaire from the Foodborne and Waterborne Disease webpage, or at http://www.cdc.gov/nationalsurveillance/PDFs/CDC5279_COVISvibriosis.pdf and ask all identified case-patients to name others known to have symptoms. Fax COVIS report to CDC fax number on questionnaire.
- Investigation of contacts and source of infection. Specifically inquire about consumption of raw seafood (particularly oysters).
- Retrieve and refrigerate implicated food(s).
- Notify DEC (Alaska Consumer Seafood Safety at 907 269-7640), PHN, CHAs as appropriate.

Laboratory Specimens

- Collect stool and place in Enteric Transport Media (ETM). If *V. parahaemolyticus* is suspected, this **must** be requested on the requisition form at time of specimen collection. *Vibrio* requires special media in which to grow.

- Alaska State Public Health Laboratory can identify the common *Vibrio* species that affect humans. Further serotyping is done at CDC.
- Contact DEC for food or water specimen submission requests.

Contact and Control Measures

- In addition to standard precautions, contact precautions are indicated for diapered or incontinent children or adults for the duration of illness.
- Educate consumers about the risks associated with eating raw seafood unless it has been irradiated or well cooked for 15 minutes at 70°C/158°F.
- Notify DEC (907) 269-7501.
- DEC is responsible for any press release about implicated commercial seafood product or contaminated Alaskan beaches.

Hospital Considerations

- Use Standard Precautions.
- Contact Precautions are indicated for diapered or incontinent children or adults for the duration of illness or to control institutional outbreaks.

Reporting Requirements

- AK-STARS: all resident cases.
- FTR for unusual clusters or occurrences.

Vibriosis (Non-cholera *Vibrio* spp.)

2007 Case Definition

CSTE Position Statement Number: 09-ID-69

Clinical description

An infection of variable severity characterized by diarrhea and vomiting, primary septicemia, or wound infections. Asymptomatic infections may occur, and the organism may cause extraintestinal infections.

Laboratory criteria for diagnosis

Isolation of *Vibrio* spp. other than toxigenic *Vibrio cholerae* O1 or O139 from a clinical specimen.*

Exposure

The most common mode of transmission is via raw or under cooked seafood, with oysters being the most frequently implicated source. Non-cholera *Vibrio* spp. may also be spread through contact with water, especially seawater.

Case classification

Probable: A clinically-compatible symptomatic case that is epidemiologically linked to a confirmed case.

Confirmed: A case that meets the laboratory criteria for diagnosis. Note that species identification and, if applicable, serotype designation (i.e., *Vibrio cholerae* non-O1/non-O139) should be reported.

Comment

In addition to reporting through the National Notifiable Diseases Surveillance System (NNDSS), CDC requests that states collect information on the standard surveillance form for Cholera and Other *Vibrio* Illness Surveillance System (COVISS), available at: http://www.cdc.gov/foodborneoutbreaks/documents/cholera_vibrio_report.pdf. CDC intends to integrate the COVISS form into the National Electronic Diseases Surveillance System (NEDSS) in the future. Reporting sites should use the COVISS reporting form until the integration is complete and COVISS data can be transmitted to CDC. CDC requests that *Vibrio cholerae* and *Vibrio parahaemolyticus* isolates be referred to the Foodborne and Diarrheal Diseases Laboratory for characterization.

The 2007 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-69. Thus, the 2007 and 2010 versions of the case definition are identical.

*Infections due to toxigenic *Vibrio cholerae* O1 or O139 are reportable as cholera (see current cholera case definition listed below).

See also:

[COVISS](#)

[1996 cholera case definition](#)

[1995 cholera case definition](#)

[1990 cholera case definition](#)



***Vibrio parahaemolyticus* Fact Sheet**

What is *Vibrio parahaemolyticus*?

Vibrio parahaemolyticus is a bacterium in the same family as those that cause cholera. It lives in brackish saltwater and causes gastrointestinal illness in humans. *V. parahaemolyticus* naturally inhabits coastal waters in the United States and Canada and is present in higher concentrations during summer; it is a halophilic, or salt-requiring organism.

What type of illness is caused by *V. parahaemolyticus*?

When ingested, *V. parahaemolyticus* causes watery diarrhea often with abdominal cramping, nausea, vomiting fever and chills. Usually these symptoms 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. *V. parahaemolyticus* can also cause an infection of the skin when an open wound is exposed to warm seawater.

How does infection with *V. parahaemolyticus* occur?

Most people become infected by eating raw or undercooked shellfish, particularly oysters. Less commonly, this organism can cause an infection in the skin when an open wound is exposed to warm seawater.

How common is infection with *V. parahaemolyticus*?

In Asia, *V. parahaemolyticus* is a common cause of foodborne disease. In the United States, it is less commonly recognized as a cause of illness, partly because clinical laboratories rarely use the selective medium that is necessary to identify this organism. Alaskan waters have traditionally been considered too cold for pathogenic concentrations of these bacteria to accumulate in seafood. However, during the summer of 2004, a *V. parahaemolyticus* outbreak was associated with consumption of Alaskan oysters.

How is *V. parahaemolyticus* infection diagnosed?

Vibrio organisms can be isolated from cultures of stool, wound, or blood. For isolation from stool, use of a selective medium that has thiosulfate, citrate, bile salts, and sucrose (TCBS agar) is recommended. If there is clinical suspicion for infection with this organism, the microbiology laboratory should be notified so that they will perform cultures using this medium. A physician should suspect *V. parahaemolyticus* infection if a patient has watery diarrhea and has eaten raw or undercooked seafood, especially oysters, or when a wound infection occurs after exposure to seawater.

How is *V. parahaemolyticus* treated?

Treatment is not necessary in most cases of *V. parahaemolyticus* infection. There is no evidence that antibiotic treatment decreases the severity or the length of the illness. Patients should drink plenty of liquids to replace fluids lost through diarrhea. In severe or prolonged illnesses, antibiotics such as tetracycline, ampicillin or ciprofloxacin can be used. The choice of antibiotics should be based on antimicrobial susceptibilities of the organism.

How do oysters get contaminated with *V. parahaemolyticus*?

Vibrio is a naturally occurring organism commonly found in waters where oysters are cultivated. When the appropriate conditions occur with regard to salt content and temperature, *V. parahaemolyticus* thrives.

How is *V. parahaemolyticus* infection prevented?

Most infections caused by *V. parahaemolyticus* in the United States can be prevented by thoroughly cooking seafood, especially oysters. Seafood should be cooked at $\geq 145^{\circ}\text{F}$ for at least 15 seconds, and if not ingested immediately, it should be refrigerated. Wound infections can be prevented by avoiding exposure of open wounds to warm seawater. When an outbreak is traced to an oyster bed, health officials recommend closing the oyster bed until conditions are less favorable for *V. parahaemolyticus*.

Vibrio vulnificus

Organism: A halophilic (salt-requiring) gram-negative bacterium. The organism is a natural inhabitant of warm coastal waters.

Incubation Period: Usually 12 to 72 hours after eating raw or undercooked seafood.

Infectious Period: Not considered to be transmitted from person-to-person.

Transmission Route: Among persons at high risk, including those who are immunocompromised or have chronic liver disease, infection is acquired through ingestion of raw or undercooked seafood. In immunocompetent hosts, infections typically occur after exposure of wounds to coastal or estuarine water (e.g. boating accidents) or from occupational wounds (oyster shuckers, fisherman).

Treatment: See below.

If *V. vulnificus* is suspected, treatment should be initiated immediately because antibiotics improve survival. Aggressive attention should be given to the wound site; amputation of the infected limb is sometimes necessary. Clinical trials for the management of *V. vulnificus* infection have not been conducted. The antibiotic recommendations below come from documents published by infectious disease experts; they are based on case reports and animal models:

- Culture of wound or hemorrhagic bullae is recommended
- Blood cultures are recommended if the patient is febrile, has hemorrhagic bullae, or has any signs of sepsis

Antibiotic therapy:

- Doxycycline (100 mg PO/IV twice a day for 7-14 days) and a third-generation cephalosporin (e.g., ceftazidime 1-2 g IV/IM every eight hours) is generally recommended.
- A single agent regimen with a fluoroquinolone such as levofloxacin, ciprofloxacin or gatifloxacin, has been reported to be at least as effective in an animal model as combination drug regimens with doxycycline and a cephalosporin.
- Children, in whom doxycycline and fluoroquinolones are contraindicated, can be treated with trimethoprim-sulfamethoxazole plus an aminoglycoside.

Information needed for the Investigation

Verify the Diagnosis

- Clinical features: wound or soft tissue infections. In persons with underlying medical conditions, especially liver disease, *V. vulnificus* can cause bloodstream infections characterized by fever, chills, decreased blood pressure, blistering skin lesions, and often, death. In otherwise healthy persons, causes diarrhea, vomiting, and abdominal pain.
- Laboratory: Diagnosis is confirmed by isolating *V. vulnificus* from stool, blood specimens, and from wound exudates.

Determine the Extent of Illness

- Use a foodborne outbreak questionnaire, and ask all identified case-patients to name others known to have symptoms.
- Investigation of contacts and source of infection. Specifically inquire about consumption of raw seafood.
- Retrieve and refrigerate implicated food(s).
- Notify DEC, PHN, CHAs as appropriate.

Laboratory Specimens

- Collect stool and place in Enteric Transport Media (ETM). If *V. vulnificus* is suspected, this **must** be requested on the requisition form at time of specimen collection. *Vibrio* requires special media in which to grow.
- Alaska State Public Health Laboratory (ASPHL) can identify the common *Vibrio* species that affect humans. ASPHL can do additional biochemical tests on *V. vulnificus* isolates to determine the biogroup (1, 2, or 3). Most isolates are Biogroup 1. There is no serotyping for *V. vulnificus*.
- Wound and blood cultures are worked up at acute care labs. The acute care labs would send the isolated organism to ASPHL for identification or confirmation if they were unable to identify it.
- Contact DEC for food or water specimen submission requests.

Contact and Control Measures

- Educate consumers about the risks associated with eating raw seafood unless it has been irradiated or well cooked for 15 minutes at 70°C/158°F.
- Educate food handlers about strict food hygiene, kitchen sanitation, proper temperature control, and handwashing. Exclude food service workers with lesions on face and hands.
- Notify DEC (907) 269-7501.

Hospital Considerations

- Use Standard precautions.
- Contact Precautions are indicated for diapered or incontinent children or adults for the duration of illness.

Reporting Requirements

- AK-STARS database
- Complete CDC's Cholera and other *Vibrio* Illness Surveillance Form available at: http://www.cdc.gov/national surveillance/PDFs/CDC5279_COVISvibriosis.pdf.
- FTR for unusual clusters or occurrences.

References

- <http://www.cdc.gov/nczved/divisions/dfbmd/diseases/vibriov/>
- Control of Communicable Diseases Manual, 19th Edition
- Red Book, 2006 Report of the Committee on Infectious Diseases, 27th Edition
- Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee. 2007 Guideline for Isolation Precautions: Preventing

Transmission of Infectious Agents in Healthcare Settings. Available at <http://www.cdc.gov/hicpac/pdf/isolation/isolation2007.pdf>

Vibriosis (Non-cholera *Vibrio* spp.)

2007 Case Definition

CSTE Position Statement Number: 09-ID-69

Clinical description

An infection of variable severity characterized by diarrhea and vomiting, primary septicemia, or wound infections. Asymptomatic infections may occur, and the organism may cause extraintestinal infections.

Laboratory criteria for diagnosis

Isolation of *Vibrio* spp. other than toxigenic *Vibrio cholerae* O1 or O139 from a clinical specimen.*

Exposure

The most common mode of transmission is via raw or under cooked seafood, with oysters being the most frequently implicated source. Non-cholera *Vibrio* spp. may also be spread through contact with water, especially seawater.

Case classification

Probable: A clinically-compatible symptomatic case that is epidemiologically linked to a confirmed case.

Confirmed: A case that meets the laboratory criteria for diagnosis. Note that species identification and, if applicable, serotype designation (i.e., *Vibrio cholerae* non-O1/non-O139) should be reported.

Comment

In addition to reporting through the National Notifiable Diseases Surveillance System (NNDSS), CDC requests that states collect information on the standard surveillance form for Cholera and Other *Vibrio* Illness Surveillance System (COVISS), available at: http://www.cdc.gov/foodborneoutbreaks/documents/cholera_vibrio_report.pdf. CDC intends to integrate the COVISS form into the National Electronic Diseases Surveillance System (NEDSS) in the future. Reporting sites should use the COVISS reporting form until the integration is complete and COVISS data can be transmitted to CDC. CDC requests that *Vibrio cholerae* and *Vibrio parahaemolyticus* isolates be referred to the Foodborne and Diarrheal Diseases Laboratory for characterization.

The 2007 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-69. Thus, the 2007 and 2010 versions of the case definition are identical.

*Infections due to toxigenic *Vibrio cholerae* O1 or O139 are reportable as cholera (see current cholera case definition listed below).

See also:

[COVISS](#)

[1996 cholera case definition](#)

[1995 cholera case definition](#)

[1990 cholera case definition](#)



Vibrio vulnificus Fact Sheet

What is *Vibrio vulnificus*?

Vibrio vulnificus is a bacterium in the same family as those that cause cholera. It normally lives in warm seawater and is part of a group of vibrios that are called "halophilic" because they require salt.

What type of illness does *V. vulnificus* cause?

V. vulnificus can cause disease in those who eat contaminated seafood or have an open wound that is exposed to seawater. Among healthy people, ingestion of *V. vulnificus* can cause vomiting, diarrhea, and abdominal pain. In immunocompromised persons, particularly those with chronic liver disease, *V. vulnificus* can infect the bloodstream, causing a severe and life-threatening illness characterized by fever and chills, decreased blood pressure (septic shock), and blistering skin lesions. *V. vulnificus* bloodstream infections are fatal about 50% of the time.

V. vulnificus can also cause an infection of the skin when open wounds are exposed to warm seawater; these infections may lead to skin breakdown and ulceration. Persons who are immunocompromised are at higher risk for invasion of the organism into the bloodstream and potentially fatal complications.

How common is *V. vulnificus* infection?

V. vulnificus is a rare cause of disease, but it is also underreported. Between 1988 and 1995, CDC received reports of over 300 *V. vulnificus* infections from the Gulf Coast states, where the majority of cases occur. There is no national surveillance system for *V. vulnificus*, but CDC collaborates with the states of Alabama, Florida, Louisiana, Texas, and Mississippi to monitor the number of cases of *V. vulnificus* infection in the Gulf Coast region. *V. vulnificus* has not been identified in Alaska.

How do persons get infected with *V. vulnificus*?

Persons who are immunocompromised, especially those with chronic liver disease, are at risk for *V. vulnificus* when they eat raw seafood, particularly oysters. A recent study showed that people with these pre-existing medical conditions were 80 times more likely to develop *V. vulnificus* bloodstream infections than were healthy people. The bacterium is frequently isolated from oysters and other shellfish in warm coastal waters during the summer months. Since it is naturally found in warm marine waters, people with open wounds can be exposed to *V. vulnificus* through direct contact with seawater. There is no evidence for person-to-person transmission of *V. vulnificus*.

How can *V. vulnificus* infection be diagnosed?

V. vulnificus infection is diagnosed by routine stool, wound, or blood cultures; the laboratory should be notified when this infection is suspected by the physician, since a special growth medium can be used to increase the diagnostic yield. Doctors should have a high suspicion for this organism when patients present with gastrointestinal illness, fever, or shock following the ingestion of raw seafood, especially oysters, or with a wound infection after exposure to seawater.

How is *V. vulnificus* infection treated?

If *V. vulnificus* is suspected, treatment should be initiated immediately because antibiotics improve survival. Aggressive attention should be given to the wound site; amputation of the infected limb is sometimes necessary.

Are there long-term consequences of *V. vulnificus* infection?

V. vulnificus infection is an acute illness, and those who recover should not expect any long-term consequences.

What can be done to improve the safety of oysters?

Although oysters can be harvested legally only from waters free from fecal contamination, even legally harvested oysters can be contaminated with *V. vulnificus* because the bacterium is naturally present in marine environments. *V. vulnificus* does not alter the appearance, taste, or odor of oysters. Timely, voluntary reporting of *V. vulnificus* infections to CDC and to regional offices of the Food and Drug Administration (FDA) will help collaborative efforts to improve investigation of these infections. Regional FDA specialists with expert knowledge about shellfish assist state officials with tracebacks of shellfish and, when notified rapidly about cases, are able to sample harvest waters to discover possible sources of infection and to close oyster beds when problems are identified. Ongoing research may help us to predict environmental or other factors that increase the chance that oysters carry pathogens.