

Vibriosis

(*Vibrio* spp.)

NOTE: This chapter pertains to species of *Vibrio* other than toxigenic *Vibrio cholerae* O1 or O139 (e.g., *V. parahaemolyticus*, *V. vulnificus*, *V. alginolyticus*). For information about *V. cholerae* infection, refer to the chapter titled “Cholera.”

DISEASE REPORTABLE WITHIN 24 HOURS OF DIAGNOSIS

Per NJAC 8:57, health care providers and administrators shall report by mail or by electronic reporting within 24 hours of diagnosis, confirmed cases of vibriosis to the health officer of the jurisdiction where the ill or infected person lives, or if unknown, wherein the diagnosis is made. A directory of local health departments in New Jersey is available at <http://www.state.nj.us/health/lh/directory/lhdselectcounty.shtml>.

If the health officer is unavailable, the health care provider or administrator shall make the report to the Department by telephone to 609.826.5964, between 8:00 A.M. and 5:00 P.M. on non-holiday weekdays or to 609.392.2020 during all other days and hours.



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1 THE DISEASE AND ITS EPIDEMIOLOGY

A. Etiologic Agent

Several *Vibrio* species (other than toxigenic *V. cholerae* O1 or O139) have been recognized as causative agents of human diseases: *V. parahaemolyticus* causes acute diarrheal disease, and *V. vulnificus* and *V. alginolyticus* cause distinctive soft tissue infections rather than diarrheal illness. These and all other *Vibrio* species are ubiquitous in coastal waters.

B. Clinical Description

Infection by *V. parahaemolyticus* is characterized by watery diarrhea and abdominal cramps in most cases, and is sometimes associated with nausea, vomiting, fever and headache, and bloody diarrhea. Rarely, wound infection and septicemia may be seen.

V. vulnificus infection causes septicemia in persons with chronic liver disease, chronic alcoholism, or immunocompromised conditions. The disease appears 12 hours to three days after eating raw or undercooked seafood. Upon seeking medical care, one third of patients present with shock, three quarters of patients have distinctive bullous skin lesions, and there is often evidence of disseminated intravascular coagulation. About 50% of patients with primary septicemia will die.

V. alginolyticus has been associated with cellulitis and acute otitis media or externa in otherwise healthy seawater swimmers.

C. Reservoirs

Environmental reservoirs exist in coastal or estuarine waters (ocean bays). *V. vulnificus* is a part of normal marine flora and is the second most frequently isolated *Vibrio* species in Florida. Nearly all oysters (and 10% of crabs) harvested in the summer from the Chesapeake Bay contain this pathogen.

D. Modes of Transmission

V. parahaemolyticus and *V. vulnificus* are usually transmitted via the ingestion of raw or undercooked shellfish.

V. alginolyticus and *V. vulnificus* can be transmitted through skin wounds exposed to estuarine water.

E. Incubation Period

The incubation period for *V. parahaemolyticus* is usually between 12 and 24 hours (range: four to 30 hours); the incubation period for *V. vulnificus* is 12 to 72 hours.

F. Period of Communicability or Infectious Period

Direct person-to-person spread has not been demonstrated.

G. Epidemiology

V. parahaemolyticus is a major cause of diarrheal disease in Japan. In the United States, it is the most commonly isolated *Vibrio* species in Florida. *V. vulnificus* is estimated to account for 90% of all seafood consumption–related deaths in the United States. According to Centers for Disease Control and Prevention (CDC) studies, among *Vibrio*-related illnesses, *V. vulnificus* was isolated in 28 (39%) of 71 wound infections, and *V. alginolyticus* and *V. parahaemolyticus* were isolated in 20% and 23%, respectively. The majority of cases were reported from Gulf Coast states (Alabama, Florida, Louisiana, Mississippi, and Texas); however, reporting is voluntary, and numbers may not reflect the true number of cases in each state. In New Jersey, approximately 12 cases of noncholera vibriosis are reported annually to the New Jersey Department of Health and Senior Services (NJDHSS).

2 CASE DEFINITION

A. New Jersey Department of Health and Senior Services (NJDHSS) Case Definition

Clinical description

Watery diarrhea, often with abdominal cramping, nausea, vomiting, and fever. Less commonly, wound or soft tissue infections. Occasionally bloodstream infections.

Laboratory criteria for diagnosis

Isolation of *Vibrio* species from a clinical specimen.

Case classification

CONFIRMED

Isolation of *Vibrio* species (other than toxigenic *V. cholerae* 01 or 139) from a clinical specimen.

PROBABLE

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

POSSIBLE

Not used.

B. Differences from CDC Case Definition

The NJDHSS and Centers for Disease Control and Prevention (CDC) case definitions are the same.

3 LABORATORY TESTING SERVICES AVAILABLE

The Public Health and Environmental Laboratories (PHEL) will test clinical specimens and food samples for the presence of *Vibrio* species and confirm isolates from other laboratories.

Prior approval from staff from the Infectious and Zoonotic Disease Program (IZDP) is required before testing will be performed. For more information, call PHEL at 609.292.7368.

4 PURPOSE OF SURVEILLANCE AND REPORTING AND REPORTING REQUIREMENTS

A. Purpose of Surveillance and Reporting

- To identify transmission sources of public health concern (e.g., contaminated water or a contaminated lot of shellfish) and to stop transmission from such sources.
- To provide education about reducing the risk of infection.

B. Laboratory Reporting Requirements

The New Jersey Administrative Code (NJAC 8:57-1.6) stipulates that laboratories report (by telephone, by confidential fax, or over the Internet using the Communicable Disease Reporting and Surveillance System [CDRSS]) all cases of vibriosis to the local health officer having jurisdiction over the locality in which the patient lives or, if unknown, to the health officer in whose jurisdiction the health care provider requesting the laboratory examination is

located. The report shall contain, at a minimum, the reporting laboratory's name, address, and telephone number; the age, date of birth, gender, race, ethnicity, home address, and telephone number of person tested; the test performed; the date of testing; the test results; and the health care provider's name and address.

C. Health Care Provider Reporting Requirements

The New Jersey Administrative Code (NJAC 8:57-1.4) stipulates that health care providers report (by telephone, by confidential fax, or in writing) all cases of vibriosis to the local health officer having jurisdiction over the locality in which the patient lives or, if unknown, to the health officer in whose jurisdiction the health care provider requesting the laboratory examination is located. The report shall contain the name of the disease; date of illness onset; and name, age, date of birth, race, ethnicity, home address, and telephone number of the person they are reporting. Additionally, name, address, institution, and telephone number of reporting official, and other information as may be required by NJDHSS concerning a specific disease, should be included in the report.

D. Local Department of Health Reporting and Follow-Up Responsibilities

The New Jersey Administrative Code (NJAC 8:57-1.7) stipulates that each local health officer must report the occurrence of any case of vibriosis within 24 hours of receiving a report from a laboratory or health care provider to the NJDHSS IZDP. A report can be mailed or filed electronically over the Internet using the confidential and secure CDRSS.

5 CASE INVESTIGATION

A. Forms

It is the health officer's responsibility to complete the official CDC [Cholera and Other Vibrio Illness Surveillance Report](#) reporting form by interviewing the patient and others who may be able to provide pertinent information. Much of the Clinical information can be obtained from the patient's health care provider or the medical record.

NOTE: Regarding Question 8 (Preexisting Conditions) in this section, if immunodeficiency is a condition, do not indicate a patient's HIV status.

- When asking about exposures, follow the incubation period guidelines provided on the form (e.g., "Did the patient travel in the seven days before the illness began?").
- In a case of an outbreak, immediately notify the NJDHSS IZDP by telephone at 609.588.7500 during business hours and 609.392.2020 after business hours and on weekends and holidays.

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- If there have been several unsuccessful attempts to obtain patient information, please fill out the report with as much information as possible. Please note on the report why it could not be completed.

After completing the worksheet, mail it (in an envelope marked “Confidential”) to the NJDHSS IZDP or file the report electronically over the Internet using the confidential and secure CDRSS. The mailing address is:

NJDHSS

Division of Epidemiology, Environmental and Occupational Health

Infectious and Zoonotic Diseases Program

PO Box 369

Trenton, NJ 08625-0369

1. Complete the “Epidemiologic Information” section. When asking about exposures, follow the incubation period guidelines provided on the form (e.g., “Did the patient travel in the seven days before the illness began?”).
 2. Complete the “Seafood Investigation” section if illness is suspected to be associated with seafood consumption. Record any restaurants, oyster bars, or food stores at which seafood was obtained by the case-patient.
 3. If there have been several attempts to obtain patient information, please fill out the form with as much information as possible. Please note on the form why it could not be filled out completely. **If CDRSS is used to report, enter the collected information in the “Comments” section.**
- After completing the form, attach lab report(s) and mail (in an envelope marked “Confidential”) to the NJDHSS IZDP, or file the report electronically over the Internet using the confidential and secure CDRSS. The mailing address is:

NJDHSS

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- Institution of disease-control measures is an integral part of case investigations. It is the local health officer’s responsibility to understand and, if necessary, institute the control guidelines listed below in Section 6, “Controlling Further Spread.”

B. Entry into CDRSS

The mandatory fields for all cases in CDRSS include: disease, last name, county, municipality, gender, race, ethnicity, case status, report status.

The following table can be used as a quick reference guide to determine which fields in CDRSS are necessary for accurate and complete reporting of vibriosis cases. The first

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column represents the tabs along the top of the CDRSS screen. The Required Fields column reflects a detailed explanation of the essential data for each tab.

CDRSS Screen	Required Information
Patient Info	Enter disease name “VIBRIO INFECTIONS (OTHER THAN V.CHOLERAE SPP.)”, patient demographics, patient onset and date report was made to the local health department. There are no subgroups for vibriosis.
Addresses	Use as needed for additional addresses (e.g., work address, school, temporary NJ address for out-of-state case, vacation address/location). Use the Comments section in this screen to record any pertinent information about the alternate address. Entering an alternate address will allow other disease investigators access to the case if the alternate address falls within their jurisdiction.
Clinical Status	Clinical information such as past medical history, any treatment that the patient received, name of medical facility(s) including date of initial healthcare evaluation and dates of hospitalization, treating physician(s), and mortality status are entered here. (NOTE: If the patient received care from two or more medical facilities, be sure all are recorded in the case including admit/discharge dates so the case can be accessed by all infection control professionals (ICPs) covering these facilities)
Signs/Symptoms	Make every effort to get complete information by interviewing the physician, family members, ICP, or others who might have knowledge of the patient’s illness. Check appropriate boxes for signs and symptoms and indicate their onset and resolution.
Risk Factors	Enter complete information about risk factors including complete food history (including any seafood consumption), travel history, any exposure to fresh or salt water, etc. in Comments section. When asking about exposures, follow the incubation period guidelines provided on the <u>CDC Cholera and Other Vibrio Illness Surveillance Report</u> (e.g., “Did the patient travel in the seven days before the illness began?”). If possible, record any restaurants at which the case-patient ate, including food item(s) and date consumed.

CDRSS Screen	Required Information
Laboratory Eval	Laboratory test name “MICROORGANISM IDENTIFIED”, Lab Specimen ID, Specimen, Date specimen collected, Lab Name, Referring Physician Name, Referring Medical Facility name, Test Result i.e., Positive/reactive or Negative/no reactive. (NOTE: Include name of <i>Vibrio</i> sp. isolated in lab test Value:)
Contact Tracing	Information regarding contacts is not required for this disease.
Case Comments	Any additional case investigation findings that can not be entered in discrete data fields are documented in the general comment section.
Epidemiology	<p>Select the route of transmission route, import status of infection i.e., whether the case was imported and from where (another county, state, country), LHD notification of illness and association with high-risk venue type, name, location and last day of attendance.</p> <p>The NJDHSS assigned outbreak or investigation number is selected for all involved cases which automatically populates a summary of the initial report.</p>
Case Classification Report Status	<p>Case status options are: “REPORT UNDER INVESTIGATION (RUI),” “CONFIRMED,” “PROBABLE,” “POSSIBLE,” and “NOT A CASE.”</p> <ul style="list-style-type: none"> • All cases entered by laboratories (including LabCorp electronic submissions) should be assigned a case status of “REPORT UNDER INVESTIGATION (RUI).” • Cases still under investigation by the LHD should be assigned a case status of “REPORT UNDER INVESTIGATION (RUI).” • Upon completion of the investigation, the LHD should assign a case status on the basis of the case definition. “CONFIRMED”, “PROBABLE” and “NOT A CASE” are the only appropriate options for classifying a case of vibriosis. (See Section 2). <p>Report status options are: “PENDING,” “LHD OPEN,” “LHD REVIEW,” “LHD CLOSED,” “DELETE,” “REOPENED,” “DHSS OPEN,” “DHSS REVIEW,” and “DHSS APPROVED.”</p> <ul style="list-style-type: none"> • Cases reported by laboratories (including LabCorp electronic submissions) should be assigned a report status of “PENDING.” • Once the LHD begins investigating a case, the report status

CDRSS Screen	Required Information
	<p>should be changed to “LHD OPEN.”</p> <ul style="list-style-type: none"> • The “LHD REVIEW” option can be used if the LHD has a person who reviews the case before it is closed (e.g., health officer or director of nursing). • Once the LHD investigation is complete and all the data are entered into CDRSS, the LHD should change the report status to “LHD CLOSED.” • “LHD CLOSED” cases will be reviewed by DHSS and be assigned one of the DHSS-specific report status categories. If additional information is needed on a particular case, the report status will be changed to “REOPENED” and the LHD will be notified by e-mail. Cases that are “DHSS APPROVED” cannot be edited by LHD staff <p>If a case is inappropriately entered as a case of vibriosis the case should be assigned a report status of “DELETE.” A report status of “DELETE” should NOT be used if a reported case of vibriosis simply does not meet case definition. Rather, it should be assigned the appropriate case status, as described above.</p>

C. Other Reporting/Investigation Issues

1. Case report forms (CDC Cholera and Other Vibrio Illness Surveillance Report, and labs) DO NOT need to be mailed to NJDHSS as long as mandatory fields in CDRSS indicated in Section B are completed.
2. Once LHD completes its investigation and assigns a report status of “LHD CLOSED,” NJDHSS will review the case. NJDHSS will approve the case by changing the report status to “DHSS APPROVED.” At this time, the case will be submitted to CDC and the case will be locked for editing. If additional information is received after a case has been placed in “DHSS APPROVED,” you will need to contact NJDHSS to reopen the case. This should be done only if the additional information changes the case status of the report.
3. Every effort should be made to complete the investigation within three months of opening a case. Cases that remain open for three months or more and have no investigation or update notes will be closed by NJDHSS.

6 CONTROLLING FURTHER SPREAD

A. Isolation and Quarantine Requirements (NJAC 8:57-1.10)

Food handlers with diarrhea must be excluded from work.

1. Minimum Period of Isolation of Patient

Food handlers may return to work after diarrhea has resolved.

2. Minimum Period of Quarantine of Contacts

None.

B. Protection of Contacts of a Case

None.

7 OUTBREAK SITUATIONS

If an outbreak is suspected, or if multiple cases are reported, investigate to determine the source of infection and mode of transmission. A contaminated vehicle (such as seafood) should be sought and applicable preventive or control measures should be instituted. The IZDP should be consulted for determining the course of action to prevent further cases, and for the course of action required to implement disease surveillance for other cases that may cross several jurisdictions and therefore be difficult to identify at a local level.

NOTE: The NJDHSS Food and Drug Safety Program (FDSP) will provide policy and technical assistance with the environmental investigation. The Program can be contacted at 609.588.3123. FDSP will coordinate the relevant follow-up with outside agencies if indicated.

8 PREVENTIVE MEASURES

1. Environmental Measures

Implicated food items from New Jersey or elsewhere in the United States must be removed from the environment. A decision about testing implicated food items will be made in consultation with FDSP and IZDP. If a commercial product is suspected, FDSP will coordinate follow-up with relevant outside agencies.

2. Personal Preventive Measures/Education

The following are some tips for preventing *Vibrio* infections, particularly among immunocompromised patients, including those with underlying liver disease:

- Do not eat raw oysters or other raw shellfish.
- Cook shellfish (oysters, clams, mussels) thoroughly.
- For shellfish in the shell, either (a) boil until the shells open and continue boiling for five more minutes or (b) steam until the shells open and then continue cooking for nine more minutes. Do not eat those shellfish that do not open during cooking. Boil shucked oysters at least three minutes, or fry them in oil at least ten minutes at 375°F.
- Avoid cross-contamination of cooked seafood and other foods with raw seafood and juices from raw seafood.
- Eat shellfish promptly after cooking and refrigerate leftovers.
- Avoid exposure of open wounds or broken skin to warm salt or brackish water, or to raw shellfish harvested from such waters.
- Wear protective clothing (e.g., gloves) when handling raw shellfish.

Additional Information

Additional information can be obtained from the US Food and Drug Administration's Center for Food Safety and Applied Nutrition Web site at www.cfsan.fda.gov.

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