

**Bad
Bug
Book**

U.S. Food & Drug Administration
Center for Food Safety & Applied Nutrition
Foodborne Pathogenic Microorganisms
and Natural Toxins Handbook

Vibrio vulnificus

Education

CDC/MMWR

NIH/PubMed

1. Name of the Organism:

Vibrio vulnificus

This bacterium infects only humans and other primates. It has been isolated from a wide range of environmental sources, including water, sediment, plankton, and shellfish (oysters, clams, and crabs) and a variety of locations, including the Gulf of Mexico, the Atlantic Coast as far north as Cape Cod, and the entire U.S. west coast. Cases of illness have also been associated with brackish lakes in New Mexico and Oklahoma.

2. Name of the Acute Disease:

This organism causes wound infections, gastroenteritis, or a syndrome known as "primary septicemia."

3. Nature of the Disease:

Wound infections result either from contaminating an open wound with sea water harboring the organism, or by lacerating part of the body on coral, fish, etc., followed by contamination with the organism. The ingestion of *V. vulnificus* by healthy individuals can result in gastroenteritis. The "primary septicemia" form of the disease follows consumption of raw seafood containing the organism by individuals with underlying chronic disease, particularly liver disease (see below). In these individuals, the microorganism

enters the blood stream, resulting in septic shock, rapidly followed by death in many cases (about 50%). Over 70% of infected individuals have distinctive bulbous skin lesions.

Infective dose -- The infective dose for gastrointestinal symptoms in healthy individuals is unknown but for predisposed persons, septicemia can presumably occur with doses of less than 100 total organisms.

4. Diagnosis of Human Illness:

The culturing of the organism from wounds, diarrheic stools, or blood is diagnostic of this illness.

5 .Associated Foods:

This organism has been isolated from oysters, clams, and crabs. Consumption of these products raw or recontaminated may result in illness.

6. Relative Frequency of Disease:

No major outbreaks of illness have been attributed to this organism. Sporadic cases occur frequently, becoming more prevalent during the warmer months.

In a survey of cases of *V. vulnificus* infections in Florida from 1981 to 1987, Klontz et al. (Annals of Internal Medicine 109:318-23;1988) reported that 38 cases of primary septicemia (ingestion), 17 wound infections, and 7 cases gastroenteritis were associated with the organism. Mortality from infection varied from 55% for primary septicemia cases, to 24% with wound infections, to no deaths associated with gastroenteritis. Raw oyster

consumption was a common feature of primary septicemia and gastroenteritis, and liver disease was a feature of primary septicemia.

7. The Usual Course of Disease and Some Complications:

In healthy individuals, gastroenteritis usually occurs within 16 hours of ingesting the organism. Ingestion of the organism by individuals with some type of chronic underlying disease [such as [diabetes](#), [cirrhosis](#), leukemia, lung carcinoma, acquired immune deficiency syndrome (AIDS), AIDS-related complex (ARC), or asthma requiring the use of steroids] may cause the "primary septicemia" form of illness. The mortality rate for individuals with this form of the disease is over 50%.

8. Target Populations:

All individuals who consume foods contaminated with this organism are susceptible to gastroenteritis. Individuals with diabetes, cirrhosis, or leukemia, or those who take immunosuppressive drugs or steroids are particularly susceptible to primary septicemia. These individuals should be strongly advised not to consume raw or inadequately cooked seafood, as should [AIDS/ARC](#) patients.

9. Analysis of Foods:

Methods used to isolate this organism from foods are similar to those used with diarrheic stools. To date, all food isolates of this organism have been pathogenic in animal models.

10. Selected Outbreaks:

FDA has a genetic probe for *V. vulnificus*; its target is a [cytotoxin](#) gene which appears not to correlate with the organism's virulence.

Sporadic cases continue to occur all year, increasing in frequency during the warmer months.

[MMWR 45\(28\):1996 Jul 26](#) reports on three incidents of *V. vulnificus* infection in Los Angeles, California.

A multi-year summary of *V. vulnificus* incidents associated with the consumption of raw oysters is reported in [MMWR 42\(21\):1993 Jun 04](#)

For more information on recent outbreaks see the [Morbidity and Mortality Weekly Reports](#) from CDC.

11. Education:

More information for consumers of raw shellfish is available in the FDA brochure [If You Eat Raw Oysters, You Need to Know . . .](#)

CDC/MMWR

The CDC/MMWR link will provide a list of Morbidity and Mortality Weekly Reports at CDC relating to this organism or toxin. The date shown is the date the item was posted on the Web, not the date of the MMWR. The summary statement shown are the initial words of the overall document. The specific article of interest may be just one article or item within the overall report.

NIH/PubMed

The NIH/PubMed button at the top of the page will provide a list of research abstracts contained in the National Library of Medicine's MEDLINE database for this organism or toxin.

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