

Connecticut Epidemiologist



Vibrio vulnificus Infections and Warming Coastal Waters

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Background

Vibrio bacteria cause an estimated 80,000 illnesses each year in the United States (U.S.). *Vibrio parahaemolyticus* causes the most infections (about 40% of reported cases of vibriosis), followed by *V. alginolyticus* (about 20%). Most people with *Vibrio* infection have diarrhea, stomach cramping, nausea, vomiting, fever, and chills. *Vibrio* naturally live in coastal waters, including salt water and brackish water. Most infections with *Vibrio* are due to eating raw or undercooked shellfish, particularly oysters.

Some people get infected when a wound is exposed to salt water or brackish water containing *Vibrio*. Infections can also occur when open wounds come in contact with raw or undercooked seafood. Open wounds include those from a recent surgery, piercing, tattoo, and other cuts or scrapes—including those acquired during aquatic activity.

One species, *V. vulnificus*, is known to cause life threatening infections. About 150–200 *V. vulnificus* infections are reported to the Centers for Disease Control and Prevention (CDC) each year and about one in five people with this infection die (sometimes within 1–2 days of becoming ill). [1] Unlike other *Vibrio* species, *V. vulnificus* is primarily transmitted through open-wound contact with salt water or brackish water. People at higher risk for wound infection include those with underlying health conditions such as liver disease, diabetes, and immunocompromising conditions [2]. *V. vulnificus* wound infections are characterized by necrotizing skin and soft tissue infection, with or without hemorrhagic bullae. Many people with *V. vulnificus* wound infection require intensive care and/or surgical tissue removal. [1] Occasionally (in approximately 10% of cases) the bacteria can also cause infection through consumption of raw or undercooked shellfish.

V. vulnificus bacteria thrive in warmer waters—especially during the summer months (May to October) and in low-salt marine environments like estuaries. In the United States, *V. vulnificus* infections have been most commonly reported by Gulf Coast states. However, *V. vulnificus* infections in East Coast states

increased eightfold from 1988–2018 [3]. As coastal water temperature increases, *V. vulnificus* infections are expected to become more common.

V. vulnificus Infections in Connecticut

All *Vibrio* infections are reportable in Connecticut and specimens (isolates from any body site or positive stools from culture-independent diagnostic tests (CIDT)) are required to be submitted since 2016 to the Department of Public Health State Laboratory (DPHL) for further testing, including confirmation and speciation. Between 2016–2025, a total of 14 *V. vulnificus* infections were identified in CT, for an annual average of 1.4 cases per year (Figure 1). Among these 14 infections, *V. vulnificus* was isolated from blood in 8 (57%) cases and wounds for the remaining 6 (43%). Cases ranged from 9–85 years of age (median 70 years) and 10 (71%) were male. Ten (71%) cases were hospitalized and 2 (15%) died.

During 2020, five *V. vulnificus* infections were reported. All cases reported recent exposure to salt or brackish water in CT during activities such as swimming, crabbing, and boating prior to onset and had preexisting wounds or sustained new wounds during these activities. [4] In response to this increase in *V. vulnificus*, DPH alerted CT residents in shoreline areas about the potential dangers of exposure to salt or brackish water along Long Island Sound. [5]

During 2023, widespread heat waves and above-average sea surface temperatures occurred in the United States. In July–August 2023, 11 *V. vulnificus* infections were reported in CT, NY, and NC and five patients died, including one CT resident. Many of these infections were acquired after an open wound was exposed to coastal waters in these states. Some of the infections were associated with consumption of raw or undercooked seafood or had unclear etiology. A notable feature of these cases, beyond their severe clinical outcomes, is that they occurred in the wake of record-breaking U.S. heat waves and environmental conditions favorable to *Vibrio* growth, including elevated water surface temperatures and low salinity. [6]

Vibrio vulnificus Infections and Warming Coastal Waters (continued)

Recommendations

Although *V. vulnificus* is rare, infections are often severe and life-threatening. People who are at increased risk for *V. vulnificus* infection should exercise caution when engaging in coastal water activities. Prompt treatment is crucial to reduce mortality from severe *V. vulnificus* infection. CDC has previously distributed through the [Health Alert Network](#) the below guidance for health care professionals to assist providers in the diagnosis and management of severe *V. vulnificus* wound infections.

Diagnosis

- Consider *V. vulnificus* as a possible cause of infection in wounds that were exposed to coastal waters, especially in patients at higher risk for *Vibrio* infection, including those with underlying health conditions such as liver disease (including alcohol-associated liver cirrhosis), diabetes, and immunocompromising conditions.
- If *V. vulnificus* infection is suspected,
 - Obtain wound or hemorrhagic bullae cultures and send all *V. vulnificus* isolates to the CT DPHL.
 - Blood cultures are recommended in addition to wound and hemorrhagic bullae cultures if the patient is febrile, has hemorrhagic bullae, or has signs of sepsis.
 - Ask the patient or family about relevant exposures, including whether they entered coastal water with an open wound; acquired a scratch or a cut while in coastal water; or had open-wound contact with raw or undercooked seafood.

Clinical Management

- Initiate treatment promptly. Early antibiotic therapy and early surgical intervention improve survival. Do not wait for consultation with an infectious disease specialist or laboratory confirmation of *V. vulnificus* infection to initiate treatment.
- Give careful attention to the wound site. Necrotic tissue should be debrided. Severe cases might require aggressive debridement, fasciotomy, or amputation of the infected limb.
- Refer to [CDC-HAN-00497](#) for more detailed treatment guidance.

Patient Education

Advise patients on the following steps to help prevent infection:

- Stay out of salt water and brackish water if you have an open wound or cut. If you get a cut while you are in the water, leave the water immediately.

- If your open wounds and cuts could come in contact with salt water, brackish water, or raw or undercooked seafood, cover them completely with a waterproof bandage.
- Wash open wounds and cuts thoroughly with soap and clean, running water after they come in contact with salt water, brackish water, or drippings from raw or undercooked seafood.
- Cook raw oysters and other shellfish before eating.
- Always wash your hands with soap and water after handling raw shellfish.
- Seek medical attention right away for infected wounds.

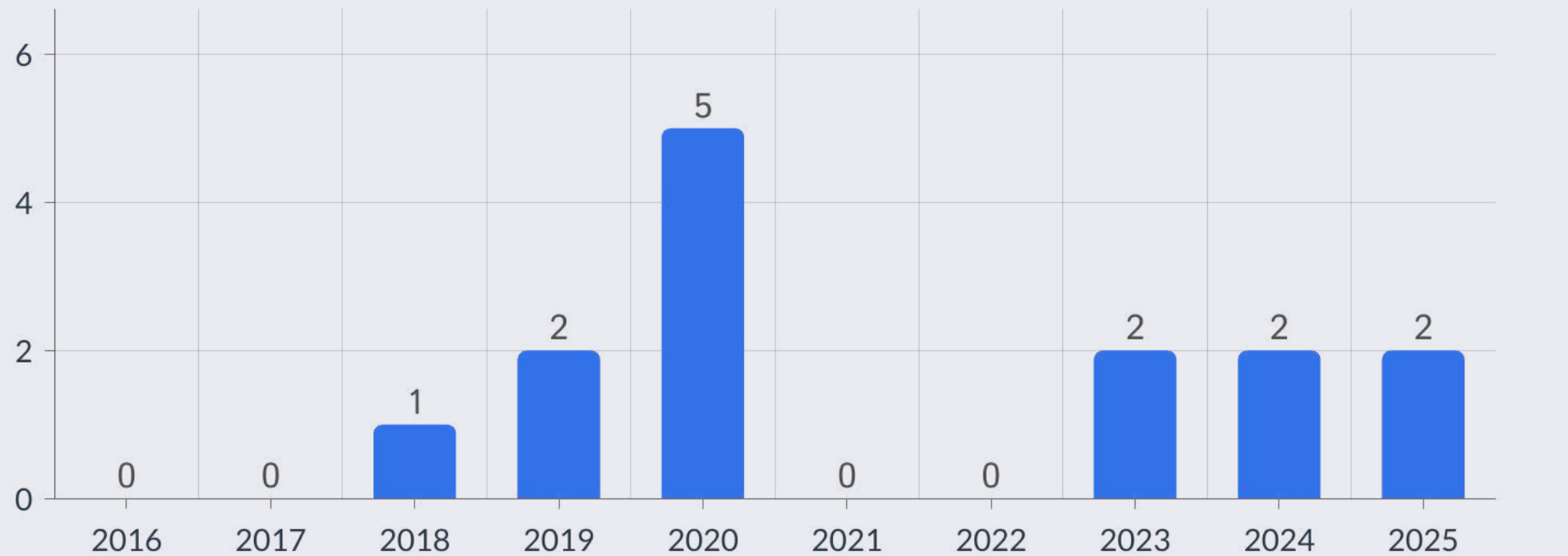
Providers and clinical laboratories should promptly report *Vibrio* infections to the CT Department of Public Health (CT DPH) and can contact the CT DPH Epidemiology and Emerging Infections Program with any questions at (860) 509-7994.

References

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Vibrio vulnificus Infections and Warming Coastal Waters (continued)

Figure 1. *V. vulnificus* cases per year – Connecticut, 2016–2025





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Connecticut Epidemiologist Newsletter

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