**Vibrio vulnificus**

Every spring, local residents and tourists head to the water for fishing, swimming, and a host of other water activities that define our lives here on the Mississippi coast. Most people are unaware of a dangerous bacterium, *Vibrio vulnificus*, which thrives in our coastal brackish and salt waters. To date, scientists have identified more than 100 distinct species of Vibrio bacteria, but only a few are pathogenic and harmful to humans. Among those are *Vibrio cholerae*, the bacterium that causes cholera which still kills over 500,000 people annually. CDC states that *Vibrio parahaemolyticus* causes on average about 45,000 cases of disease in the U.S. each year, 86% of which are food-borne gastroenteritis. By comparison, CDC estimates that *Salmonella* causes 1 million cases of gastroenteritis annually, *Shigella* 500,000 and *Listeria* 1,600. The *V. parahaemolyticus* death rate is low, about 2% for gastroenteritis and 20-30% for wound-related cases.

![Vibrio vulnificus bacterium. Source: safeoyster.org](image)

*Vibrio vulnificus*, causes both a food-borne illness and a wound-related illnesses known as necrotizing fasciitis. The CDC reports a long-term serious *V. vulnificus* infection per year, including food-borne and wound-related. The overall death rate is slightly over 50%, said by many experts to be the highest human fatality rate for any bacterium. According to Food and Drug Administration, 90% of all *V. vulnificus* illnesses in the U.S. result from consumption of raw Gulf Coast oysters. However, this article focuses on wound-related illness caused by *V. vulnificus*.

*V. vulnificus* is not the only Vibrio known to cause wound infections, but it is the most likely to cause serious, life-threatening disease. During the winter, populations of *V. vulnificus* are lower and seem almost dormant, so they present little threat to the general public. As temperatures rise, *V. vulnificus* multiplies and warmer weather also brings coastal residents and visitors back into the water. This increases the chance of encountering the organism.
Every Gulf state from Florida to Texas has reported *V. vulnificus* wound infections. In Ocean Springs, Mississippi a gentleman contracted this Vibrio while fishing in 2012 and physicians had to remove his leg. In Florida, there were nine deaths in 2012 and 13 deaths in 2011 attributed to the bacterium. In June and July 2013 at Grand Isle, Louisiana, there were several cases of *V. vulnificus* wound infections that resulted in hospitalization and one death.

The CDC states that Vibrio infections may be under-reported. Since 1988, the CDC has maintained a voluntary surveillance system for culture-confirmed Vibrio infections in Alabama, Florida, Louisiana, Mississippi, and Texas. Between 1988 and 2006, CDC received reports of more than 900 infections from the Gulf Coast states. In 2007, surveillance was expanded to required national notification of infections caused by any Vibrio species. Wounds account for approximately 60% of all U.S. *V. vulnificus* cases.

![Graph showing Vibrio vulnificus cases in the U.S. by year 1998-2004. Dark purple bars show total cases. Light pink bars show cases resulting from eating shellfish. The difference between the two represent wound-related cases. Source: safeoyster.org](attachment:graph.png)

Experts report that with global climate change, *V. vulnificus* populations are increasing as water temperatures rise worldwide. The rising water temperatures promote the increase in *V. vulnificus* not only in our own coastal waters but world wide. New cases of the bacterium are being found in waters they were not previously perceived as a threat.

Small wounds can happen easily while fishing or enjoying some time at the beach, for example, getting hooked on your own fishing tackle, stepping on an oyster shell, or getting scratched or cut by a barnacle. At the time, it may the *V. vulnificus* bacterium can enter through a new wound or through an existing wound, like a tiny cut, scratch or even a mosquito bite. For most
healthy individuals, any infection or irritation is minor and hardly noticed. The case is different for people who have weakened immune systems. The bacterium invades the bloodstream and from there moves into tissues and organs causing severe and life-threatening illness. Vibrio wound infections happen fast; symptoms may become evident in only four hours. The popular press often refers to *V. vulnificus* as a “flesh-eating bacterium.”

For prevention, people with open wounds should avoid contact with sea water. But, if you have a wound exposed to warm saltwater and see any combination of redness, swelling, fever, chills and experience pain then get to the hospital immediately and be sure to tell the physician that your wound was exposed to salt water. Physicians recommend that you don’t try to “tough it out” and absolutely do not delay seeking help – these infections progress rapidly. Treatment of a *V. vulnificus* wound infection will usually include antibiotics and surgery. Hyperbaric oxygen treatment is also helpful.

A *V. vulnificus* infection can be tricky to diagnose and treat. And many clinicians and physicians have not seen a case first-hand. Anybody - young, old, male, or female - can be exposed to this fast-moving infection, but people who have weakened immune systems are at the highest risk. People with underlying diseases, especially chronic liver disease and cirrhosis, chronic alcoholism, cancer, or persons being treated with immunosuppressive drugs, are more prone to get sick with complicated wound infections. One study reported that people with compromised immune systems were 80 times more likely to develop *V. vulnificus* disease than healthy people.

**Avoid Wounds**

When fishing, harvesting oysters, or handling crab traps and shrimp, use caution and wear gloves where practical to prevent wounds. If you have an open wound, it is advisable not to contact seawater.

**If You Have a Wound**

1. Clean wound with sterile water. Use bottled water if you are on a boat. Do not use sea water.
2. Wash the wound with soap and water.
3. Flush the wound with hydrogen peroxide. Disinfect with a generous application of Betadine. Hydrogen peroxide and Betadine are available at all drug stores and should be included as part of your first aid kit on any boat.
4. If your wound starts to swell and turn red, go immediately to the closest emergency room. Inform the attending physician about the injury and that it was exposed to saltwater. Tell the ER physician you suspect a *Vibrio* infection.

**The Bottom Line**

While Vibrio wound infections present a serious danger, thankfully they are not common and rarely affect those with healthy immune systems. Common-sense precautions will help you avoid infections, and prompt diagnosis and treatment of a Vibrio infection saves lives and limbs.