

# Vibrio Vulnificus Infection

*Vibrio vulnificus* is a bacterium that occurs naturally in marine and estuarine waters throughout the world. It thrives in warm waters (especially warmer than 18 degrees C) and it is therefore common in tropical and subtropical estuarine and sea waters. The bacterium can be present in the water itself and in shellfish that grow in these waters.

For the majority of people, the bacterium is harmless. However, people who wade or swim in estuarine or sea water with wounds or breaks in their skin, or who ingest raw or undercooked shellfish, may be at risk of infection.

Infections are uncommon and are usually mild. However, on rare occasions *Vibrio vulnificus* may cause life-threatening infections.

People with chronic liver diseases including hepatitis, cirrhosis, haemochromatosis (iron storage disease) and liver cancer; and people with chronic diseases such as diabetes, chronic kidney disease or conditions that impair the immune system, are at a higher risk of serious infection. People who take prescribed medication to decrease stomach acid levels or who have had gastric surgery are also at higher risk.

*Vibrio vulnificus* infections are not notifiable in Queensland so total numbers of laboratory-confirmed cases are unknown. From hospital data, in the financial year 2010/2011 there were 16 hospitalisations reported as being associated with *Vibrio vulnificus* infections across Queensland.

## Signs and Symptoms:

On the rare occasions when serious infection with *Vibrio vulnificus* occurs, illness typically begins within 1 to 3 days of exposure, but can occur as late as 7 days after exposure.

Infections may start with redness, pain and swelling at the site of a wound or injury. These infections may be accompanied by fever and generally feeling unwell. Fluid-filled blisters and deep ulcers may develop. Occasionally there is rapid and severe tissue destruction requiring aggressive surgical cleaning of the wound or amputation.

Ingestion of raw or undercooked contaminated shellfish can cause gastrointestinal disease with vomiting, diarrhoea and abdominal pain.

Either type of infection (wound infections or gastrointestinal illness) may be complicated by life-threatening blood stream infections, with fevers and chills, blood-tinged blistering skin lesions, decreased blood pressure, confusion, altered consciousness, and damage to internal organs. People who survive these blood stream infections may require prolonged hospitalisation.

## Treatment:

*Vibrio vulnificus* should be suspected in a person with rapidly progressing, infected abrasions or wounds after exposure to salt or brackish water, especially if that person has any of the chronic conditions listed above.

*Vibrio vulnificus* infection is diagnosed by taking blood samples or swabs from the site of the infection for laboratory culture.

*Vibrio vulnificus* infection is treated with antibiotics and management of the infection site. Mild wound infections in previously well people usually respond well to good wound care and oral antibiotics. In more extensive infections, surgical cleaning of the wound is commonly required and amputation of the affected limb is sometimes necessary. Advice on appropriate antibiotic treatment should be sought from an infectious diseases specialist.

## Transmission:

You can get sick from *Vibrio vulnificus* in two ways:

- You can get infected by getting seawater on an open wound, cut, sore or puncture. The bacterium can enter through the break in the skin and cause infection. In some people the infection heals by itself, while in others it progresses to severe infection of the skin and underlying tissues.
- You can also get sick from *Vibrio vulnificus* by eating raw or undercooked shellfish.

In Queensland, the majority of cases occur following exposure to the bacterium through cuts and abrasions, rather than through eating affected seafood.

There is no evidence of person-to-person transmission of *Vibrio vulnificus*.

## Prevention:

People with liver disease, kidney disease, diabetes or conditions that impair the immune system are at greater risk of severe infection, although the actual risk of them developing the infection is still very low. They should avoid raw shellfish and should take very good care of their skin.

Cover wounds before entering seawater. Wash in fresh water after being exposed to seawater and wash your hands thoroughly before preparing food or eating anything.

If any abrasion, injury or other wound that has been exposed to sea water becomes painful, red, or swollen, seek medical attention promptly.

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## Other Vibrio

Vibrio are a family of bacteria that live in warm sea water throughout the world. In addition to *Vibrio vulnificus*, there are other *Vibrio* that can cause human infections.

- *Vibrio alginolyticus* lives naturally in marine and estuarine waters. It can cause wound infections and infections of the middle ear and ear canal. Most infections heal readily with appropriate antibiotics. However, on rare occasions, infections can be severe, especially in people with impaired immune systems.
- *Vibrio cholerae* live naturally in freshwaters and estuaries. Most strains do not cause human illness. The strains that cause cholera disease (infectious severe watery diarrhoea) are not present in Australian waters.
- *Vibrio parahaemolyticus* live naturally in coastal waters. Certain strains of this bacteria can infect fish and shellfish which, if eaten raw, can cause human disease, but outbreaks of this are not known in Australia.

## Health outcome:

If *Vibrio vulnificus* infection occurs in otherwise healthy people, the illness is usually short-lived with full recovery. Infection in higher-risk individuals may be fatal. Higher-risk individuals who recover from wound infections often require skin grafting or amputation of the affected limb.