

FAQ

4 August 2026

Warmer bodies of water and infections from vibrios: is there a connection?

→ Changes compared with the version dated 11 December 2025: addition of case data and information on at-risk groups.

Anyone taking a dip in the ocean, or in rivers or lakes, while temperatures are high may have to be more cautious in the future. Bacteria of the genus *Vibrio* reproduce faster when the water temperatures are higher. They can enter the human body via small, unnoticed wounds and proceed to cause wound infections which can be life-threatening.

A further route of exposure to vibrios is eating fish and other seafood which is raw or not sufficiently cooked. Foodborne infection from vibrios can cause diarrhoea. Scientists believe that the number of *Vibrio* infections around the world will increase as the oceans and rivers heat up.

What are vibrios and where are they found?

Vibrios are rod-shaped, salt-tolerant bacteria that occur around the world in salt water and freshwater reservoirs, including the ocean, river tributaries, brackish water, badden/lagoons, and lakes. Salt concentrations of 0.5–2.5 ‰ and temperatures above 20 °C provide optimal reproduction conditions for these naturally occurring environmental bacteria which are transmitted via water. This salinity concentration is typical of the Baltic Sea, and also of the coastal areas of the Baltic Sea.

What risks do vibrios in bodies of water pose for humans?

High bacterial counts of these bacteria, for instance in water or water-based foods, increase humans' risk of infection. Especially in countries in Asia and the Americas, vibrios are a common cause of wound infections and diarrhoea illnesses due to the regional climate. However, as climate change progresses, the risk posed by these pathogens is increasing in Europe, too.

How can people become infected?

Consumers can become infected by vibrios through the consumption of contaminated seafood (in particular raw oysters), for instance if seafood and fish (e.g. mussels/crustaceans) are not sufficiently cooked. Direct contact with or intake of contaminated water, for example while swimming, walking, or wading at the shoreline, is another source of infection for humans.

Which vibrios lead to illness in humans?

Most foodborne *Vibrio* illnesses occur in connection with *V. parahaemolyticus*, *V. vulnificus* and *V. cholerae*. Additionally, cases stemming from various other *vibrio* species (*V. alginolyticus*, *V. fluvialis* etc.) have been described and detected as the cause of wound infections or diarrhoeal illnesses. While *V. parahaemolyticus* tends to cause mild to moderate cases of diarrhoeal illness, infections with *V. cholerae* can also lead to more severe illness. For people with weaker immune systems, infections with *V. vulnificus* are particularly likely to lead to life-threatening sepsis.

What are the symptoms of a *Vibrio* infection?

Vibrio illnesses can cause nausea, vomiting, and diarrhoea. Additionally, wound infections with septicemia (sepsis) due to injuries contracted during the preparation of crustaceans are also possible.

Information about human illnesses caused by vibrios as well as about treatment options can be found on the following website of the Robert Koch Institute (RKI):
<https://www.rki.de/SharedDocs/FAQs/DE/Vibrionen/FAQ-Liste.html#>.

How can the risk of a *Vibrio* infection be lowered or avoided?

People with open or poorly healing wounds should avoid warm ocean water (water temperature of 20 °C and above). This is particularly important for people suffering from pre-existing medical conditions or who have a weakened immune system. If an open wound does come into contact with summer-warm seawater, it should be thoroughly cleaned with clean water and monitored. Older people and those with weakened immune systems, as well as people with pre-existing conditions such as diabetes, liver or heart disease, should take particular care, as they are considered to be at higher risk of *Vibrio* infection.

Information on the contamination levels of bathing waters can be found on the website of the Federal Environment Agency (UBA):
<https://www.umweltbundesamt.de/themen/wasser/schwimmen-baden/badegewaesser/schadstoffe-belastungen-in-badegewaessern> (in German).

How many cases of *Vibrio* infection are there? Do they need to be reported?

Every year, there are several cases of *Vibrio* infections in Germany. Most of these cases are linked to bathing in the North Sea or Baltic Sea. Overall, however, *Vibrio* infections have been rather rare so far. In particular diarrhoeal illnesses caused by vibrios are often not

detected. This is due to the fact that most cases are mild to moderate and tend to resolve themselves.

Since 2020, there is mandatory reporting for *Vibrio* infections in Germany. The health departments of the German federal states (“Laender”) are required to notify the Robert Koch Institute (RKI) of these cases via the state authorities.

The RKI’s reporting data predominantly contains cases of wound infections which are almost exclusively linked to contact with water in German coastal regions. Most of those affected were older people with pre-existing medical conditions. According to the RKI, some people died from the infection. Most infections appear to be contracted between the months of June and September. However, longer periods of warm weather can extend this time frame to the surrounding months.

So far in 2026, the RKI has recorded 17 *Vibrio* infections (as of July 2026). A total of ten men and seven women aged between 3 and 95 were affected. The median age is 70. Two of those affected died as a result of a *Vibrio* infection following a visit to the Baltic Sea.

Where is information about *Vibrio* occurrence collected?

Information on the pollution of bathing sites in lakes or rivers can be found on the website of the German Federal Environment Agency (UBA):

<https://www.umweltbundesamt.de/themen/wasser/schwimmen-baden/badegewaesser/schadstoffe-belastungen-in-badegewaessern>.

The “Consultant Laboratory for *Vibrio* species in Food” at the BfR deals with risks posed by these bacteria in and on foods. This mostly includes infections (primarily diarrhoeal illnesses) linked to consumption or preparation of foods contaminated with vibrios, such as fish and seafood.

How are vibrios detected?

Typically vibrios are detected via a standardised microbiological accumulation and testing procedure oriented towards specific properties of the bacteria. A selection of suspected vibrios is accumulated and further characterised using mass spectrometry and molecular methods, in particular in order to detect species linked to human illnesses. Additionally, specific virulence factors are checked for *V. cholerae* and *V. parahaemolyticus*, meaning harmfulness properties (e.g. toxin genes), which are mainly responsible for clinical illnesses.

Major challenges when it comes to diagnosing vibrios include isolating the bacteria from various sample materials (e.g. food) as well as assigning them to a species. Vibrios are very sensitive to various influences and may enter a dormant state in stressful situations. In this case, they are very difficult or even impossible to detect microbiologically.

So far, there are more than 150 known species of *Vibrio*. Distinguishing between them is often very challenging.

Is the risk of *Vibrio*-related diseases through water bodies increasing as a result of climate change?

An increase in *Vibrio* infections may be expected because of global warming and the associated increase of seawater temperatures. This is particularly true for surface water and inshore seawater. The consequences for *Vibrio* occurrence are likely to be less severe for fishing in deeper layers of water on the open sea.

Fish and fishery products are mostly not consumed raw, but are heated or processed. Therefore, the safety of these foods with regard to vibrios does not need to be reassessed. However, this does not apply to seafood that is eaten raw, like sushi or oysters. Due to their nutritional strategy of filtering seawater, mussels, in particular, can accumulate vibrios. In sufficiently high amounts, this can lead to illness in humans. Oysters are considered to be a high-risk food and are associated with diarrhoea caused by vibrios in many countries around the world.

The risk assessment for infections that develop due to direct exposure of humans to seawater containing vibrios (e.g. through swimming) are a different case. Vibrios can be taken in from the water through small skin injuries and may lead to wound infections.

Global warming and the associated increased water temperatures may lead to higher *Vibrio* concentrations, resulting in a probable increase in infections. To what extent does the BfR deal with vibrios?

The “Consultant Laboratory for *Vibrio* species in Food” is part of the BfR. Its task is to develop methods for detecting vibrios in shellfish and fishery products for food monitoring authorities, and to advise and support testing laboratories in the detection of these bacteria. Furthermore, the consultant laboratory conducts research in cooperation with other institutions or research facilities on the occurrence of vibrios in food and in the environment.

Further information on vibrios on the BfR website:

BfR topic page “**Consultant Laboratory for *Vibrio* species in Food**”
<https://www.bfr.bund.de/en/about-us/institutions-at-the-bfr/reference-laboratories/consultant-laboratory-for-vibrios/>

BfR opinion “**Bacterial foodborne infections from vibrios: health risk assessment of prevalence of *Vibrio* spp. (non-cholera vibrios) in foods**” (in German)
<https://www.bfr.bund.de/stellungnahme/bakterielle-lebensmittelinfektionen-durch-vibrionen-gesundheitliche-bewertung-zum-vorkommen-von-vibrio-spp-nicht-cholera-vibrionen-in-lebensmitteln/>

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