



WHO ESTIMATES OF  
THE GLOBAL BURDEN  
OF FOODBORNE DISEASES

# Foodborne viral disease in the European region

## Key facts

- Norovirus and Hepatitis A virus are the cause of significant burden of foodborne illness globally as well as in the European region.
- WHO estimates that norovirus is the most common cause of foodborne illness in the European region with close to 15 million cases each year, causing more than 400 deaths.
- WHO estimates that each year in the European region there are ~100,000 cases of hepatitis A infection, causing ~200 deaths.
- Norovirus and Hepatitis A virus are highly contagious and often cause outbreaks.
- Norovirus infection causes acute gastroenteritis that normally lasts for a few days.
- Hepatitis A causes liver infection with symptoms ranging from mild to severe.
- Norovirus and Hepatitis A virus are transmitted through the faecal-oral route, and one gets infected by consumption of contaminated food or water, by contact with an infected person, or by touching contaminated surfaces.
- Hepatitis E virus is transmitted via the faecal-oral route, principally via contaminated water, while foodborne transmission is an emerging concern. It can also cause outbreaks.
- Hepatitis E is usually self-limiting, but may develop into acute liver failure.
- To prevent foodborne viral disease everyone should follow the WHO 5 Keys to Safer Foods, and growers of fruits and vegetables should apply the WHO Five Keys to Growing Safer Fruits and Vegetables ([http://www.who.int/foodsafety/publications/5keys\\_growing\\_safer/en/](http://www.who.int/foodsafety/publications/5keys_growing_safer/en/)).

## Disease

**Norovirus** infection typically causes acute gastroenteritis with the most common symptoms being nausea, vomiting, diarrhea and stomach pain. Symptoms usually develop 12 to 48 hours after infection. The disease normally lasts between 1 and 3 days. However, for some individuals, especially children, the elderly and persons with other illnesses, the symptoms can be severe and lead to dehydration, and in rare cases even cause death.

Anyone can get norovirus infection. Also, one can get infected with norovirus several times in a lifetime as the immunity developed to norovirus is strain-specific and may last only for a few months.

Symptoms of hepatitis A range from mild to severe, and can include fever, malaise, loss of appetite, diarrhoea, nausea, abdominal discomfort, dark-coloured urine and jaundice (a yellowing of the skin and whites of the eyes). Adults have symptoms of illness more often than children, and the severity increases with age.

The incubation period of **hepatitis A** is usually 14–28 days. Anyone who has not been vaccinated or previously infected can contract hepatitis A. In areas where the virus is widespread (high endemicity), most hepatitis A infections occur during early childhood.

**FOODBORNE DISEASES ARE PREVENTABLE.  
EVERYONE HAS A ROLE TO PLAY.**

For more information:  
<http://www.euro.who.int/en/health-topics/disease-prevention/food-safety>

**#SafeFood**

Source: WHO Estimates of the Global Burden of Foodborne Diseases. 2015.



**World Health  
Organization**

Infection with **hepatitis E** virus causes symptoms of liver infection and the incubation time ranges from 3 to 8 weeks. Hepatitis E can be a serious and even deadly illness for pregnant women, chronic liver patients and solid organ transplant recipients. Chronic hepatitis E infection can occur in immunosuppressed people.

## Transmission

Norovirus and Hepatitis A virus are very contagious and cause sporadic disease and outbreaks. Both viruses are transmitted through the faecal-oral route, and one gets infected by consumption of contaminated food or water, by contact with an infected person, or by touching contaminated surfaces.

Many different kinds of foods have been implicated in hepatitis A and norovirus illness, including bivalve shellfish such as oysters and mussels, raw fruits and vegetables, and prepared foods. Of particular concern are infected food workers that can pass on the virus to others by handling foods, for instance in food service establishments or while picking berries. Fruits and vegetables can also be contaminated with foodborne viruses through faecally contaminated water used for irrigation, including reuse of wastewater, or washing. In recent years several outbreaks of norovirus and hepatitis A infections in Europe have been associated with berries, including frozen berries, at the international market.

Norovirus is a particular challenge for the production of bivalve shellfish such as mussels and oysters. If the water they grow in has been faecally contaminated, the virus can be concentrated in the mollusks, which are filter-feeders, and passed on to the consumers if eaten without sufficient heat treatment.

In developed countries, hepatitis E genotypes 3 and 4, which primarily circulate among mammalian animals, including pigs, wild boar and deer have been increasingly associated with smaller food-borne outbreaks. For example, cases of HEV infection have been associated with under-cooked or raw pork or wild boar products.

## Prevention of disease cause by foodborne viruses

Hygiene, in particular hand-hygiene, is essential - for food producers, food handlers as well as the consumers themselves. It is recommended to apply the WHO Five Keys to Safer Foods <http://www.who.int/foodsafety/consumer/5keys/en/>

- Keep clean;
- Separate raw and cooked;
- Cook thoroughly;
- Keep food at safe temperatures; and
- Use safe water and raw materials.

The safety of water used in production of bivalve mollusks and fresh produce needs particular attention. The WHO Five Keys to Growing Safer Fruits and Vegetables should be applied to decrease microbial contamination during production of fruits and vegetables.

Pork products should be properly heat treated before consumption.

It is recommended to avoid preparing food for others when having gastrointestinal symptoms and for at least 48 hours after symptoms stop.