

BI0018 / **BIOLOGICAL** / Infectious Diseases (Human and Animal)

# Waterborne Diseases

## Definition

Waterborne diseases are those diseases that are transmitted by ingestion of contaminated water (WHO, 2012).

## Reference

WHO, 2012. Disease information. World Health Organization (WHO). <https://www.who.int/travel-advice/disease-information> Accessed 19 September 2020.

## Annotations

### Synonyms

Not applicable.

### Additional scientific description

Important waterborne diseases include diarrhoeal diseases, cholera, shigella, typhoid, hepatitis A and E, and poliomyelitis (WHO, 2012).

Diarrhoea occurs worldwide and causes 4% of all deaths and 5% of health loss to various forms of disability or loss of function. It is most commonly caused by gastrointestinal infections which kill around 2.2 million people globally each year, mostly children in developing countries. Use of water in hygiene is an important preventive measure but contaminated water is also an important cause of diarrhoea. Cholera and dysentery cause severe, sometimes life-threatening forms of diarrhoea (WHO, 2016a).

Diarrhoea is the passage of loose or liquid stools more frequently than is normal for the individual. It is primarily a symptom of gastrointestinal infection. Depending on the type of infection, the diarrhoea may be watery (for example in cholera) or passed with blood (in dysentery, for example). Diarrhoea due to infection may last a few days, or several weeks, as in persistent diarrhoea. Severe diarrhoea may be life-threatening due to fluid loss in watery diarrhoea, particularly in infants and young children, the malnourished and people with impaired immunity. The impact of repeated or persistent diarrhoea on nutrition and the effect of malnutrition on susceptibility to infectious diarrhoea can be linked in a vicious cycle among children, especially in developing countries. Diarrhoea is also associated with other infections such as malaria and measles. Chemical irritation of the gut or non-infectious bowel disease can also result in diarrhoea (WHO, 2016a).

Diarrhoea is a symptom of infection caused by a host of bacterial, viral and parasitic organisms most of which can be spread by contaminated water. It is more common when there is a shortage of clean water for drinking, cooking and cleaning and basic hygiene is important in prevention. Water contaminated with human faeces, for example, from municipal sewage, septic tanks and latrines is of special concern. Animal faeces also contain microorganisms that can cause diarrhoea. Diarrhoea can also spread from person to person, aggravated by poor personal hygiene. Food is another major cause of diarrhoea when it is prepared or stored in unhygienic conditions. Water can contaminate food during irrigation, and fish and seafood from polluted water may also contribute to the disease (WHO, 2016).

The infectious agents that cause diarrhoea are present or are sporadically introduced throughout the world. Diarrhoea is a rare occurrence for most people who live in developed countries where sanitation is widely available, access to safe water is high and personal and domestic hygiene is relatively good. Worldwide around 1.1 billion people lack access to improved water sources and 2.4 billion have no basic sanitation. Diarrhoea due to infection is widespread throughout the developing world. In Southeast Asia and Africa, diarrhoea is responsible for as much as 8.5% and 7.7% of all deaths, respectively (WHO, 2016a).

### Metrics and numeric limits

Not applicable.

### **Key relevant UN convention / multilateral treaty**

International Health Regulations (2005), 3rd ed. (WHO, 2016b).

### **Examples of drivers, outcomes and risk management**

Water safety and quality are fundamental to human development and well-being. Providing access to safe water is one of the most effective instruments in promoting health and reducing poverty. As the international authority on public health and water quality, the World Health Organisation leads global efforts to prevent transmission of waterborne disease. This is achieved by promoting health-based regulations to governments and working with partners to promote effective risk management practices to water suppliers, communities and households (WHO, 2019).

Key measures to reduce the number of cases of waterborne diseases include: access to safe drinking water; improved sanitation; good personal and food hygiene; and health education about how infections spread (WHO, 2016).

### **References**

WHO, 2012. Disease information. World Health Organization (WHO). [www.who.int/travel-advice/disease-information](http://www.who.int/travel-advice/disease-information) Accessed 19 September 2020.

WHO, 2016a. Water-related Diseases. World Health Organization (WHO). [www.who.int/water\\_sanitation\\_health/diseases-risks/diseases/diarrhoea/en](http://www.who.int/water_sanitation_health/diseases-risks/diseases/diarrhoea/en) Accessed 19 September 2020.

WHO, 2016b. International Health Regulations (2005), 3rd ed. World Health Organization (WHO). <https://apps.who.int/iris/handle/10665/246107> Accessed 26 September 2020.

WHO, 2019. Water safety and quality. World Health Organization (WHO). [www.who.int/water\\_sanitation\\_health/water-quality/en](http://www.who.int/water_sanitation_health/water-quality/en) Accessed 19 September 2020.

### **Coordinating agency or organisation**

World Health Organization.