

Cholera

Cholera is an acute diarrhoeal disease usually associated with poverty, poor sanitation and inadequate access to clean drinking water

Key messages

- **Cholera is an acute bacterial disease characterised by profuse watery diarrhoea.**
- **Cholera is mainly spread by eating and drinking contaminated food and water and is considered a disease of poverty, as it is usually associated with poor sanitation and inadequate access to clean drinking water.**
- **Worldwide there are an estimated 1.3 - 4 million cases and an average of 21,000 to 143,000 deaths every year.**
- **Rehydration is the main management for treatment; up to 80 percent of cases can be successfully treated with oral rehydration solution.**
- **Most travellers are at low risk: standard [food, water and personal hygiene](#) precautions should be followed by all travellers.**
- **An effective vaccine is available for travellers whose activities or medical history puts them at increased risk of disease.**

Overview

Cholera is an acute diarrhoeal disease caused by eating or drinking food or water contaminated with the Gram-negative bacterium *Vibrio cholerae* [1]. Infection can cause profuse watery diarrhoea which, if left untreated can lead to rapid dehydration. In extreme cases, cholera can be a rapidly fatal infectious disease [1, 2].

In the past, devastating cholera outbreaks occurred worldwide. Today, cholera remains a global threat to public health and is endemic in many areas of Asia and Africa, with major epidemics still reported [2].

Although more than 200 serogroups of *V. cholerae* exist, only two cause epidemic disease: serogroup O1 and O139. Serogroup O1 has two biotypes: El Tor and classical, which can be subdivided into two serotypes Ogawa and Inaba [3].

Risk areas

In 2022 a total of 472,697 cases of cholera, including 2349 deaths, were reported to the World Health Organization (WHO) from 44 countries. Cases were reported in 17 countries in Africa, with a total of 100,437 cases and 1955 deaths. In the Middle East and Asia a total of 16 countries reported 372,205 cases and 394 deaths [4].

Seven countries had large outbreaks in 2022; Afghanistan, Cameroon, Democratic Republic of Congo, Malawi, Nigeria, Somalia and the Syrian Arab Republic all reported over 10,000 suspected and confirmed cases [5].

The geographical pattern changed in 2022, with countries that had not reported cholera in many years, including Lebanon and the Syrian Arab Republic, reporting outbreaks [4].

In Asia and Oceania cholera occurs, but case reports are considered incomplete with variable surveillance systems with which to estimate case numbers [6].

Worldwide case numbers are considered to greatly underestimate the actual number of cases for several reasons: under International Health Regulations (2005), notifications of cholera to the WHO are not mandatory [4], there is often limited capacity for surveillance and laboratory diagnosis, variations occur in case definitions, and fear of negative economic impact on a country which might rely on tourism are thought to reduce reporting of cholera cases [1, 7].

Country-specific information and vaccine recommendations are available on our [Country Information pages](#) and on the [Outbreak Surveillance section](#).

Risk for travellers

Cholera does not generally occur in high-income countries where there is access to safe drinking water and improved sanitation facilities.

Risk is associated with behaviour. Activities which predispose to infection include drinking untreated water or eating poorly cooked seafood in endemic areas [8].

Travellers living or working in less sanitary conditions such as relief workers in disaster or refugee camps are also considered at higher risk [8]. Expatriates living in endemic countries may also be at greater risk of cholera [3].

Cholera in travellers from England, Wales and Northern Ireland

Cholera does not occur in the UK - the last indigenous (local) case reported in England and Wales was in 1893 [9]. However, cases of *V. cholerae* are occasionally reported in travellers returning from overseas.

In 2023, there were 17 confirmed cases of cholera in UK travellers living in England. Travel history was known for all cases, with the majority reporting travel to Southern Asia and Western Asia. The most frequently reported country of travel was Pakistan (seven cases), followed by India (two cases), Iraq (two cases) and Kenya (two cases). This was a decrease compared to 2022 where 20 cases were reported [10].

Transmission

Cholera is mainly spread by faecal contamination of food or water. Toxigenic *V. cholerae* O1 and O139 are free living bacterial organisms found in fresh and brackish (slightly salty) water, often associated with shellfish and aquatic plants. Infection is commonly acquired by drinking water in which *V. cholerae* is found naturally or which has been contaminated by infected faeces. Contaminated fish and shellfish are also common routes of transmission.

Cholera transmission is closely linked to inadequate water and sanitation facilities where basic infrastructure is not available. It can also be a major problem affecting those in refugee camps, and as a result of natural disasters, which disrupt water and sanitation systems [4].

Humans are the only known host and direct spread from person to person is uncommon [2]. Large numbers of bacteria are needed to establish infection in those with normal gastric acidity [3].

Signs and symptoms

Cholera can be mild or occur without symptoms in healthy people. Cholera is characterised by sudden onset of profuse, watery diarrhoea ('rice-water' stools) with occasional vomiting [9]. The incubation period is usually 2 - 5 days but may be as short as a few hours. Dehydration and electrolyte abnormalities are the most common complications of disease, with 5 - 10 percent of those infected having severe disease leading to metabolic acidosis and circulatory collapse.

Blood group O and hypochlorhydria (reduced stomach acid) is known to be associated with increased risk of severe cholera [2].

Diagnosis and treatment

While in extreme cases cholera is one of the most rapidly fatal infectious diseases known [2] it is easily treated by prompt administration of oral rehydration solution.

Severely dehydrated patients may require rapid administration of intravenous fluids, plus oral rehydration solution [11]. Antibiotics may be used in epidemic situations to reduce the volume of diarrhoea and duration of symptoms. Left untreated, over 50 percent of the most severe cases may

die; however, with prompt treatment, mortality is less than 1 percent. Mild cases, with moderate diarrhoea, also occur and asymptomatic infection is common [9].

Health professionals should be alert to the possibility of cholera in those who have returned from endemic areas. Cholera is a [notifiable disease](#) in England, Wales and Northern Ireland. Health professionals must inform local health protection teams or equivalents of suspected cases.

Primary diagnostic tests are performed at local hospital laboratories by examining faecal specimens from cases reporting gastrointestinal symptoms and travel to countries where cholera is endemic. Faecal specimens are cultured on selective media. Isolates of *V. cholerae* are identified by colonial appearance, typically large, yellow colonies, Gram stain, serology, and biochemical testing. Full identification can be used to speciate the *Vibrio* isolates. Specimens should be sent for confirmation of identification (with full clinical and travel history) to the UK Health Security Agency's [Gastrointestinal Bacteria Reference Unit](#) (GBRU).

At GBRU, isolates undergo molecular testing to confirm identification as *V. cholerae*, serogroup, and detection of cholera toxin. Isolates are typed for surveillance purposes.

Preventing cholera

For most travellers, risk of acquiring cholera can be reduced by following advice on [food and water hygiene](#) and by ensuring good personal hygiene.

Two oral (drink) cholera vaccines are available (although immunisation is not indicated for most travellers).

Vaccine information

Availability

Licensed cholera vaccines in the UK:

Dukoral - an oral (drink), inactivated cholera vaccine available in the UK since May 2004 [14] and is licensed in the UK for protection against infection caused by *V. cholerae* serogroup 01.

Vaxchora - an oral, live vaccine cholera vaccine for the prevention of cholera, licensed in the UK in 2020 [15].

Vaxchora is a live vaccine (it contains live attenuated cholera bacteria) and is contraindicated for anyone who is immunosuppressed [9].

Concomitant administration of Vaxchora with antibacterial agents (antibiotics) and/or chloroquine should be avoided because protection against cholera may be reduced. Vaxchora should not be

administered to patients who have received antibiotics within 14 days prior to vaccination. Antibiotics should be avoided for 10 days following vaccination with Vaxchora [15].

Oral typhoid vaccine Ty21a and Vaxchora

There should be an interval of two hours between the administration of Vaxchora and of typhoid vaccine Ty21a (gastro-resistant capsules) as the buffer administered with Vaxchora may affect transit of the Ty21a capsules through the gastrointestinal tract [15].

The Summary of Product Characteristics (SPC) for both these vaccines, available [via the electronic medicines compendium](#), should be consulted for specific information relating to the products, and before administration of either vaccine.

Indications for use of vaccine

Country-specific information on the risk of cholera can be found on our [Country Information pages](#) and [Outbreak Surveillance section](#).

All travellers should take care with personal, food and water hygiene. The vaccine is not indicated for most travellers but can be recommended for those whose activities or medical history puts them at increased risk. This includes:

- Aid workers.
- Those going to areas of cholera outbreaks who have limited access to safe water and medical care.
- Those for whom vaccination is considered likely to be beneficial.

Since 1973, when WHO removed cholera vaccination from the International Health Regulations, countries no longer require proof of cholera vaccination from travellers as a condition of entry. Experience has shown that restricting the movement of people (and goods) is not effective in controlling the spread of cholera and is therefore unnecessary [2].

Immunisation against cholera falls under Additional Services under General Medical Services (GMS) and Personal Medical Services (PMS); for cholera vaccine, no fee can be charged to a registered patient of a GP surgery. This is assuming the individual is travelling to a country with a risk of exposure to cholera as a consequence of being in that area [12].

Vaccine schedule (Dukoral)

| Age range | Schedule | Duration of protection |
|----------------------------------|---|------------------------|
| Adults and children from 6 years | Two doses with an interval of at least 1 week but less than 6 weeks between | 2 years |

| | | |
|------------------------|---|----------|
| | them* | |
| Age 2 to below 6 years | Three doses with an interval of at least 1 week but less than 6 weeks between them* | 6 months |

***If more than 6 weeks have elapsed between doses the primary course should be restarted [9, 13]. If more than 2 years (or 6 months for children aged 2 to below 6 years of age) has elapsed since the last dose of vaccine, the primary course should be repeated [9].**

Dukoral has been given to children between 1 and 2 years of age in immunogenicity and safety studies. However, protective efficacy has not been studied in this age group. Therefore, Dukoral is not recommended for children under 2 years of age [14].

Vaccine schedule (Vaxchora)

| Age range | Schedule | Duration of protection |
|--|---|---|
| Adults and children from two years of age* | A single oral dose should be administered at least 10 days prior to potential exposure to <i>V. cholerae</i> O1 | No data are available on revaccination interval |

***The safety and efficacy of Vaxchora in children less than 2 years has not been established [15].**

Dukoral vaccine may also provide some protection against diarrhoea caused by the heat-labile toxin of *Escherichia coli* (*E. coli*). Although licensed for protection against travellers' diarrhoea in some countries, it is not licensed (or recommended) for this in the UK. Studies showing efficacy of cholera vaccine in preventing travellers' diarrhoea are limited, and the prevalence of heat-labile toxin-producing *E. coli* is only considered to account for a small proportion of all cases of travellers' diarrhoea [9, 13]. Vaxchora is also not recommended for the prevention of travellers' diarrhoea [9].

See our factsheet on [travellers' diarrhoea](#) for more information.

Administration

Dukoral is for oral administration; food and drink should be avoided for 60 minutes before and 60 minutes after vaccination. Oral administration of other medicinal products should also be avoided within 60 minutes before and 60 minutes after administration of Dukoral [14].

Immunisation should be completed at least 1 week prior to potential exposure to *V. cholerae*.

Eating and drinking should also be avoided 60 minutes before and after oral ingestion of Vaxchora [15].

Detailed information about these vaccines, including contraindications and efficacy details, are available in the relevant manufacturer's summary of product characteristics available from the [electronic medicines compendium](#).

Resources

- [Food and water hygiene](#)
- [Travellers' diarrhoea](#)
- [WHO: Cholera](#)

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