

Travellers' diarrhoea

Following advice on food and water hygiene is sensible, but travellers should always be prepared to manage the symptoms of travellers' diarrhoea

Key messages

- **Travellers' diarrhoea (TD) is the most common illness experienced by travellers, affecting over 20 percent of those who travel to high-risk destinations of the world.**
- **TD can be caused by viruses, bacteria or protozoa.**
- **TD is difficult to prevent for those who cannot prepare their own food and drinks.**
- **Following advice on food and water hygiene is sensible, but travellers should always be prepared to manage the symptoms of TD during their trip.**

Overview

Travellers' diarrhoea (TD) is the most common health problem experienced by travellers affecting over 20 percent of those who travel to high-risk destinations of the world [1]. TD is defined as three or more unformed stools in a 24-hour period, often accompanied by at least one of the following: fever, nausea, vomiting, cramps, or bloody stools (dysentery) [1]. Symptom onset may be during or within 10 days of return from foreign travel [2]. TD can cause substantial disruption to travel itineraries and plans. Approximately 13 percent of travellers are confined to bed for one to three days, 12-46 per cent must change their itinerary, but fewer than one percent are admitted to hospital [1, 3].

TD can be caused by viruses, bacteria and/or protozoa. Bacteria are the most common cause of TD; most commonly enterotoxigenic *Escherichia coli*, followed by *Campylobacter jejuni*, *Shigella* spp., and *Salmonella* spp. [4]. In up to 40 percent of TD cases, the cause of infection is not identified [4]. [Cholera](#) is rarely seen in travellers.

Risk areas

While the organisms that cause TD are reported worldwide, transmission is more likely in countries

with lower food hygiene standards, inadequate sanitation facilities and limited access to clean water [4].

Comparatively low-risk areas include Western Europe, the United States, Canada, Australia, New Zealand and Japan; up to seven percent of travellers are estimated to experience TD in these areas [1]. Intermediate-risk areas include southern Europe, Israel, South Africa, some parts of the Caribbean and the Pacific islands, with estimated incidence rates of between eight and 20 percent. High-risk areas include most of Asia, the Middle East, Africa, and Latin America; more than 20 percent of travellers from a high-income country may experience TD in these areas [1].

Risk for travellers

There are several risk factors for acquiring TD including: diet, age, host genetics, destination, season of travel and choice of eating establishment [1, 5]. Of these, the destination country and choice of eating establishment are the most important factors [6].

Backpackers, teenagers and younger travellers are affected most frequently [1]. However, the effects of diarrhoea are generally greater in the very young, the elderly and the frail. Those with special health needs, for example, travellers with immune suppression (weakened immunity), inflammatory bowel disease, chronic (long term) kidney or heart disease and pregnant women should take care to avoid contaminated food and water and be prepared to manage the symptoms of TD. Those with reduced acidity in the stomach are also at increased risk of contracting infections with acid-sensitive organisms such as *Salmonella* and *Campylobacter* [6].

The European Centre for Disease Control and Prevention have reported [multi-drug resistant Shigella infections in European Union \(EU\) and European Economic Area \(EEA\) countries](#) among gay, bisexual and other men who have sex with men (GBMSM) [7].

Transmission

TD is acquired through the consumption of contaminated food or water. Although a change in bowel habit can be caused by the stress of travel, a change in diet, or increased alcohol consumption, most episodes of TD are related to infection [8].

Recreational water such as swimming pools, the sea and freshwater rivers and lakes may also be a source of water-borne infection. In swimming pools, hot tubs and spas infection may occur if treatment and disinfection of the water are inadequate [9].

[Cryptosporidium](#) infection is sometimes reported in those who have undertaken recreational water activities during international travel [10]. *Cryptosporidium* is resistant to common disinfectants such as chlorine used in swimming pools, so it is important to prevent the infection entering the water [9].

Some sexual activity can increase risk of diarrhoeal illness by direct oral-anal (or person-to-person)

contact or via contact with contaminated objects [7].

Signs and symptoms

TD is defined as three or more unformed stools in a 24-hour period, often accompanied by at least one of the following: fever, nausea, vomiting, cramps, or bloody stools (dysentery), with symptoms usually starting during or shortly after a period of foreign travel [1]. Vomiting is uncommon, and abdominal cramps with blood or mucus in the stool is infrequent [1].

TD typically occurs during the first week of arrival and is often self-limiting, lasting three to four days. In approximately one percent of cases, symptoms persist for longer than a month [1]. An episode of TD, particularly one with severe symptoms, can lead to irritable bowel syndrome in a small number of travellers [3].

Severity of TD has been classified according to the degree of functional impairment it causes [11]:

- Mild: tolerable, not distressing, does not interfere with planned activities.
- Moderate: distressing or interferes with planned activities.
- Severe: incapacitating, or completely prevents planned activities, or dysentery (passing stools containing visible blood).
- Persistent: diarrhoea lasting 2 weeks.

Diagnosis and treatment

TD is caused by a variety of organisms. Where cause is known, bacteria are responsible for most cases [4]. Other organisms include viruses, such as norovirus, and protozoa.

TD usually resolves spontaneously. Individuals with ongoing symptoms depending on the history and clinical presentation, may require further tests [3].

Treatment of TD aims to prevent dehydration, reduce the severity and duration of symptoms and minimise the impact on travel plans [3].

Diet and fluid

Most episodes of TD are mild and self-limiting. It is important to prevent dehydration, which is a particular concern for infants and young children, older travellers, pregnant women, and those with pre-existing illness [12].

Travellers should stay hydrated by continuing to eat and drink as normal [3], breastfeeding should be continued for infants, and children should continue to receive their usual diet [13]. For mild TD, this may be all that is necessary.

Treatment

For more severe symptoms or for those groups where dehydration may have more serious consequences, oral rehydration solutions are recommended. These should be diluted into clean drinking water to help to correct electrolyte (sugar/salt) imbalances.

A commercially available rehydration solution, e.g., [Dioralyte®](#), should be used, as these have specific concentrations of sodium, potassium, and sugar. They are a useful item to have in a [first aid kit](#) for any trip. However, if oral rehydration solutions are not available, a salt and sugar solution of six level teaspoons of sugar and half a teaspoon of salt to one litre of 'safe' water can be used [14].

Symptomatic treatment with loperamide or bismuth subsalicylate (for example Pepto-Bismol®) may be considered for adults to relieve mild-to-moderate diarrhoea for a maximum of two days [15]. However, travellers should not use these treatments if they have active inflammatory bowel disease (e.g., ulcerative colitis) blood or mucous in the stool and/or high fever or severe abdominal pain. [11].

[Bismuth subsalicylate](#) can be recommended for mild diarrhoea and is helpful in reducing nausea. Bismuth subsalicylate preparations are for use in adults and children over 16 years of age.

[Loperamide](#) can be considered for travellers when frequent diarrhoea is inconvenient, e.g., those travelling on long bus journeys, or for business meetings. They should be used with caution and the instructions on the pack followed carefully. Loperamide is available over the counter for use in adults and children over 12 years of age. Loperamide has been shown to be more effective in controlling diarrhoea and cramping than bismuth subsalicylate, and works more quickly [16].

Antibiotics

TD is usually a self-limiting condition and prescribing antibiotics for standby treatment should be carefully considered. Travellers who take antibiotics may acquire organisms that are resistant to antibiotics such multi-drug resistant (MDR) Enterobacteriaceae or Clostridium difficile infections [17, 18].

Following a detailed risk assessment, standby antibiotics can be considered for some patients at high risk of severe illness should they develop TD or those visiting high-risk areas in remote locations where access to medical care is limited.

Azithromycin (adult dose: 500mg once daily for 1-3 days) is first-line treatment for TD and can be considered as a standby option for patients at high risk of severe illness or for those visiting high-risk remote areas [19]. For children considered at high risk of severe illness expert advice should be sought.

Rifaximin is not effective in the treatment of infections that cross the gut wall such as

Campylobacter, Salmonella and Shigella [12]. The overall usefulness of rifaximin as a self-treatment option remains to be determined.

Fluoroquinolones e.g., ciprofloxacin, were traditionally first line antibiotics to treat TD. However, resistance to fluoroquinolones has also become an increasing problem in some parts of the world [20] and various safety concerns around their use have been raised [21-24]. Fluoroquinolones are no longer recommended for standby treatment of TD [20, 24].

Medical care

Travellers should seek medical care if symptoms do not improve within three days. Immediate medical care should be sought if travellers have a fever of 38°C or more, blood and/or mucus in the stool or other worrying symptoms such as altered mental status, severe abdominal pain, jaundice or rash. Young children, infants, older travellers and other groups where [dehydration](#) may have more serious consequences, must seek early medical advice if they are not tolerating fluids or are showing signs of dehydration, for example great thirst, sunken eyes or dry skin with reduced elasticity [2]. Rehydration is the main treatment for TD and should be started promptly for these vulnerable groups.

Preventing travellers' diarrhoea

TD is difficult to prevent for those who cannot prepare their own food and drinks [1]. Following [food and water hygiene precautions](#) is sensible but these measures do not offer full protection [1]; travellers should always be prepared to manage the symptoms of TD.

- Hands should be washed after visiting the toilet, and always before preparing or eating food. Alcohol gel can be helpful (but not entirely effective) when hand washing facilities are not available.
- Antibiotic chemoprophylaxis (continuous use during travel) is not recommended for most travellers.
- Travellers should practise good swimming pool hygiene by not swimming if they have diarrhoea, ensuring babies and infants are wearing suitable swimwear, and by avoiding ingesting any pool water [9]. [Further information on swimming pool hygiene](#).
- To reduce the risk of catching bacterial or viral infections during sexual activity, travellers should practise [safer sex](#) and ensure good personal hygiene.

Vaccine information

There is no vaccine available to prevent TD. The cholera vaccine used in the UK (Dukoral®) may provide limited protection against diarrhoea caused by some *Escherichia coli* [3].

There are vaccines available for some organisms acquired through the consumption of contaminated food or water such as [Salmonella Typhi](#), [poliomyelitis](#), [hepatitis A](#), and [Vibrio cholerae](#), however, these organisms do not cause the illness known as travellers' diarrhoea and should be

considered separately as part of the overall travel health risk assessment.

Resources

- [Food and water hygiene](#)
- [Centers for Disease Control and Prevention \(USA\): Travelers Diarrhea](#)
- [Terence Higgins Trust: Shigella](#)
- [UK Health Security Agency: Shigella advice for GBMSM](#)

Further reading

- [Steffen R, Hill DR & Du Pont HL. Traveler's Diarrhea A Clinical Review. JAMA 2015; 313\(1\):71-80](#)
- [Heather CS. Travellers' diarrhoea. BMJ Clin Evid. 2015; Apr 30; pii: 0901](#)
- [Riddle MS, Connor BA, Beeching NJ, et al. Guidelines for the prevention and treatment of travelers' diarrhea: a graded expert panel report. J Trav Med. 2017; 24 \(Suppl 1\): S63-S80.](#)

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