

Traveler's diarrhea

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Traveler's diarrhea (TD) is defined as the sudden onset of loose or liquid stools while traveling.¹ It causes 12% to 46% of patients to change their travel plans.² Traveler's diarrhea is caused by consuming a food or liquid that is contaminated, commonly by a bacterial pathogen, such as enterotoxigenic *Escherichia coli*, enteroaggregative *E coli*, and *Campylobacter*.³ Symptoms can last for 2 to 4 days and include cramping, stomach pain, urgent stools, fever, vomiting, and bloody diarrhea.¹

In 2017, the International Society of Travel Medicine released new guidelines to help clinicians in the prevention and treatment of TD. Primary care providers should be aware of 2 main updates from the previous guidelines. First, previous guidelines categorized the severity of TD according to the number of unformed stools the traveler passed in the preceding 24 hours. In the new guidelines, the language is simplified and now focuses on functional impairment to define the severity of illness—a change that is intended to make it easier for travelers to take appropriate action while abroad. The second main change relates to the use of loperamide. In past guidelines, loperamide was discouraged; however, in the new guidelines, its use is only discouraged for severe diarrhea with dysentery.¹

To support clinicians in helping patients prepare for travel, we developed a 2-page infographic (**Figure 1**), also available at **CFPlus**,* that can be used in clinic and shared with patients. The infographic is based on the International Society of Travel Medicine 2017 TD guidelines,¹ a statement from the Committee to Advise on Tropical Medicine and Travel,⁴ and information from the Centers for Disease Control and Prevention's *Yellow Book 2018*.⁵ The infographic covers 4 main topics: assessing patients before the trip, educating patients about prevention during the trip, prescribing and recommending medications for treatment that can be taken during the trip, and identifying patients who might need additional follow-up after the trip.

Before the trip

For Canadian travelers, the risk of TD is highest in Asia, the Middle East, Africa, and Central and South America.² Canadians traveling to Eastern Europe, South Africa, Mexico, and the Caribbean Islands also have a higher risk of TD.² Patients planning trips to these locations should plan ahead by packing oral rehydration solution, loperamide, and an antibiotic such as azithromycin.

Prevention during the trip

Travelers to higher-risk countries should take special precautions to minimize their exposure.⁴ For example, they should only eat fruits that they peel themselves and only eat fully cooked foods that are still hot. Similarly, they should be careful to avoid ice cubes, salads, and uncooked vegetables, as these have likely been exposed to local tap water. Patients might want to take 2 bismuth subsalicylate tablets 4 times daily, as this has been shown to reduce TD by up to 60%.¹ However, side effects such as black tongue, black stools, tinnitus, and constipation, as well as the need for frequent administration, might limit use.

Treatment during the trip

While traveling, patients typically need to make treatment decisions without the support of their physician or pharmacist. The new guidelines support patient decision making by connecting treatment decisions with functional impairment. Oral rehydration solution should be used for all cases of TD. Loperamide can be used for mild, moderate, and severe diarrhea, but should be avoided in dysentery. Be sure to educate patients that dysentery is blood mixed into the stool and not simply blood on the toilet paper (which is more likely explained by hemorrhoids). Antibiotics should be used for severe TD, including dysentery, with the antibiotic of choice being azithromycin. Patients who do not feel better in 24 to 48 hours should seek medical attention. While fluoroquinolones are an option, their increasing global resistance and adverse effects have made azithromycin the preferred option for both moderate and severe TD.

Follow-up after the trip

On the return home, patients with severe or persistent diarrhea should have stool testing. Approximately 5% of patients who experience TD will develop a postinfectious irritable bowel syndrome.² Rare but serious complications to be aware of include reactive arthritis and Guillain-Barré syndrome.

Conclusion

Travelers at highest risk of TD are those who come from low-risk countries, such as Canada, and go to higher-risk countries. Traveler's diarrhea will typically occur closer to the start of the trip; however, patients should follow food and water precautions throughout. It can also result in considerable stress and expense when it leads the traveler to cancel or change plans. The primary care provider has a key role to play in helping patients prepare for and get the most out of their trips. 🌿

*The infographic (**Figure 1**) is available at www.cfp.ca. Go to the full text of the article online and click on the **CFPlus** tab.

Figure 1

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Travellers' Diarrhea

Sudden onset of loose or liquid stools (💩) while travelling. Symptoms can include cramps, urgent loose stools, stomach pain, fever, vomiting, and bloody diarrhea. Usually lasts 2 to 4 days.



1 Before the trip: Identify risk of destination

High Risk

- Asia
- The Middle East
- Africa
- Central and South America

Intermediate Risk

- Eastern Europe
- South Africa
- Mexico
- Caribbean Islands

Low Risk

- United States
- Australia
- New Zealand
- Japan
- Northern and Western Europe



Travellers should bring:

Oral Rehydration Solution
(e.g., *Gastrolyte*®)

- Replaces water and salts that are lost through diarrhea
- Especially important for kids
- Helps you to feel better, faster

Loperamide
(e.g., *Imodium*®)


- Slows the movement of diarrhea through the gut
- Takes 1 - 2 hours to take effect

Antibiotic


- Kills the bacteria that cause travellers' diarrhea
- Azithromycin is preferred
- Ciprofloxacin/levofloxacin are options, but have high rates of resistance in SE Asia
- Can be given as a single day or 3 day prescription
- Takes 12 - 36 hours to take effect



2 Prevention during the trip


 Wash hands often with either soap or hand sanitizer

 Only eat fully cooked foods that are still hot

 Use bottled water for drinking and brushing teeth

 Avoid ice cubes, salads, and uncooked veggies

 Eat fruits that can be peeled and peel your own fruit

 Optional: Bismuth subsalicylate 4 times a day while travelling

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Travellers' Diarrhea

3 Treatment during the trip

Patients should begin self-treatment according to severity:

	<i>How bad?</i>	<i>What to do?</i>
<i>Mild</i>	Diarrhea does not interfere with daily plans	May use loperamide or bismuth subsalicylate
<i>Moderate</i>	Diarrhea is tolerable but interferes with daily plans	May use loperamide and/or antibiotic
<i>Severe</i>	Diarrhea prevents all planned activities	May use loperamide, <u>should</u> use antibiotic
<i>Dysentery</i>	Diarrhea is mixed with blood (<i>not just blood on the toilet paper</i>)	DO NOT use loperamide, <u>should</u> use antibiotic



Bloody diarrhea is called dysentery



Use oral rehydration solution for all types of diarrhea



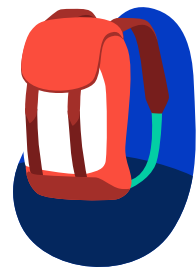
Seek medical attention if diarrhea not improving in 24 - 36 hours

4 After the trip



Up to 10% of people have complications from Travellers' Diarrhea

- Stool testing may be required for severe diarrhea or diarrhea lasting at least 2 weeks
- Colonoscopy may be required to assess for irritable bowel syndrome that lasts for months to years after travellers' diarrhea
- Complications can include the rare risk of reactive arthritis and Guillain-Barré syndrome



Riddle MS et al. Guidelines for the prevention and treatment of travelers' diarrhea: a graded expert panel report. *J Travel Med* 2017; 24 (suppl 1): S63-80. https://academic.oup.com/jtm/article/24/suppl_1/S63/3782742
 Griffin PM et al. Food and water precautions. *CDC Yellow Book 2018: Health Information for International Travel*. New York: Oxford University Press; 2017. <https://wwwnc.cdc.gov/travel/page/yellowbook-home>.

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Competing interests

None declared

References

- Riddle MS, Connor BA, Beeching NJ, DuPont HL, Hamer DH, Kozarsky P, et al. Guidelines for the prevention and treatment of travelers' diarrhea: a graded expert panel report. *J Travel Med* 2017;24(Suppl 1):S57-74.
- Steffen R, Hill DR, DuPont HL. Traveler's diarrhea: a clinical review. *JAMA* 2015;313(1):71-80.
- Shah N, DuPont HL, Ramsey DJ. Global etiology of travelers' diarrhea: systematic review from 1973 to the present. *Am J Trop Med Hyg* 2009;80(4):609-14.
- Committee to Advise on Tropical Medicine and Travel (CATMAT). *Statement on travelers' diarrhea. An Advisory Committee Statement (ACS)*. Ottawa, ON: Public Health Agency of Canada; 2015. Available from: www.canada.ca/en/public-health/services/catmat/statement-travellers-diarrhea.html. Accessed 2019 May 15.
- Griffin PM, Hlavsa MC, Yoder JS. Food and water precautions. In: *CDC yellow book 2018*. Atlanta, GA: Centers for Disease Control and Prevention; 2018. Available from: wwwnc.cdc.gov/travel/yellowbook/2018/the-pre-travel-consultation/food-water-precautions. Accessed 2019 May 15.

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