



## Module 1823

# Diarrhoea

From this module, you will learn:

- The main causes of diarrhoea
- What medicines have diarrhoea as a side effect
- The role of the pharmacist in diagnosing acute diarrhoea
- When treatment should be offered and when referral may be necessary

### KRISTOFFER STEWART

In general, diarrhoea is defined as an increase in the frequency of soft or watery stools. Because people have different patterns of bowel habits – for example, one person may defecate a few times a week, whereas for others a few times a day may be normal – diarrhoea is relative to each person.

Diarrhoea can broadly be categorised as acute (lasting less than four weeks) or chronic (lasting more than four weeks). The exact prevalence is difficult to determine, as patients who suffer from an increase in their bowel movements may not necessarily contact a healthcare professional for treatment or advice. However, it is reasonable to assume that most people, at some point in their life, will have had a change in bowel habit that can be described as diarrhoea.

### What causes diarrhoea?

Diarrhoea itself is not classed as a disease, rather it is a sign of an underlying problem – such as an infection or gastrointestinal (GI) disorder. It tends to occur when the stools become more fluid than normal, either because water is not absorbed properly or because extra liquid is secreted into the bowel. There are several conditions that can

lead to an individual having diarrhoea, and these are examined below.

### Infection

An infection is usually the cause of acute diarrhoea, typically referred to as gastroenteritis. It is most likely to occur when a patient has come

into contact with someone already infected, or by ingesting contaminated food or water. The three types of infection are:

- **Viral** – A common cause of infection. Examples include norovirus (the winter vomiting bug) and rotavirus. Symptoms normally include abdominal pain, nausea and vomiting, or fever.
- **Bacterial** – Typical causes include ingesting food contaminated with *Campylobacter*, *Clostridium difficile*, *E.coli*, *Salmonella* or *Shigella*. These bacteria lead to what is recognised as food poisoning with symptoms including: diarrhoea, nausea, vomiting, stomach pain and abdominal cramps. Symptoms can start between several hours

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and a few days after ingesting contaminated foods.

- **Parasitic** – This includes the parasite *Giardia intestinalis*, which causes giardiasis (try our quiz at [tinyurl.com/CDGiardiasis](https://tinyurl.com/CDGiardiasis)). This is usually spread through contaminated drinking water, or with direct contact with an infected individual.

### Medicines

Medicines often cause diarrhoea. It only takes a quick look at the side effects of many commonly prescribed medicines in the British National Formulary (BNF) to see how often diarrhoea and gastrointestinal disturbances are listed.

The following list includes an example of some of the medicines – prescribed and over-the-counter (OTC) – that can lead to diarrhoea:

- ACE (angiotensin-converting enzyme) inhibitors
- magnesium-containing antacids
- antibiotics
- chemotherapy treatments
- antidepressants, such as selective serotonin reuptake inhibitors (SSRIs), clomipramine and venlafaxine
- NSAIDs (non-steroidal anti-inflammatory drugs)
- immunosuppressants eg ciclosporin
- antiviral treatments
- bisphosphonates
- laxatives.

As the list of medicines is so long, when you speak to a patient who has recently changed medication or increased their prescribed dose, you should specifically ask them about any changes in their bowel habits.

### Other causes of diarrhoea

As well as infection and medicines, there are many other potential causes of diarrhoea:

- Anxiety or stress – people who feel stressed or anxious can have changes in their bowel habits, leading to diarrhoea or constipation
- Excessive alcohol consumption – this can lead to diarrhoea. Alcohol consumption encourages acid production, leading to inflammation of the

stomach lining. This affects normal gut activity, and triggers diarrhoea

- Food allergies – these can cause inflammation of the gut lining, leading to reduced absorption and diarrhoea
- Appendicitis – this painful swelling of the appendix is usually accompanied by loss of appetite, nausea and vomiting, high temperature, pallor or a flushed face, sweating and diarrhoea
- Radiotherapy – this can cause damage to the lining of the intestine and affects its ability to function normally, leading to GI disturbances.

### Long-term causes of diarrhoea

Although diarrhoea is often acute in nature, there are several ongoing conditions that have diarrhoea as a symptom:

#### Irritable bowel syndrome (IBS)

This condition is generally poorly understood, as it appears to have no discernible cause. It causes periods of diarrhoea or constipation of various duration and frequency. For more information, see module 1810 at [bit.ly/CDibs](http://bit.ly/CDibs).

#### Inflammatory bowel disease (IBD)

This is a collective term for two chronic conditions: ulcerative colitis and Crohn's disease. These both cause inflammation of sections of the GI tract, which leads to diarrhoea – often with blood in the stool. Like IBS, this condition has periods of relapse and remission. For more information, see modules 1814 ([bit.ly/cduc1](http://bit.ly/cduc1)) and 1815 ([bit.ly/crohnCD](http://bit.ly/crohnCD)).

#### Malabsorption syndromes

These include coeliac disease and lactose intolerance. Coeliac disease is not only an intolerance to gluten (which is a more common complaint), but an adverse immune system response that occurs when the GI tract comes into contact with gluten. This can cause inflammation, which prevents effective gut absorption. There are a range of symptoms that will occur alongside

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diarrhoea, such as weight loss and fatigue.

Lactose intolerance is more common in infants, with typical symptoms of vomiting and loose stools. It can lead to the infant failing to gain weight and thrive.

#### Bowel cancer

Also known as colorectal cancer, is most common in people aged 85 to 89 years old, but the age-specific incidence increases sharply from around age 50 to 54. Symptoms include a long-term change in bowel habit, with the feeling of incomplete voiding. In addition, patients may experience unexplained weight loss, blood in their stool and a pain or lump in the stomach.

#### Faecal impaction

This occurs when a build-up of dry, hard, faecal matter blocks the rectum, preventing defecation. Patients may believe they have diarrhoea, as they are able to pass small watery stools – but this is due to the leakage of liquid around the blockage. This leads to a sense of urgency, with the patient feeling the sudden need to defecate. Find out more in C+D's case study at [bit.ly/CDimpaction](http://bit.ly/CDimpaction).

#### Consequences of long-term diarrhoea

Ongoing diarrhoea can lead to dehydration. This is particularly problematic for babies and small children. Dehydration can be described as mild, moderate or severe, depending on how much fluid has been lost.

#### Mild

Less than 5% of body fluid is lost, and a patient may have the following symptoms:

- headache
- nausea
- postural hypotension (low blood pressure upon standing, often seen as light headedness or dizziness)
- tiredness.

#### Moderate

Between 5-10% of body fluid is lost, and a patient may have the following symptoms:

- dry mouth
- lethargy or tiredness
- muscle cramps
- oliguria (decreased urine output)
- sunken eyes.

#### Severe

More than 10% of body fluid is lost, and a patient may have the following symptoms:

- reduced skin turgor – this is demonstrated by the pinch test, where pinched skin takes longer than two seconds to return to its normal position

- shock
- confusion
- oliguria or anuria (failure to produce urine). In infants, dehydration can be described as severe if they have the following symptoms:
  - a sunken soft spot (fontanelle) on the top of the head
  - few or no tears when they cry
  - a dry mouth
  - fewer wet nappies than usual.

#### The pharmacist's role

In the pharmacy, you are ideally placed to ensure that a patient suffering from diarrhoea gets either the most suitable treatment or an appropriate referral. To do this, ask questions to assess the patient's current need.

Simple questions – such as the duration of their symptoms, if blood or mucous is present in the stools, and if they have travelled or had a new medicine prescribed recently – can help you determine whether there is an underlying cause. By speaking to the patient, you may be made aware of some symptoms that would warrant referral (see Box 1: Red flag symptoms).

### Box 1: Red flag symptoms

Diarrhoea can be self-limiting, and pass within a few days. But, as we have described, it may also be symptomatic of a number of other conditions that require further investigation. The following are a list of 'red flag' symptoms that would warrant referral:

- long-term change in bowel habit
- diarrhoea that begins after recent travel to a developing country
- a child or an elderly patient with symptoms lasting longer than three days
- an infant under one year with symptoms lasting more than one day
- a patient unable to drink water due to nausea and vomiting
- blood present in the stool
- a large quantity of mucous or fat in the stool
- severe abdominal pain
- suspected faecal impaction (see [bit.ly/CDimpaction](http://bit.ly/CDimpaction))
- suspected IBS or IBD.

This list is not exhaustive, and you should use your clinical judgement to decide whether a patient would benefit from being referred for further investigation.



### Treatment of diarrhoea

When underlying causes have been excluded and you determine that the patient can be treated in the pharmacy, you have a number of treatment options available.

### Drinking fluids

The first piece of advice you should provide to patients is to continue to drink fluids to prevent dehydration. However, this may be difficult if patients also have nausea and vomiting. If this is the case, recommend frequent, small sips of fluid to prevent vomiting.

A common belief is that flat coke can be used to treat diarrhoea. In some ways this makes intuitive sense – it contains water and sugar. However, it

also contains caffeine, which acts as a diuretic and can lead to further dehydration, so should not be recommended.

### Oral rehydration solution (ORS)

To help prevent dehydration, you could recommend the use of an oral rehydration solution (ORS). This is a simple, but highly effective treatment that helps reduce the dehydration associated with diarrhoea. Typical ORS comes in a sachet containing powder that is added to potable water. These sachets contain salts and sugars in the correct quantities to help rehydrate the patient.

When using ORS, adults require one or two doses after each loose stool, and children should

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only have one. Bear in mind that ORS can only be given OTC to those aged two years and older.

Although ORS is usually flavoured, some patients may not like the taste. To help make the solution more palatable, it can be put into the fridge for up to 24 hours after being made up.

If patients do not want to buy an OTC product, you should recommend they drink a fluid containing water, salts and sugar. Patients will often self-treat at home, for example with broths or water mixed with juice, but you should advise patients these remedies are not as effective as ORS.

### Loperamide

This antidiarrhoeal acts to relieve the symptoms of sudden, short-term diarrhoea. It causes the stools to become more solid, acting on opiate receptors to slow GI tract time and increase the capacity of the gut – leading to a less frequent need to defecate.

The normal dose for short-term diarrhoea is two capsules initially, then one after each loose bowel movement. The medicine is usually suitable for children over 12 years, though individual product licenses should be consulted.

You should make patients aware that it may cause the side effects of abdominal cramping, nausea and vomiting, as this may affect their decision to take this treatment.

### Bismuth subsalicylate

This traditional treatment is sold under the

brand name of Pepto-bismol – however, generic alternatives are available. The mechanism of action is poorly understood, but it is believed to limit digestive tract secretions and reduce local inflammation in the gut.

The use of bismuth subsalicylate has declined over recent years, but it still can be found in most pharmacies. The reduction in use may be due to the risk of Reye's syndrome, from the salicylate it contains. This condition is rare, but serious, and can cause swelling of the brain and liver. It typically affects children, so the use of bismuth subsalicylate is limited to patients aged over 16 years.

You should inform patients who use this remedy that they should take 30ml every 30 to 60 minutes, up to a maximum of eight times in a 24 hour period.

### Kaolin and morphine

This combination is rarely available in pharmacies, and those that do stock it tend to keep it out of site, due to the likelihood of abuse. As it contains an opioid, it causes the typical constipation side effect seen in this drug class, leading to reduced gut motility and reduced diarrhoea symptoms.

This product is not suitable for those under 12 years. But for patients over this age who do request it, you should recommend they take two 5ml spoonfuls, mixed with water, three times a day until the symptoms of diarrhoea are relieved.

### Vaccinations

An oral vaccine against rotavirus infection – a common cause of diarrhoea and sickness – is given as two doses for babies aged eight and 12 weeks, alongside their other routine childhood vaccinations.

The vaccine is very effective and gives good immunity to the infection. Since the introduction of the vaccine across the UK in 2013, cases are down by 69%, according to the NHS Choices website.

# Diarrhoea CPD

## Reflect

Which medicines can cause diarrhoea? How is dehydration classified? How does loperamide work?

## Plan

This article contains information about common causes of diarrhoea and how it should be treated, as well as medicines that have diarrhoea as a side effect and the symptoms of dehydration. The role of the pharmacist in diagnosing acute diarrhoea and red flag symptoms warranting referral are also discussed.

## Act

Read more about diarrhoea and its treatment on the Patient website at [tinyurl.com/diarrhoea3](https://tinyurl.com/diarrhoea3)  
Find out more about traveller's diarrhoea, including advice on its prevention on the Clinical Knowledge Summaries (CKS) website at [tinyurl.com/diarrhoea4](https://tinyurl.com/diarrhoea4)

Read more about dehydration on the NHS Choices website at [tinyurl.com/diarrhoea5](https://tinyurl.com/diarrhoea5)

Make sure your counter staff are familiar with diarrhoea symptoms and treatments, as well as when to refer

## Evaluate

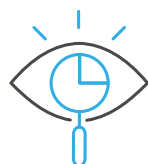
Are you now confident in your knowledge of diarrhoea and its causes? Could you give advice to patients about the prevention and treatment of diarrhoea?

# Take the 5-minute test online

1. Diarrhoea is considered to be acute if it lasts less than four weeks, and chronic if it lasts longer than four weeks.  
**True or false**
2. Viral causes of diarrhoea include norovirus and rotavirus.  
**True or false**
3. Medicines that can cause diarrhoea include corticosteroids, simvastatin and hyoscine.  
**True or false**
4. Anxiety and stress, food allergies and alcohol consumption can all be a cause of diarrhoea.  
**True or false**
5. The risk of lactose intolerance increases with age and it is a common cause of diarrhoea in adults over 50 years.  
**True or false**
6. Ulcerative colitis and Crohn's disease cause inflammation of sections of the gastrointestinal tract, consequently leading to diarrhoea.  
**True or false**
7. Symptoms of mild dehydration include headache, nausea, postural hypotension and tiredness.  
**True or false**
8. In severe dehydration, 5% of body fluid is lost.  
**True or false**
9. Loperamide acts on opiate receptors to slow gastrointestinal tract time and increase the capacity of the gut.  
**True or false**
10. Bismuth subsalicylate should be taken as a 10ml dose every two hours, up to a maximum of eight doses in 24 hours.  
**True or false**



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