

# Diphtheria

## Fact sheet

---

### What is diphtheria?

Diphtheria is a contagious bacterial infection caused by toxin-producing strains of *Corynebacterium diphtheriae* and *Corynebacterium ulcerans*. In some cases, it can be life-threatening.

Diphtheria was a common cause of death in Australian children up until the 1940s, but now occurs mainly in countries with poor levels of immunisation. Cases in Australia are rare now due to high immunisation rates.

---

### What are the symptoms of diphtheria?

Symptoms will depend on the site of infection. The most severe form of diphtheria affects the throat and tonsils. The first symptoms are usually a sore throat, loss of appetite and a mild fever. Within 2 -3 days, a greyish-white membrane forms over the throat and tonsils that can make it hard to swallow and breathe. The infection can also cause the neck to swell. This is known as respiratory diphtheria and is the type of infection which, historically in Australia, resulted in the deaths of many children under five years of age.

Symptoms usually begin two to five days after being exposed to the bacteria but may take up to 10 days to appear.

Sometimes diphtheria can cause small skin sores that form larger ulcers, commonly on the legs. This form of diphtheria is known as cutaneous diphtheria and is more common in the tropics.

The toxin formed by diphtheria bacteria can cause inflammation of heart muscle and the nerves which can be fatal in 5-10 per cent of people infected.

Illness can also occur with non-toxin-producing strains of the diphtheria bacteria, but the disease is generally milder.

---

### How is diphtheria spread?

Diphtheria bacteria can live in the mouth, nose, throat, or on the skin of infected people.

Diphtheria is usually spread from respiratory droplets after an infected person has coughed or sneezed. Sometimes the bacteria spreads from close contact with discharges from an infected person's mouth, nose, throat, or skin but this is rare.

Without antibiotic treatment, people with diphtheria are infectious for up to 4 weeks from when their symptoms first begin. Some people are infectious for longer.

Toxin producing strains of *Corynebacterium ulcerans*, bacteria more commonly associated with animals, can also rarely cause diphtheria in humans. This can occur following contact with livestock or domestic pets, and consumption of unpasteurized milk.

---

## Who is at risk of getting diphtheria?

Anyone who is not fully immunised is at risk of diphtheria.

Travellers to some areas may be at higher risk of acquiring diphtheria.

Respiratory diphtheria is more common in countries with low levels of childhood immunisation and is also more common in crowded settings such as refugee camps.

Places with an increased risk of respiratory diphtheria include parts of the South Pacific, South and South-East Asia, the Middle East, Eastern Europe, South and Central America.

Cutaneous diphtheria is more common in tropical countries.

---

## How is diphtheria prevented?

Vaccinations against diphtheria are part of childhood immunisations and are given in a combination vaccine known as 'DTP' vaccine, which contains vaccines against diphtheria, tetanus and pertussis (whooping cough).

The DTP vaccine should be given at six weeks, 4 months, 6 months, and 18 months of age, followed by booster doses at 4 years and at 15 years of age.

A high vaccination rate in the community is important to protect everyone from the disease. In 2021, over 90% of Australian children under 6 years of age were fully immunised against diphtheria (Australian Childhood Immunisation Register (ACIR) statistics).

The diphtheria vaccine acts against the toxin formed by the bacteria, which causes the more severe forms of the disease. It is still possible for fully vaccinated people to be infected by the bacteria, but if they are, it is very unlikely that they will develop the severe forms of the illness.

People travelling to high-risk areas are recommended to have a diphtheria booster prior to travel if their last dose was more than 5 years ago.

People can access diphtheria boosters prior to travel (if required) from their GP or from registered pharmacist immunisers.

---

## How is diphtheria diagnosed?

If you have any diphtheria symptoms, you should see a doctor immediately.

The doctor will look for a greyish-white membrane in your throat. If diphtheria is suspected a throat swab will be taken and sent to a laboratory.

If the suspected infection is on your skin, a skin swab will be taken.

Special laboratory tests are needed to detect and diagnose diphtheria. Tests will initially identify whether the *Corynebacterium* bacteria are present, and then whether they produce the toxin which causes the more serious forms of the disease.

---

## How is diphtheria treated?

Diphtheria infection is treated with antibiotics and antitoxin to stop the infection from developing and may also require a course of vaccination if unimmunised. Some people may require hospitalisation.

---

## What is the public health response to diphtheria?

Laboratories, hospitals, school principals and directors of childcare centres are required to notify cases of diphtheria to the local Public Health Unit under the Public Health Act, 2010.

Public Health Unit staff will interview the doctor and patient (or carers) to find out how the infection occurred, identify other people at risk of infection, implement control measures to prevent spread (such as testing, antibiotic therapy, immunisation, and restrictions on attending school or work) and provide other advice.

Cases are isolated until they are not infectious.

---

## More information

If you or your child have symptoms of diphtheria and you are concerned, speak to your doctor right away, or in an emergency call 000. For health advice you can also call health direct on 1800 022 222 for free 24-hour health advice or speak to your local pharmacist.

For more information, please call your local Public Health Unit on 1300 066 055.