
Diphtheria

Summary

- Diphtheria is a serious bacterial disease that causes severe inflammation of the nose, throat and windpipe (trachea).
 - Diphtheria is extremely rare in developed nations including Australia because of the widespread use of the diphtheria vaccine.
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Diphtheria is a serious communicable bacterial disease that causes severe inflammation of the nose, throat and windpipe (trachea). It is caused by the bacterium *Corynebacterium diphtheriae*. The bacteria produce toxins that cause an abnormal membrane to grow in the throat, which can lead to suffocation.

Other dangerous complications include paralysis and heart failure if the toxins spread throughout the body. Around 10 per cent of people exposed to diphtheria die from the disease.

Diphtheria is extremely rare in most developed countries, including Australia, because of the widespread use of the diphtheria vaccine. However, it is important to continue vaccinating children against diphtheria because there is a risk that the infection can be brought in by people who have travelled to or come from developing nations.

Symptoms of diphtheria

Symptoms of diphtheria may include:

- runny nose
- severe sore throat
- fever
- generally feeling unwell (malaise)
- swollen lymph nodes in the throat
- a furry grey or black coating on the throat membranes, which is made up of bacteria and dead cells
- breathing problems
- swallowing problems.

Diphtheria and skin infection

Sometimes, diphtheria causes a skin infection. The wound is sore, inflamed and full of pus and may be surrounded by greyish skin patches. This condition is known as cutaneous diphtheria. It is quite rare in developed countries.

Complications of diphtheria

Without treatment, the extremely serious and potentially lethal complications of diphtheria can include:

- suffocation, as the abnormal throat membrane obstructs breathing
- heart damage, including inflammation (myocarditis) or congestive heart failure
- kidney damage
- nerve damage, with health problems depending on which nerves are affected.

How diphtheria is spread

Diphtheria is most commonly spread when someone ingests (swallows) or inhales the cough or sneeze droplets from an infected person. Symptoms occur between two and 10 days following infection.

Sometimes, a person has such a mild case of diphtheria that they don't realise they are sick. However, they are

still contagious for about six weeks and may infect a lot of other people. An apparently healthy person who spreads an infectious disease is called a 'carrier'.

Diphtheria – high-risk groups

Diphtheria is very rare in Australia. People at increased risk of diphtheria include:

- unimmunised or incompletely immunised people exposed to a person infected with diphtheria
- people who have immune system problems
- people living in unhygienic and crowded conditions
- travellers to particular areas known to harbour diphtheria such as South-East Asia, Russia and surrounding countries, Baltic countries and Eastern European countries.

Diagnosis of diphtheria

Tests used to diagnose diphtheria may include:

- medical history including immunisation status
- travel history
- physical examination
- swabs of the throat (or wound) for laboratory testing.

Treatment for diphtheria

If diphtheria is suspected, treatment begins before the test results are back from the laboratory. Treatment may include:

- hospitalisation
- isolation to prevent the spread of infection
- antibiotics, such as penicillin, to destroy the bacteria
- diphtheria antitoxin given
- other medicines to reduce the risk of adverse reactions to the vaccine, for example corticosteroids, adrenaline or antihistamines
- surgery to remove the grey membrane in the throat, if necessary
- treatment of complications, for example medications to treat myocarditis
- bed rest for about six weeks or longer, depending on the severity of the illness.

Prevention of diphtheria

The best prevention against diphtheria is immunisation.

People who are caring for someone with diphtheria should practise strict hygiene – for example, wash hands frequently, particularly before handling, preparing or eating food – and get a booster vaccination. All contacts should also receive a course of antibiotics.

Immunisation against diphtheria

In Victoria, the diphtheria vaccine is available in a combined vaccine that also contains protection against other serious and potentially fatal diseases.

The diphtheria vaccine contains a weakened form of the bacterial toxin, called a toxoid. It works by prompting the body to produce an 'antitoxin' – a specific antibody that neutralises diphtheria toxin. A number of doses are needed to offer good protection against diphtheria.

Different vaccines are available depending on the person's age group. A free combined vaccine that offers protection against diphtheria is available for all Victorian children when they are:

- two, four and six months of age – in the form of a diphtheria, tetanus, whooping cough, hepatitis B, polio and Haemophilus influenzae type b (Hib) vaccine
- eighteen months of age – a booster in the form of a diphtheria, tetanus, whooping cough vaccine

- four years of age – a booster in the form of a diphtheria, tetanus, whooping cough and polio vaccine
- adolescents in secondary school (or age equivalent) – adolescents receive a booster dose of diphtheria, tetanus and whooping cough vaccine. The dose can also be given by the doctor or at a council community immunisation session.

Catch-up immunisations are also available free-of-charge for all children and young people under 20 years of age

The immunisations you may need are decided by your health, age, lifestyle and occupation. Together, these factors are referred to as HALO. View the [HALO infographic](#) to find out more.

Adult booster immunisation against diphtheria

Immunity against diphtheria reduces with time and further booster shots may be needed. A course of diphtheria-containing vaccine is recommended for anyone who has never been vaccinated.

Three doses are given at monthly intervals and two further booster doses are given 10 years apart. A diphtheria, tetanus and whooping cough booster is recommended for adults from 50 years of age and requires a GP prescription to purchase the dose.

Before diphtheria immunisation

Before immunisation, make sure that you tell your doctor or nurse if you (or your child):

- are unwell on the day of immunisation (temperature over 38.5°C)
- have had a serious reaction to any vaccine in the past
- have had a severe allergy to anything
- are pregnant.

Side effects of the diphtheria vaccine

Immunisations containing protection against diphtheria, tetanus and whooping cough and other infectious diseases are effective and safe although all medications can have unwanted side effects.

Side effects from these combined vaccines are uncommon and usually mild, lasting one or two days, but may include:

- localised pain, redness and swelling at the injection site
- occasionally, an injection-site lump (nodule) that may last many weeks but treatment is not needed
- low-grade temperature (fever)
- children can be unsettled, irritable, tearful, generally unhappy, drowsy and tired.

If a combined immunisation also contains the vaccine against polio (the six-in-one and the four-in-one vaccine), muscle aches may also be experienced.

Managing fever after immunisation

Common adverse events following immunisation are usually mild and temporary (occurring in the first one to two days after vaccination). Specific treatment is not usually required.

There are a number of treatment options that can reduce the side effects of the vaccine including:

- Give extra fluids to drink.
- Do not overdress children or babies if they are hot.
- Although routine use of paracetamol after vaccination is not recommended, if fever is present, paracetamol can be given. Check the label for the correct dose or speak with your pharmacist, especially when giving paracetamol to children.

Managing injection site discomfort

Many vaccine injections may result in soreness, redness, itching, swelling or burning at the injection site for one to two days. Paracetamol might be required to ease the discomfort.

Sometimes, a small, hard lump (nodule) at the injection site may persist for some weeks or months. This should

not be of concern and requires no treatment.

Concerns about immunisation side effects

If an adverse event following immunisation is unexpected, persistent or severe, or if you are worried about yourself or your child's condition after immunisation, see your doctor or immunisation nurse as soon as possible, or go directly to a hospital. It is also important to seek medical advice if you (or your child) are unwell, as this may be due to other illness rather than because of the immunisation.

Adverse events that occur following immunisation may be reported to the Victorian Surveillance of Adverse Events Following Vaccination in the Community (SAEFVIC) Line. SAEFVIC is the central reporting service in Victoria for any significant adverse events following immunisations. You can discuss with your immunisation provider how to report adverse events in other states or territories.

Rare immunisation side effects

There is a very small risk of a serious allergic reaction (anaphylaxis) to any vaccine. This is why you are advised to stay at the clinic or medical surgery for at least 15 minutes following immunisation in case further treatment is required.

If any other reactions are severe and persistent, or if you are worried, contact your doctor for further information.

Where to get help

- In an emergency, call triple zero (000)
- The emergency department of your nearest hospital
- Your doctor
- Your local council immunisation service
- Immunisation Section, Department of Health and Human Services Tel. 1300 882 008
- **NURSE-ON-CALL** Tel. 1300 60 60 24 – for expert health information and advice (24 hours, 7 days)
- **Maternal and Child Health Line** (24 hours, 7 days) Tel. 13 22 29
- **Immunise Australia Information Line** Tel. 1800 671 811
- **SAEFVIC** Tel. 1300 882 924 – the line is attended between 9 am and 4 pm and you can leave a message at all other times

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