

Diphtheria

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

Signs and 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.

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

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 it 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'.

High-risk groups

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

- Anyone exposed to a person infected with diphtheria
- Anyone who has not been immunised
- 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

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

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

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. All contacts should also receive a course of antibiotics.

Vaccination is available

In Victoria, the diphtheria vaccine is available in a combined vaccine that also contains vaccines 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
- **Four years of age** – in the form of a diphtheria, tetanus, whooping cough and polio vaccine
- **In Year 10 at secondary school** – adolescents receive a booster dose of diphtheria, tetanus and whooping cough vaccine.

Catch-up immunisations are also available free-of-charge to any child up to seven years of age (inclusive) who has not been fully vaccinated against the disease.

Adult booster

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. The first vaccine can be given as a combination with diphtheria, tetanus and whooping cough. Following doses should be given as diphtheria and tetanus.

A diphtheria and tetanus booster is recommended between 50 and 59 years of age (inclusive) and is provided free-of-charge in Victoria. See your doctor or consult with your local government immunisation service provider for more information.

Before 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.

Possible side effects of the vaccine

The vaccine is effective and safe. However, all medicines can have unwanted side effects. Side effects from the diphtheria vaccine are uncommon and usually mild but may include:

- Fever
- Tiredness
- Irritability
- Headache
- Soreness and redness at the injection site.

Treating mild side effects

Side effects usually resolve quickly. However, there are a number of treatment options to reduce the side effects of the vaccination:

- Paracetamol to reduce any fever – check the label for the correct dose (especially for children)
- A cold, wet cloth held against the injection site
- Extra drinks
- Appropriate clothing – do not overdress.

Anaphylaxis is an extremely rare side effect

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

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

Where to get help

- Your doctor
- In an emergency, call triple zero (000)
- The emergency department of your nearest hospital

- Your local council immunisation service
- Immunisation Program, Department of Health – 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
- National Immunisation Infoline Tel. 1800 671 811

Things to remember

- 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.
- The best prevention against infection is immunisation.

This page has been produced in consultation with, and approved by:

Department of Health - Communicable Disease Prevention and Control Unit

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