PROCEDURE

Diphtheria toxoid vaccine, inactivated

An injection that helps protect you from illness caused by diphtheria toxin.

PURPOSE
Prevent illness caused by diphtheria toxin

PROCEDURE TYPE
Therapeutic preventive injection, given intramuscularly at the bedside

WHERE IT IS DONE
Outpatient clinic or at the bedside

ANAESTHESIA
None

HOW LONG IT TAKES
Less than five minutes

PREPARATION
No fasting; bring vaccination records and allergy information

RECOVERY
Same day, with no routine driving restriction

MAIN RISKS
Injection-site reactions, fever, fainting, severe allergic reaction

RESULTS
Protection builds after recommended doses; no immediate test result

Overview

The diphtheria toxoid vaccine helps your immune system defend against diphtheria, an infection that can release a harmful toxin into the body.

The vaccine contains toxoid , which is diphtheria toxin that has been made harmless. It cannot cause diphtheria. It teaches your immune system to make antibodies that can respond after future exposure.

Diphtheria toxoid is usually given in a combination vaccine. Depending on your age and vaccination history, this may also protect against tetanus and pertussis, or whooping cough. Common combination vaccines include DTaP, Tdap, and Td.

Vaccination greatly reduces the risk of severe disease, but protection can decrease over time. Several initial doses and later boosters may be recommended.

Why the procedure is performed

The injection builds or renews protection against illness caused by diphtheria toxin. It may be given:

The vaccine prevents disease but does not diagnose or treat an existing infection. Suspected diphtheria requires prompt medical assessment, antibiotics like amoxicillin or doxycycline , and sometimes diphtheria antitoxin.

- During routine childhood vaccination
- As an adolescent or adult booster
- During pregnancy, usually as Tdap
- To catch up on missing or undocumented doses
- During wound care when a tetanus-containing vaccine is due
- Before travel if protection is not up to date
- After possible exposure, as part of a public health response

Who should and should not have it

Diphtheria-containing vaccines are used throughout life. The correct product and schedule depend on your age, previous doses, pregnancy status, and need for pertussis protection.

Do not receive a particular product if you had a severe allergic reaction, such as anaphylaxis, after a previous dose or to one of its ingredients. A specialist may sometimes recommend another formulation.

A pertussis-containing vaccine may not be appropriate if you developed unexplained encephalopathy within seven days of a previous pertussis vaccine. Encephalopathy is a serious change in brain function, such as prolonged reduced consciousness. This restriction concerns the pertussis component, not diphtheria toxoid itself.

Vaccination may be delayed or require individual assessment if you:

A mild illness, such as a cold, is not usually a reason to delay vaccination. Tell the vaccinating professional about your health and previous reactions.

- Have a moderate or severe illness, especially with fever
- Had a serious reaction after an earlier dose
- Have an unstable or worsening neurological condition and are due for DTaP or Tdap

- Have a bleeding disorder or take medicine that affects clotting
- Developed Guillain-Barré syndrome after a tetanus-containing vaccine

How to prepare

Follow your treating facility's instructions first.

You can usually eat, drink, and take regular medicines normally. Do not stop a blood thinner like warfarin or apixaban unless the clinician managing it tells you to.

Bring your vaccination record if available. Report allergies, previous vaccine reactions, current illness, pregnancy, fainting with injections, bleeding problems, and medicines that affect clotting.

Wear clothing that allows access to your upper arm. Babies and young children may receive the injection in the thigh. If injections make you faint, tell the healthcare professional so you can be vaccinated while securely seated or lying down.

What happens during the procedure

A healthcare professional will confirm your identity, review your vaccination history, and select a suitable product. They should explain which infections the combination vaccine covers.

The vaccine is injected into a muscle, usually in the upper arm for adults and older children or the outer thigh for babies and younger children. The needle remains in place for only a few seconds. A small bandage may then be applied. Anaesthesia and sedation are not needed.

You may be asked to remain seated for about 15 minutes afterward to reduce the risk of injury from fainting.

Recovery and what to expect afterward

Pain: The injection area may be sore, red, or mildly swollen. Gentle movement and a cool compress may help. Ask a healthcare professional or pharmacist before taking pain medicine if you have medical conditions, allergies, or take other medicines.

Eating: You can eat and drink normally. Mild nausea or reduced appetite can occur.

Activity: Most activities can continue. Rest if you feel tired, feverish, dizzy, or unwell, and avoid strenuous use of a very sore arm that day.

Driving: There is no routine restriction, but do not drive if you feel faint, dizzy, or unable to drive safely.

Work or school: Most people can return the same day, although fever, tiredness, or soreness may make rest helpful.

Risks and possible complications

Common effects begin within a day or two and are temporary. They include pain, redness, or swelling at the injection site. Fever, headache, tiredness, irritability, reduced appetite, or stomach upset may also occur.

Some children develop extensive swelling after later DTaP doses. Discuss this with their healthcare team, especially if it is severe or worsening.

Fainting can occur with any injection. Sitting or lying down during vaccination and remaining seated afterward can help prevent injury.

A severe allergic reaction is uncommon but requires immediate treatment. Vaccination facilities should have staff and equipment to manage it.

The vaccine contains no live diphtheria bacteria and cannot cause diphtheria. Serious neurological symptoms after vaccination require medical assessment, although symptoms occurring afterward are not necessarily caused by the vaccine.

Results and follow up

There is no immediate test result. Protection develops over time, and one injection may not complete the recommended series.

Keep a record of the product and vaccination date. Your healthcare team should explain whether another dose is needed and when it is due. Timing depends on your age, earlier doses, pregnancy, and reason for vaccination. Routine antibody testing is not usually needed.

If vaccination was given because of a wound or possible diphtheria exposure, additional care may be required. It does not replace wound treatment, testing, antibiotics, diphtheria antitoxin, or public health follow-up when indicated.

Alternatives

No oral, nasal, or non-vaccine method provides equivalent protection against diphtheria toxin.

Different combination vaccines may be available. DTaP is generally used for younger children, while Tdap and Td are used in older age groups. A vaccine without pertussis protection does not protect against whooping cough. Product availability and age approvals vary.

Avoiding exposure and following public health guidance can reduce risk but do not create lasting immunity. Antibiotics can treat the bacteria or reduce spread after exposure, and antitoxin can neutralize toxin that has not attached to tissues. Neither replaces vaccination for long-term prevention.

If vaccination must be delayed because of illness or a previous reaction, a later dose or individually selected formulation is usually considered.

When to call your healthcare team

Contact your healthcare team if soreness, redness, swelling, fever, or other expected effects do not improve after a few days. Also call if a reaction concerns you, interferes with normal activities, or you need help planning the next dose.

Seek prompt medical advice for a high or persistent fever, marked limb swelling, unusual weakness, or symptoms that are worsening.

Call emergency services for difficulty breathing, swelling of the face or throat, widespread hives, sudden severe dizziness, or collapse. A seizure, inability to wake normally, or another major change in consciousness also requires emergency care.

Common questions

Will I be asleep?

No. This is a brief injection without sedation or anaesthesia. Tell the healthcare professional beforehand if needles make you anxious or faint.

Can I drive home?

Usually, yes. Do not drive if you feel faint, dizzy, or unwell. Complete the recommended observation period first.

How painful is it?

The needle usually causes a brief pinch. Soreness in the arm or thigh may last a few days.

When will I know it worked?

There is no immediate result. Protection develops as your immune system responds, and

several doses may be needed. Routine antibody testing is not usually performed.

Can this vaccine cause diphtheria?

No. The toxoid has been made harmless, and the vaccine contains no live diphtheria bacteria.

Why is it combined with other vaccines?

Combination vaccines reduce the number of injections while protecting against diphtheria and other infections. Coverage depends on whether you receive DTaP, Tdap, or Td.

Sources

- Centers for Disease Control and Prevention. Diphtheria Vaccination
- Centers for Disease Control and Prevention. Epidemiology and Prevention of Vaccine-Preventable Diseases: Diphtheria , The Pink Book
- Centers for Disease Control and Prevention. General Best Practice Guidelines for Immunization: Contraindications and Precautions
- Centers for Disease Control and Prevention. Timing and Spacing of Immunobiologics
- US Food and Drug Administration. BOOSTRIX: Prescribing Information
- US Food and Drug Administration. INFANRIX: Prescribing Information