PROCEDURE

# Haemophilus influenzae type b, capsular polysaccharide inactivated tetanus toxoid conjugate vaccine

This vaccine is an injection that helps protect against serious infections caused by Haemophilus influenzae type b bacteria.

**PURPOSE**
Prevent serious Haemophilus influenzae type b infections

**PROCEDURE TYPE**
Therapeutic - bedside intramuscular injection

**WHERE IT IS DONE**
Outpatient clinic

**ANAESTHESIA**
None

**HOW LONG IT TAKES**
About 10 seconds to one minute

**PREPARATION**
No fasting; bring vaccination and allergy records

**RECOVERY**
Same day; driving allowed if you feel well

**MAIN RISKS**
Injection-site reactions, fever, fainting, severe allergy

**RESULTS**
Protection develops after scheduled doses; no routine blood test

## Overview

The Haemophilus influenzae type b vaccine, often called the Hib vaccine, helps prevent serious infections caused by Hib bacteria. Despite its name, Hib is not the influenza virus and does not cause seasonal flu.

Hib bacteria can cause meningitis, which is inflammation around the brain and spinal cord. They can also cause bloodstream infections, pneumonia and swelling that may block the airway.

This vaccine contains a purified sugar from the bacterial capsule joined, or "conjugated," to tetanus toxoid. The carrier protein helps the immune system respond strongly, especially in

babies and young children. The vaccine cannot cause Hib infection because it does not contain live Hib bacteria.

The tetanus toxoid acts mainly as a carrier. A Hib vaccine containing this carrier does not replace the routine tetanus vaccines needed for protection against tetanus. Some combination vaccines contain separate Hib, tetanus and other vaccine components.

## Why the procedure is performed

The vaccine is given to train your immune system to recognise Hib bacteria before an exposure occurs. If you later encounter Hib, your immune system can respond more quickly.

Hib vaccination is routinely offered during early childhood because young children have a higher risk of severe Hib disease. More than one dose is usually needed, with the number and timing based on age, previous doses and the vaccine product used.

Some older children and adults may be offered Hib vaccination because a medical condition or treatment raises their risk. Examples include having no spleen, having a spleen that does not work normally, or receiving a haematopoietic stem cell transplant. A planned spleen removal may also affect when vaccination is given.

The vaccine protects against type b strains. It does not protect against every strain of Haemophilus influenzae or against other causes of meningitis, pneumonia or bloodstream infection.

## Who should and should not have it

Hib vaccination may be appropriate for:

Hib vaccination is not routinely needed by most healthy people aged 5 years or older. However, individual risk factors may make it appropriate.

You should not receive a dose if you had a severe allergic reaction, such as anaphylaxis, after a previous Hib vaccine or to one of the product's ingredients. Different brands and combination vaccines contain different ingredients and have specific age approvals.

Hib conjugate vaccine should not be given to an infant younger than 6 weeks. Giving it too early may produce a poor immune response.

Vaccination may be delayed during a moderate or severe acute illness, with or without fever. A minor illness, such as a mild cold, is not usually a reason to delay it.

Tell your healthcare team if you are pregnant, breastfeeding, have a weakened immune

system, have had your spleen removed, or are receiving cancer or transplant treatment. These details help them select the right product and timing. They do not automatically mean that you cannot be vaccinated.

- Babies and young children receiving their routine vaccines
- Children who need catch-up doses
- Certain older children or adults with absent or reduced spleen function
- People following a stem cell transplant, according to their transplant schedule

## How to prepare

Your treating facility's own instructions take priority over general information in this article.

You do not usually need to fast or change your normal medicines. Bring your vaccination record if one is available. This helps prevent unnecessary repeat doses and allows the healthcare team to work out whether further doses are needed.

Before the injection, tell the person giving it about:

Wear clothing that allows easy access to the upper arm or thigh. If you or your child tends to faint around needles, say so before the injection. It can be given while sitting or lying down.

- Previous serious reactions to vaccines
- Known allergies, including allergies to vaccine ingredients or latex
- Current illness or fever
- A bleeding disorder or medicines that increase bleeding
- Fainting during earlier injections
- Recent or planned immune-suppressing treatment

## What happens during the procedure

A healthcare professional checks the vaccine name, dose, expiry date and your vaccination history. If the vaccine requires mixing, it is prepared shortly before use.

The skin may be cleaned. The vaccine is then injected into a muscle. In babies and young children, this is usually the outer thigh. In older children and adults, it is usually the upper arm.

The injection itself takes only a few seconds. Anaesthesia is not needed. You may be asked to remain nearby for a short observation period because fainting or an allergic reaction can occur

after any vaccination.

Your vaccination record should show the date, vaccine and dose given. Keep this information for future appointments.

## Recovery and what to expect afterward

Pain: The injection may sting briefly. Soreness, redness or mild swelling can develop around the injection site. A cool, clean cloth may help. Ask your healthcare team before using pain medicine for a baby or child.

Eating: You can eat and drink normally afterward. Offering a drink or feeding a baby may provide comfort.

Activity: Normal activities are usually possible the same day. If the arm or leg is sore, gentler activity may feel more comfortable. Rest if you feel feverish or tired.

Driving: The vaccine itself does not normally prevent driving. Do not drive if you feel faint, dizzy or unwell. Children should leave with a responsible adult.

Work or school: Most people can return immediately. A short break may be helpful if fever, tiredness or injection-site discomfort develops.

Mild reactions often begin within the first day or two and settle without lasting problems.

## Risks and possible complications

Common reactions include pain, redness or swelling where the injection was given. Fever, irritability, tiredness or reduced appetite may also occur, particularly in young children. Combination vaccines may have a different reaction pattern because they contain several vaccine components.

Some people faint during or shortly after an injection. Sitting or lying down can reduce the risk of injury from a fall.

A severe allergic reaction is rare but requires immediate treatment. Signs can include difficulty breathing, swelling of the face or throat, widespread hives, weakness or collapse.

Vaccination may not produce full protection in everyone. The response can be weaker in people whose immune systems are suppressed. Completing the recommended series is important, but no vaccine prevents every case.

## Results and follow up

There is no immediate positive or negative result. Your immune system develops protection after vaccination, and full protection may require all scheduled doses.

Routine blood tests are not normally used to confirm immunity. Your vaccination record is the main result of the appointment.

Your healthcare team will tell you whether another dose is due. Timing is based on your age, earlier Hib doses, the product used and any condition that changes your risk. People who have received a stem cell transplant may need a new series even if they were vaccinated before the transplant.

Hib vaccination does not remove the need to assess symptoms of a serious infection. Seek medical care when needed even if you or your child is fully vaccinated.

## Alternatives

Other Hib conjugate vaccines may use a different carrier protein. They may be available alone or in combination with vaccines against illnesses such as diphtheria, tetanus, pertussis, polio or hepatitis B. Combination products reduce the number of injections, but their approved ages and schedules differ.

Delaying vaccination avoids the injection for now but leaves you or your child without the expected protection during that period. Restarting an interrupted series is usually unnecessary, although the remaining schedule must be checked.

Antibiotics like amoxicillin or doxycycline are not a substitute for vaccination. They may be used to treat Hib infection or to reduce spread after certain close exposures, but they do not provide lasting immunity.

There is no screening test or lifestyle measure that offers protection equivalent to completing an appropriate Hib vaccination schedule.

## When to call your healthcare team

Contact your healthcare team for advice if redness or swelling keeps getting worse, fever persists, symptoms are not settling, or you are concerned about an unexpected reaction. Also call if a follow-up dose was missed; the series can often continue without starting again.

Seek urgent medical care for a seizure, marked weakness, unusual difficulty waking, or other severe symptoms after vaccination.

Call emergency services immediately for difficulty breathing, swelling of the face or throat, widespread hives, collapse or other signs of a severe allergic reaction.

Expected mild soreness, brief irritability or a low fever can usually be monitored at home. These routine effects are different from the urgent symptoms above.

## Common questions

Will I be asleep?

No. This is a quick injection and does not require sedation or anaesthesia.

Can I drive home?

Usually, yes. Wait until any dizziness or faint feeling has passed. Do not drive if you feel unwell.

How painful is it?

Most people feel a brief sting. The area may remain tender for a day or two.

When will I know it worked?

There is no immediate test. Protection develops as your immune system responds, and several scheduled doses may be needed.

Can the vaccine cause Hib or flu?

No. It contains no live Hib bacteria and cannot cause Hib infection. Hib is a bacterium, not the seasonal influenza virus.

Does this vaccine protect me against tetanus?

Not by itself. Tetanus toxoid helps carry the Hib component, but the vaccine does not replace routine tetanus vaccination unless tetanus vaccine is included as a separate component in a combination product.

## Sources

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