

What is Hib disease?

Hib disease is caused by the bacterium *Haemophilus influenzae* type b. It was the most common cause of life-threatening bacterial infection in children under 5 years of age before Hib vaccine was introduced to the New Zealand Immunisation Schedule in 1994. Since then the number of New Zealand children under 5 years of age being hospitalised with Hib meningitis (inflammation of the membranes around the brain) or epiglottitis (severe swelling in the throat) has decreased by around 90%.

Despite the similar name, *Haemophilus influenzae* type b is not the same as seasonal flu caused by the influenza virus.

How do you catch it?

Hib bacteria are commonly carried in the nose and throat without causing illness. They are spread through contact with infectious droplets from the nose or throat of a person carrying the bacteria.

Who is most at risk?

Healthy infants and children under 5 years of age are especially vulnerable to Hib infections. Children under 2 years are more likely to develop meningitis and children aged 2–4 years epiglottitis.

Living in a large or crowded household, living with pre-school or school-aged siblings, or attending day care can increase the risk of Hib disease.

Some people with medical conditions that affect their immune system have an increased risk of infection, e.g. their spleen has been removed, and those who are immune compromised from a disease or treatment of a disease.

How serious is Hib disease?

If *Haemophilus influenzae* type b bacteria pass into the blood, it may take 2–10 days to cause disease. A person with Hib disease may develop:

- » Meningitis (inflammation of the membranes around the brain).
 - » At least three out of every 100 people with Hib meningitis will die despite early identification and treatment.
 - » Of those who develop meningitis and survive, 15–30% will have long term neurological damage.
- » Lung infection (pneumonia).
- » Severe swelling in the throat (epiglottitis).
- » Blood infection (bacteraemia).
- » Inflammation of other parts of the body including the heart, joints, bones, and tissues under the skin.

What are the symptoms of Hib disease?

Older children and adults may have a fever, loss of appetite, vomiting, be sleepy or hard to wake, have a headache, dislike bright light, or have a stiff neck. These signs may be vague in infants, but they may not feed well, be irritable, or have a bulging fontanelle.

Alternatively, individuals may have a fever, sore throat, difficulty swallowing or breathing, dribble saliva, or have noisy breathing.

How do you prevent infection?

An effective vaccine is available and used for all infants and young children, and also for older children and adults with impaired immune systems.

- » Avoid overcrowded living conditions if possible.
- » Avoid sharing food, drinks and eating utensils.
- » Limit close physical contact when coughing and sneezing.
- » Remember to cover your mouth and wash hands thoroughly after coughing or sneezing.

Which vaccines protect against Hib disease?

A vaccine to protect against Hib disease is included in the Infanrix®-hexa combination vaccine and is also available in a Hib only vaccine called Hiberix®.

More than 20 years of studies have shown that immunisation against Hib is 90–100% effective in decreasing the risk of disease up to 6 years of age. Children under 2 years of age have a better immune response to Hib immunisation than to actual Hib disease. However, there are cases of immunised children getting Hib disease because immunisation is not 100% effective in every person who receives it.

The booster dose in the second year of life is important because protection decreases more quickly after infant Hib immunisation than after immunisation of an older child.

How safe are the Hib vaccines?

More than 20 years of studies and safety monitoring have shown that Hib vaccines have excellent safety profiles.

Common vaccine responses usually occur around the injection site and may include soreness/pain, redness and/or swelling. However, fever, restlessness, irritability, decreased appetite, vomiting and/or diarrhoea, unusual crying, fatigue or sleepiness can also occur.

The most serious response is a severe allergic reaction (anaphylaxis). The risk of this happening after receiving a Hib vaccine is extremely rare, less than one per million vaccine doses.

Who should have the Hib vaccine?

For best protection of infants, Hib vaccine is given on the New Zealand Immunisation Schedule at 6 weeks, 3 months, 5 months, as part of Infanrix-hexa, and 15 months of age in Hiberix.

It is important to start the doses on time because infants are particularly vulnerable to this infection. Children aged 15 months to 5 years of age who have not received one dose of Hib vaccine after 12 months of age should receive a catch-up dose.

Hib vaccine is also recommended and free for children and adults who are pre- or post-splenectomy, solid organ transplantation, or cochlear implant; post-chemotherapy, or haematopoietic stem cell transplantation; have functional asplenia, are on renal dialysis, or a severely immunosuppressive treatment regimen.

Who should not have Hib vaccine?

Anyone with severe allergy (anaphylaxis) to a previous dose of the vaccine or any component of the vaccine should not receive the vaccine. Immunisation should be postponed for people suffering from an acute illness or high fever. However, the presence of a minor infection is not a reason to delay immunisation.

Continued ...

Continued

Disease	Possible complications of disease	Possible vaccine responses
<p><i>Haemophilus influenzae</i> type b (Hib) is a bacterial illness.</p> <p>Despite the similar name, <i>Haemophilus influenzae</i> type b is not related to seasonal flu that is caused by the influenza virus.</p>	<ul style="list-style-type: none"> » Blood infection (septicaemia). » Inflammation of the membranes around the brain (meningitis), especially in young children. » Severe swelling in the throat (epiglottitis). » Pneumonia. » Joint, heart, bone, skin inflammation. » Long term nerve damage. » Death for around 1 person out of 20 cases despite treatment. 	<p>Common responses</p> <ul style="list-style-type: none"> » Mild pain, redness and swelling around injection site. » Decreased appetite. » Vomiting or diarrhoea. » Irritability, restlessness. » Sleepiness. » Unusual crying. » Limb swelling after the 4th or 5th vaccine dose. <p>Rare responses</p> <ul style="list-style-type: none"> » Hives. » Itching. » Temporary low platelet count. » Persistent inconsolable screaming. » Hypotonic, hyporesponsive episode (HHE) in infants. » Convulsion. » Severe allergic reaction (anaphylaxis).

Vaccines are prescription medicines. Talk to your doctor or nurse about the benefits or any risks.

References

- American Academy of Pediatrics. *Haemophilus influenzae* infections. In: Pickering L, Baker C, Kimberlin D, Long S, editors. Red Book: 2012 report of the Committee on Infectious Diseases. 29th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2012. p. 345-52.
- Chandran A, Watt JP, Santosham M. *Haemophilus influenzae* vaccines. In: Plotkin S, Orenstein W, Offit P, editors. Vaccines. 6th ed. London: W.B. Saunders; 2013. p. 167-82.
- Heath PT, Booy R, Azzopardi HJ, Slack MP, Bowen-Morris J, Griffiths H, et al. Antibody concentration and clinical protection after Hib conjugate vaccination in the United Kingdom. *JAMA*. 2000;284(18):2334-40.
- Ministry of Health. Immunisation handbook [Internet]. Wellington: Ministry of Health; 2020 [updated 2020 September 25; cited 2020 September 30]. Available from: <https://www.health.govt.nz/publication/immunisation-handbook-2020>
- Nokleby H. Vaccination and anaphylaxis. *Curr Allergy Asthma Rep*. 2006;6(1):9-13.
- Swingler GH, Michaels D, GGD H. Conjugate vaccines for preventing *Haemophilus influenzae* type b infections. *Cochrane Database Syst Rev*. 2007;(2):Art. No.: CD001729.
- Wilson N, Wenger J, Mansoor O, Baker M, Martin D. The beneficial impact of Hib vaccine on disease rates in New Zealand children. *N Z Med J*. 2002;115(1159).
- World Health Organization. The immunological basis for immunization series: Module 9: *Haemophilus influenzae* type b. Geneva: World Health Organization; 2007.