

Haemophilus influenzae type b (Hib) disease



FactSheet For Parents and Caregivers

What is *Haemophilus influenzae* type B (Hib) disease?

Hib disease is caused by the bacterium *Haemophilus influenzae* type b. Humans are the only host of these bacteria. Infants and children less than five years of age are especially vulnerable to Hib infections.¹

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

Before the *Haemophilus influenzae* type b (Hib) vaccine was introduced to the New Zealand childhood immunisation schedule in 1994, Hib disease was the most common cause of life-threatening bacterial infection in children less than five years of age.² Since 1994 the number of New Zealand children less than five years of age being hospitalised for Hib meningitis or epiglottitis (severe swelling in the throat) has decreased by around 90%.² Compared with 1992 when there were 140 cases of *Haemophilus influenzae* type b disease in children less than five years of age,² between 2001-2011 less than 10 cases of disease have occurred each year in this age group.³

How do you catch it?

Hib bacteria are commonly carried in the nose and throat, and do not usually cause illness. The bacteria can be transferred from person to person through contact with respiratory droplets in the air and on surfaces from a person coughing or sneezing, or through direct contact with respiratory secretions.¹

What are the symptoms of Hib disease?

Meningitis (inflammation of the membranes around the brain)⁴

- Fever, loss of appetite, vomiting.
- Signs may be vague and non-specific in young infants, or they may have a bulging fontanelle.
- Drowsiness, headache, sensitivity to bright light, neck stiffness.

Epiglottitis (severe swelling in the throat)⁴

- Fever, difficulty breathing, noisy breathing, difficulty swallowing and drooling of saliva.
- A child with epiglottitis may sit with an extended neck and their tongue sticking out to help them breathe.

How serious is Hib disease?

If *Haemophilus influenzae* type b bacteria pass into the blood, it may take 2-10 days to cause disease.⁴ A person with invasive Hib disease may develop:⁴

- Meningitis (inflammation of the membranes around the brain).

How serious is Hib disease? (continued)

- Of those who develop meningitis and survive, 20-40% will have long term neurological damage.
- One person out of every 20 infected with Hib meningitis will die despite early identification and treatment.
- Bacteraemia (blood infection).
- Epiglottitis (severe swelling in the throat) that can affect breathing.
- Pneumonia (lung inflammation), pericarditis (inflammation of the layer around the heart), septic arthritis (joint inflammation), osteomyelitis (bone inflammation), and cellulitis (inflammation of the tissues under the skin).

Who is most at risk?

Infants and children less than five years of age have an increased risk of Hib disease. Those aged 4-18 months⁴ and children less than two years who are Māori or Pacific Peoples have the highest risk of Hib meningitis.^{2,6} Children aged 2-4 years have an increased risk of Hib epiglottitis.⁵

Living with pre-school and school-aged siblings, living in a crowded household or having another respiratory infection, e.g. seasonal influenza, can increase a person's chances of carrying the bacteria.¹

Some groups are also at increased risk of infection: household and other close contacts of someone with the disease, e.g. those who have been intimate or shared food and beverages, and infants and children attending day care or an early childhood education centre with a person who has Hib disease.^{1,5}

Some people with medical conditions that affect their immune system have an increased risk of infection, e.g. their spleen has been removed or doesn't work properly, and those who are immune compromised from a disease or treatment of a disease.^{1,5}

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.

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Which vaccines protect against Hib disease?

In New Zealand, vaccines against Hib disease are available free on the National Immunisation Schedule. Infants receive Hib vaccination as part of *Infanrix®-hexa* at 6 weeks, 3 months and 5 months of age. A Hib vaccine booster dose is provided with *Act-HIB™* at 15 months of age.

Act-HIB™ is also offered to children from 5-16 years of age whose spleen has been removed or doesn't work properly, and adults who are having/have had their spleen removed.

How safe are the vaccines?

More than 20 years of studies and safety monitoring have shown that the Hib vaccines have excellent safety profiles.^{1,7} Common vaccine-related side effects are usually 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 reaction is a severe allergic reaction (anaphylaxis). The risk of this happening after Hib vaccination is less than once per million vaccine doses.⁸

How protective are the vaccines?

More than 20 years of studies evaluating the effectiveness of the Hib conjugate vaccines have shown that immunisation against Hib is 90-100% effective in decreasing the risk of disease up to 6 years of age.⁹ However, there are cases of immunised children getting Hib disease because immunisation is not 100% effective in every person who receives it.^{1,7,9}

Infants and children less than two years have a better immune response to the vaccine than to the disease itself, but the vaccine protection does decrease over time.⁴ The booster dose in the second year of life is important because protection decreases more quickly after infants are vaccinated than after older children being vaccinated.⁴

Who should have the Hib vaccine?

For best protection of infants the Hib vaccine is given on the New Zealand Immunisation Schedule at 6 weeks, 3 months, 5 months and 15 months of age. It is important to start the doses on time because infants are particularly vulnerable to this infection at an early age.

It is particularly important that children with some medical conditions receive their Hib vaccines on time, e.g. their spleen has been removed or doesn't work properly, sickle cell disease, partial immunoglobulin deficiency, Hodgkin's disease, nephrotic syndrome, HIV infection or they have had chemotherapy.

Children who have recovered from invasive Hib disease should receive the age appropriate course of Hib vaccine doses, ignoring any doses given prior to the illness, because children less than two years of age have a poor immune response to the actual disease.³ The course of Hib vaccines should begin four weeks after the illness began.⁶

On the Pre/Post Splenectomy Immunisation Programme children from 5-16 years of age whose spleen has been removed or doesn't work properly and adults who are having/have had a spleen removed are eligible for free Hib vaccine.⁶

Who should not have the 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 in subjects suffering from an acute illness or high fever.

The presence of a minor infection is not a reason to delay immunisation.

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Disease	Effects of disease	Side effects of the vaccine
<i>Haemophilus influenzae</i> type b (Hib) is a bacterial illness that can cause meningitis, bacteraemia, epiglottitis, pneumonia, long term complications or death. Despite the similar name <i>Haemophilus influenzae</i> type b is not related to influenza/seasonal flu which is caused by viruses.	• Meningitis (inflammation of the membranes over the brain), especially in children less than two years of age. • Of those who develop meningitis and survive, 20-40% will have long term neurological damage. • One person out of every 20 infected with Hib meningitis will die despite treatment. • Bacteraemia (blood infection). • Epiglottitis (severe swelling in the throat). • Pneumonia (lung inflammation). • Pericarditis (inflammation of the layer around the heart). • Septic arthritis (joint inflammation). • Osteomyelitis (bone inflammation). • Cellulitis (inflammation of the tissues under the skin).	Common side effects of vaccine • Soreness/pain, redness and/or swelling around the injection site. • Fever over 38°C. • Decreased appetite, vomiting and/or diarrhoea. • Irritability, restlessness. • Unusual crying. • Fatigue, sleepiness. Uncommon side effects vaccine • Fever over 39°C. Rare/very rare side effects of vaccine • Convulsion within 2 days of immunisation, less than 1 in 1.4 million doses. • Encephalopathy (brain inflammation), less than 1 in 1 million doses. • Anaphylaxis (severe allergic reaction), less than 1 in 1 million doses. • Urticaria (allergic skin reaction). • Hypotonic, hyporesponsive episode (HHE, a temporary period of decreased muscle tone and responsiveness) within 24 hours of immunisation, up to 47 times in 100,000 doses. • Persistent (> 3 hours) inconsolable screaming, up to 44 times in 100,000 doses. • Extensive swelling of the vaccinated limb, or one or both lower limbs.

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

References

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