

Diphtheria, Tetanus, Pertussis, Polio, *Haemophilus influenzae* type b Vaccine

Vaccines have saved more lives than any other medical intervention. They help the immune system recognize and fight bacteria and viruses that cause serious diseases.

Diphtheria, tetanus, pertussis, polio and *Haemophilus influenzae* type b are vaccine preventable diseases.

Diphtheria is a serious disease. The bacteria spread through coughs and sneezes, or direct contact with infected skin sores. Early symptoms include fever, sore throat, difficulty swallowing, tiredness, and loss of appetite. Within 2 to 3 days, a thick gray coating can form in the throat, making it hard to breathe. The bacteria can also produce a toxin (poison) that can damage the heart and nerves, leading to serious complications such as heart failure and paralysis. Without treatment, about 1 in 10 people with diphtheria may die.

Tetanus ('lockjaw') is a serious disease caused by bacteria commonly found in soil. The bacteria can enter the body through a cut, scrape, or other break in the skin. Once inside the body, they produce a toxin (poison) that causes painful muscle stiffness and spasms. In severe cases, the muscles used for breathing can be affected, making it difficult to breathe. Without treatment, up to 8 in 10 people with tetanus may die. Tetanus does not spread from person to person.

Pertussis ('whooping cough') is a serious and highly contagious disease that affects the lungs and airways. The bacteria spread through coughing, sneezing, and close face-to-face contact. Pertussis causes severe coughing fits that can make it hard to breathe and may be followed by a characteristic "whooping" sound when breathing in. The cough can last for several weeks or months. Serious complications can include pneumonia, seizures, brain damage, and death, especially in young infants. Even with treatment, deaths from pertussis still occur in Canada, mainly among infants younger than 6 months who are not fully immunized.

Polio (poliomyelitis) is a highly contagious disease caused by polioviruses. Thanks to immunization programs, types 2 and 3 poliovirus have been eliminated worldwide. Type 1 poliovirus still circulates in some countries. Children younger than 5 years of age are at the greatest risk of infection. The virus spreads through contact with the stool of an infected person and through contaminated food or water. People infected with polio can spread the virus for up to 6 weeks.

Symptoms of polio can include fever, tiredness, headache, and vomiting although most people infected with polio do not develop symptoms. About 1 in 100 people with polio develop paralysis. Among those who become paralyzed, up to 1 in 20 children and 3 in 10 adults may die. There is no cure for polio. People who have had polio can become infected with a different type of poliovirus. Some people who recover from polio develop muscle weakness, pain, or fatigue many years later. This condition is called post-polio syndrome.

***Haemophilus influenzae* type b (Hib)** are bacteria that can cause serious infections, mainly in children younger than 5 years of age. Despite its name, Hib is not the same as influenza (the "flu"). Hib spreads through coughing, sneezing, and close face-to-face contact. It can cause serious illnesses, including blood infections (septicemia), severe throat infections (epiglottitis), and infections of the lining around the brain and spinal cord (meningitis). Epiglottitis can make it difficult to breathe and may require emergency treatment to keep the airway open. Even with treatment, about 1 in 20 children with Hib meningitis may die.

How can these diseases be prevented?

- **Get immunized** to protect yourself and others.
- Clean your hands regularly using soap and water or an alcohol-based hand sanitizer when soap and water are not available.
- Cover your mouth and nose when coughing or sneezing.

Who can get this vaccine for free?

- Children starting at 2 months of age. **For the best protection, it is important to start immunizations on time.**

Dose	Age
1	2 months
2	4 months
3	6 months
4	18 months

- Some individuals 5 years of age and older with certain medical conditions may also be eligible. Contact Public Health for more information.

Who should not get this vaccine?

- People who are seriously ill, with or without a fever, should delay vaccination until they feel better.
- People who have had a serious or anaphylactic reaction to a previous dose of the vaccine or any of its ingredients.
- People who developed a neurological disorder called Guillain-Barré Syndrome (GBS) within 6 weeks of a previous tetanus-containing vaccine.
- People who experienced transient thrombocytopenia or other neurological complications following a previous immunization for diphtheria and/or tetanus.
- People who developed encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures) within 7 days of a previous dose of a pertussis-containing vaccine, that is not attributable to another identifiable cause.

Precaution

- Pertussis-containing vaccine may be administered to persons with the following conditions once a treatment regimen has been established and their condition has stabilized:
 - Progressive or unstable neurologic disorder (including infantile spasms for DTaP)
 - Uncontrolled seizures
 - Progressive encephalopathy

What are common reactions to this vaccine?

- **Vaccines are very safe. It is much safer to get the vaccine than to get these serious diseases.**
- Temporary soreness, redness and swelling at the injection site.
- Fever, irritability, drowsiness or a loss of appetite.
- Monitor your child and treat their fever if they are uncomfortable, not drinking fluids, or not sleeping.
- These mild reactions generally last 1 to 2 days.

Use **Acetaminophen** (all ages; Tylenol®, Tempra®) or **Ibuprofen** (6 months & older; Advil®, Motrin®) to treat fevers and pain. **Never give ASA** (Aspirin®) to children younger than 18 years old because of the serious risk of Reye's syndrome.

Stay at the clinic for 15 minutes after vaccination. In very rare cases, a serious allergic reaction (anaphylaxis) can occur. This may include hives, difficulty breathing, or swelling of the throat, tongue or lips. This reaction is extremely rare (less than 1 in 1 million people) and can be treated. **If these symptoms happen after you leave the clinic, get medical help right away or call 911.**

Who should you report reactions to?

- Report any unexpected or serious reactions to your local public health nurse, doctor, nurse practitioner, or HealthLine 811 as soon as possible.

Talk to a public health nurse if:

- You have questions or concerns; or
- You or your child needed medical care from a doctor, hospital or health centre for a symptom that might be related to a vaccine.

What does this vaccine contain?

INFANRIX™-IPV/HIB contains diphtheria toxoid, tetanus toxoid, pertussis toxoid, filamentous haemagglutinin; pertactin; type 1 poliovirus; type 2 poliovirus; type 3 poliovirus; purified polyribosyl-ribitol-phosphate capsular polysaccharide of *Haemophilus Influenzae* type B covalently bound to tetanus toxoid, lactose, sodium chloride, aluminum adjuvant (as aluminum salts), Medium 199 (as stabilizer including amino acids, mineral salts and vitamins), water for injection. Manufacturing process residuals: formaldehyde, polysorbate 80, potassium chloride, disodium phosphate, monopotassium phosphate, glycine, neomycin sulphate, and polymyxin B sulphate. Thimerosal and latex-free.

PENTACEL® contains purified polyribosylribitol phosphate capsular polysaccharide (PRP) of *Haemophilus influenzae* type b covalently bound to tetanus protein, diphtheria toxoid, tetanus toxoid, acellular pertussis [pertussis toxoid (PT), filamentous haemagglutinin (FHA), pertactin (PRN), fimbriae types 2 and 3 (FIM)], inactivated poliomyelitis vaccine (IPV) type 1 (Mahoney), type 2 (MEF1) and type 3 (Saukett). Aluminum phosphate (adjuvant), 2-phenoxyethanol, polysorbate 80, sucrose, Tris (hydroxymethyl) aminomethane, water for injection Manufacturing process residuals: Bovine serum albumin, formaldehyde, glutaraldehyde, neomycin, polymyxin B sulphate and streptomycin sulphate. Thimerosal-free. Latex-free.

Mature Minor Consent

It is recommended that parents/guardians discuss consent for immunization with their children. Efforts are first made to get parental/guardian consent for immunizations. However, children at least 13 years of age up to and including 17 years of age, who can understand the benefits and possible reactions for each vaccine and the risks of not getting immunized, can legally consent to or refuse immunizations in Saskatchewan by providing mature minor informed consent to a healthcare provider.

Provincial immunization fact sheets are available at saskatchewan.ca/immunize.

References: [Canadian Immunization Guide](#), product monographs.