

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

Vaccines have saved more lives compared to any other medical intervention. Vaccines 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 that occurs in many countries worldwide. The bacteria spread through the air by sneezing or coughing, and skin-to-skin contact. Symptoms include a mild fever, sore throat, difficulty swallowing, tiredness and loss of appetite. A thick coating covers the back of the throat within 2 to 3 days of illness, blocking the airway. Within a few days, the bacteria produce a strong toxin that causes heart failure and paralysis. Without treatment, 1 in 10 people could die.

**Tetanus** ('lockjaw') is caused by bacteria found in the soil worldwide. The bacteria make a strong toxin days after entering the body through a cut or injury to the skin. The toxin causes painful tightening of muscles in the body. In severe cases, breathing muscles are affected. Without treatment, up to 8 in 10 people could die. Tetanus cannot be spread from person to person.

**Pertussis** ('whooping cough') is a serious and highly contagious bacterial infection of the lungs and throat. Pertussis can cause pneumonia, collapsed lungs, seizures, permanent brain damage, or death. The bacteria are spread by coughing, sneezing or close face-to-face contact. Pertussis causes severe coughing that ends with a whooping sound before the next breath and breathing is very difficult. This cough lasts for several months. Even with treatment, 1 to 4 deaths occur each year in Canada, particularly in unimmunized or under-immunized infants younger than 6 months old.

**Polio** (poliomyelitis) is very contagious and caused by polioviruses types 1, 2 and 3. Due to immunization, types 2 and 3 have been eliminated. Type 1 remains in certain countries. Children younger than 5 years old are more susceptible to polio. Polioviruses are spread for up to 6 weeks in the stool of infected people. Infection starts within a few weeks after contact with polio-contaminated food and water.

Polio symptoms include fever, tiredness, headache and vomiting. Most polio cases have no symptoms. About 1 in 100 people get paralysis and of these people, up to 1 in 20 children and 3 in 10 adults will die.

There is no treatment for polio and previously infected people can be re-infected with another type of poliovirus. Some people develop muscle weakness ([post-polio syndrome](#)) many years later.

***Haemophilus influenzae* type b (Hib)** bacteria cause infections, mostly in children under 5 years. Despite its name, this disease is not the same as influenza or the "flu". Hib bacteria are spread by coughing, sneezing and close face-to-face contact. Hib causes serious and life-threatening infections of the blood (septicemia), the throat (epiglottitis) and the lining that covers the brain (meningitis). A child with epiglottitis has severe difficulty breathing and may need an emergency operation called a tracheotomy to help them breathe. Even with treatment, 1 in 20 children could die from Hib meningitis.

## How can these diseases be prevented?

- **Be immunized.** When your child is immunized, it helps to protect others as well.
- Practice good hygiene (e.g., handwashing).
- Cover your mouth when coughing and your nose and mouth when sneezing to prevent direct contact with droplets from the nose or throat.

## Who can get this vaccine for free?

- Children starting at 2 months of age. **It is very important to start your child's immunizations on time for the best protection against these five diseases.**

Dose	Child's Age
1	2 months
2	4 months
3	6 months
4	18 months

- Some people 5 years of age and older who have certain medical conditions (check with Public Health).

## Who should not get this vaccine?

- People who have a serious acute illness, with or without a fever, should delay immunizations.
- People who have had a life-threatening reaction to a previous dose of the vaccine or who have serious allergies to any of the vaccine components.

- People who developed Guillain-Barré Syndrome (GBS) within 6 weeks of getting tetanus-containing vaccine. GBS is a rare neurological condition that can result in weakness and paralysis of the body's muscles.
- Individuals who have experienced transient thrombocytopenia or other neurological complications following an earlier immunization against diphtheria and/or tetanus.
- **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
- **Contraindication:** 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.

## What are common reactions to this vaccine?

- **Vaccines are very safe. It is much safer to get this vaccine than to get these serious diseases.**
- Temporary soreness, redness and swelling where the needles was given.
- Fever, irritability, drowsiness or a loss of appetite.
- These mild reactions generally last 1 to 2 days.
- Only treat a fever (at least 6 to 8 hours after immunization) **if** your child is uncomfortable, refusing fluids and not sleeping.



It is important to stay in the clinic for 15 minutes after getting any vaccine because there is an extremely rare possibility of a life-threatening allergic reaction called anaphylaxis. This may include hives, difficulty breathing, or swelling of the throat, tongue or lips. This reaction can be treated, and occurs in less than one in one million people who get the vaccine. **If this happens after you leave the clinic, get medical attention or call 911 right away.**

## Who should you report reactions to?

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

## Talk to your public health nurse if:

- You have questions or concerns about you or your child's reaction to an immunization.
- You or your child had to go to a doctor, hospital or health center with an illness that might be related to an immunization.

## What does this vaccine contain?

**PEDIACEL<sup>®</sup>** contains diphtheria toxoid, tetanus toxoid, acellular pertussis toxoid, filamentous haemagglutinin, pertactin, fimbriae types 2 and 3, inactivated poliomyelitis vaccine types 1, 2 and 3, purified polyribosylribitol phosphate capsular polysaccharide of *Haemophilus influenzae* type b, aluminum phosphate (adjuvant), 2-phenoxyethanol, polysorbate 80. Manufacturing process residuals: bovine serum albumin, neomycin, polymyxin B and trace amounts of streptomycin, formaldehyde and glutaraldehyde. Thimerosal-free. Latex-free.

**PENTACEL<sup>®</sup>** 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 are able to 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 [www.saskatchewan.ca/immunize](http://www.saskatchewan.ca/immunize).

**For more information, contact your local public health office, your physician, nurse practitioner, HealthLine online or by calling 811.**

**References:** [Canadian Immunization Guide](#). Product monographs (PEDIACEL<sup>®</sup> 2023; PENTACEL 2023).