

# Tetanus, Diphtheria, Pertussis and Polio 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.**

## **Tetanus, diphtheria, pertussis and polio are vaccine preventable diseases.**

**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.

**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.

**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.

### **How can these diseases be prevented?**

- Be immunized. When you and your child are immunized, you help 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 the vaccine for free?**

- People who are 4 years of age and older.

### **Who should not get this vaccine?**

- Individuals who have a serious acute illness, with or without a fever, should delay immunizations.
- Persons who had a life-threatening reaction to a previous dose of tetanus, diphtheria, or pertussis vaccine, or any components of the vaccine.
- Children younger than 4 years of age.
- People who developed Guillain-Barré Syndrome (GBS) within 6 weeks of getting a tetanus-containing vaccine. GBS is a rare 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 and effective. It is much safer to get this vaccine than to get these serious diseases.**
- Temporary pain, swelling and redness where the vaccine was given.
  - Up to 20% of children who get this vaccine may have redness, swelling and pain at the injection site/arm for up to 5 days afterward. The symptoms usually resolve without any treatment (e.g., antihistamines) given.
- Tiredness, headache, mild fever, nausea, body aches and chills.
- For most people, 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.

Use **Acetaminophen** (Tylenol®, Tempra®) or **Ibuprofen** (Advil®, Motrin®) to treat fevers and pain in children and adults. **Never give ASA** (Aspirin®) to anyone younger than 18 years old because of the serious risk of Reye's syndrome.

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 call 811 as soon as possible.

## Talk to a public health nurse:

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

## What does the vaccine contain?

**BOOSTRIX®-POLIO** contains diphtheria toxoid, tetanus toxoid, three purified pertussis antigens (pertussis toxoid, filamentous haemagglutinin and pertactin) adsorbed onto aluminum salts and inactivated polioviruses (types 1, 2 and 3). It also contains aluminum (as aluminum salts), medium 199, sodium chloride, water for injection. Residues from the manufacturing process: disodium phosphate, formaldehyde, glutaraldehyde, glycine, monopotassium phosphate, neomycin sulphate, polymyxin B sulphate, polysorbate 80, and potassium chloride. Thimerosal and latex free.

**ADACEL®-POLIO** contains tetanus toxoid, diphtheria toxoid, acellular pertussis (pertussis toxoid, filamentous haemagglutinin, pertactin, fimbriae types 2 and 3) and inactivated polioviruses (types 1, 2 and 3), aluminum phosphate (adjuvant), 2-phenoxyethanol, polysorbate 80, water for injection. Trace amounts of bovine serum albumin, formaldehyde, glutaraldehyde, streptomycin, neomycin and polymyxin B may be present in trace amounts. Thimerosal and 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](#). BOOSTRIX®-POLIO (2023) and ADACEL®-POLIO (2022) product monographs.