

# Pocket Guide for Immunizers:

## Tdap/DTaP/IPV-containing Vaccines

The purpose of this pocket guide is to serve as a tool for health care providers to learn more about Tdap/DTaP/IPV-containing vaccines, enabling them to make strong recommendations to their patients.



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**Tetanus (lockjaw), diphtheria, pertussis (whooping cough), and polio are all severe and potentially deadly diseases.**

In modern times, tetanus, diphtheria, and polio are rare to nonexistent in Canada, thanks to routine immunization. However, polio does occur in certain parts of the world, and cases have been reintroduced in North America through travel. It is only through diligent ongoing vaccination of the population that we will prevent these illnesses from returning.

Pertussis, however, remains endemic in Canada and is highly communicable. Widespread and meticulous vaccination is the best tool for protecting infants and young children—who are at greatest risk—from this still-prevalent disease.

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**All four of these diseases are part of routine immunization programs through the use of Tdap-IPV and DTaP-IPV vaccines, with some formulations also providing protection against *Haemophilus influenzae* type b and hepatitis B.**

It is essential that these highly effective vaccines continue to be administered diligently to children and adults, in order to maintain individual and community immunity and keep Canadians safe from these severe diseases.

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This pocket guide references recommendations made in the Canadian Immunization Guide Chapters on Tetanus, Diphtheria, Pertussis, and Polio from the National Advisory Committee on Immunization (NACI).

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## What vaccines are available?

There are a number of different combination vaccine formulations designed to provide protection against tetanus, diphtheria, pertussis, and/or polio. Some of these vaccines further protect against Hib (*Haemophilus influenzae* type b) and hepatitis B (HB).

There are also approved formulations providing immunization against only polio or only tetanus and diphtheria for situations where broader immunization is not required.

## What is the difference between Tdap and DTaP?

The DTaP formulations include full-strength vaccines against tetanus, diphtheria, and pertussis, while the Tdap formulations contain full-strength tetanus vaccine but smaller doses of the diphtheria and pertussis vaccines.

DTaP formulations are generally used for initial immunization (primary series), while Tdap and Td vaccines are used for boosters and reimmunization.

### MEMORY AID

Tdap has a lower-case 'd' and 'p' to represent the reduced doses of diphtheria and pertussis vaccine included.

**Table 1: Preparations Authorized for Use in Canada**

Class Code	Age Category	Class Details	Vaccine Brand Name	Vaccine Code
Tdap	Adult and Adolescent	Adsorbed vaccines containing tetanus toxoid, reduced diphtheria toxoid, and reduced acellular pertussis vaccine	ADACEL®	TDAP-ADACEL
			BOOSTRIX®	TDAP-BOOSTRIX
Tdap-IPV	Pediatric	Tdap with additional polio protection	ADACEL®-POLIO	TDAP-IPV-ADACEL
			BOOSTRIX®-POLIO	TDAP-IPV-BOOSTRIX
DTaP-IPV	Pediatric	Similar to Tdap-IPV but containing full-strength diphtheria and pertussis vaccines	QUADRACEL®	DTAP-IPV-SANOFI
DTaP-IPV-Hib	Pediatric	DTaP vaccines with additional protection against Hib	PEDIACEL®	DTAP-IPV-HIB-SANOFI
			INFANRIX®-IPV/Hib	DTAP-IPV-HIB-GSK
DTaP-IPV-Hib	Pediatric	DTaP vaccine with protection against both Hib and hepatitis B	INFANRIX hexa™	DTAP-HB-IPV-HIB
IPV	Pediatric, Adolescent, and Adult	Inactivated poliomyelitis vaccine for polio immunization only	IMOVAX® Polio	IPV-SANOFI
Td	Adult	Adult booster vaccine for tetanus and diphtheria	Td ADSORBED	TD-SANOFI

Note: Throughout the rest of this guide, vaccines will be referred to by vaccine code when there is a specific recommendation within the class, and by class code when there is not.

## What is the recommended dosage and how is it given?

For all authorized preparations, dosage is 0.5mL. IPV is administered subcutaneously (SC). All other preparations are administered intramuscularly (IM).

## How do I choose which vaccine to give?

**DTaP-IPV-Hib** vaccines are given during routine childhood immunization across Canada to provide protection against tetanus, diphtheria, pertussis, polio, and Hib. In some jurisdictions, the **DTaP-HB-IPV-Hib** vaccine is used preferentially in order to begin hepatitis B vaccination in infancy. In other jurisdictions, hepatitis B immunization is provided separately.

Regular reimmunization is required against tetanus specifically and, to a lesser extent, against diphtheria. Boosters during adolescence and adulthood are generally administered with a **Tdap** or **Td** vaccine (or **Tdap-IPV** if further poliomyelitis immunization is indicated). The reduced dose of diphtheria and/or pertussis vaccines in these formulations decreases the likelihood of adverse reactions in adults and older children.

## Can the Tdap/DTaP/IPV-containing vaccines be given at the same time as other vaccines?

All Tdap/DTaP/IPV-containing vaccines can be given simultaneously with other routine and age-appropriate vaccines.

### REMEMBER

In all cases, if vaccines are administered simultaneously, a separate injection site and a different syringe must be used for each.

## A Note on Interchangeability

The primary series of three **DTaP-IPV-Hib** or **DTaP-HB-IPV-Hib** doses should be completed with the same vaccine from the same manufacturer, whenever possible. However, if the original vaccine is unknown or unavailable, a same-class vaccine from a different manufacturer may be used to complete the primary series.

Any appropriate vaccine from any manufacturer can be used for all booster doses, regardless of which vaccine was administered during the primary series of immunization.

## Who should receive the Tdap/DTaP/IPV-containing vaccines?

### Healthy children

#### (2 months to 16 years of age)

- Routine immunization with 3 doses of **DTaP-IPV-Hib** or **DTaP-HB-IPV-Hib** is strongly recommended at 8-week intervals beginning at 2 months of age.
- A booster dose of **DTaP-IPV-Hib** is administered between 12 and 23 months of age, followed by a booster of **DTaP-IPV** or **Tdap-IPV** at 4 to 6 years of age and a booster of **Tdap** at 14 to 16 years of age.
- In total, 6 doses are given before 18 years of age.
- [See Table 2 for schedule](#)

### Lifetime booster doses for adults

#### (18+ years of age)

- Regular booster doses protecting against tetanus specifically should be administered every ten years throughout an adult's life.
- These boosters are generally administered using the **Td** vaccine, although adults who have not been immunized against pertussis in adulthood should receive one dose of **Tdap**.
- One lifetime booster dose of an IPV-containing vaccine is recommended for adults at increased risk of exposure to wild poliovirus, particularly those traveling to areas where the virus is known or suspected to be circulating.
- [See Table 3 for schedule](#)

### Pregnant people

- Pertussis is particularly dangerous to newborn infants, and prenatal immunization of the pregnant parent can provide essential protection in advance of routine childhood immunization.
- One dose of **Tdap** is advised after 13 weeks of pregnancy (ideally between 27 and 32 weeks of gestation), regardless of the prior immunization history of the pregnant parent.
- One booster dose of IPV may also be considered for pregnant people at increased risk of exposure to wild poliovirus.
- [See page 6 for more information](#)

### Post-exposure prophylaxis in cases of tetanus-prone injury

- When an injury occurs that is prone to tetanus infection (including puncture wounds, animal bites, burns, and any wound contaminated with dirt, feces, soil or saliva), immediate immunization with **Td** or **Tdap** may be advised, depending on the interval since the last booster dose.
- Formulations of human tetanus immunoglobulin (HyperTET™/Tlg) also exist and may be advisable to provide immediate passive protection in advance of an immune response to the vaccine booster.
- [See page 7 for more information](#)

## Who should not receive the Tdap/DTaP/IPV-containing vaccines?

These vaccines have a well-established history of safety, but there are some contraindications and situations which warrant extra precautions.

- Individuals who have previously experienced an anaphylactic reaction to the vaccine—or who have a proven history of immediate or anaphylactic hypersensitivity to the vaccine, or to any of its components—should not be given the vaccine.
- Individuals with suspected hypersensitivity or non-anaphylactic allergy to the vaccine, or to any of its components, should be investigated further in consultation with an allergist. Immunization in a controlled setting may be advised.
- Immunization should be postponed for individuals with severe acute illness. In the case of minor illness, with or without fever, immunization may proceed normally.
- It is not considered prudent to administer further doses of tetanus-toxoid-containing vaccines to people who have developed Guillain-Barré Syndrome (GBS) within 6 weeks of a previous dose of tetanus-toxoid-containing vaccine, even though reported cases of GBS following immunization are extremely rare and studies have not supported a causal relationship.

## What about side effects and adverse reactions?

Severe adverse effects are rare following immunization and, in most cases, data does not suggest a causal relationship. Some mild to moderate reactions are more commonly seen.

- Soreness or redness may occur at the injection site.
- Mild systemic reactions such as fever, drowsiness, and irritability are also common in infants and children.
- Adolescents and adults receiving a booster dose frequently report headaches, fatigue, fever, and chills.
- Adverse reactions are less common in adults than in adolescents, and are less severe with **Tdap/Td** formulations than with **DTaP** formulations.
- Adverse reactions to **IPV** are usually limited to mild injection-site reactions.

Severe Arthus-type reactions, generally involving painful swelling from shoulder to elbow, are occasionally reported in adults. These reactions generally occur when serum antitoxin concentrations remain very high. Those experiencing these reactions should not receive further doses for at least ten years, at the healthcare provider's discretion.

## What specific populations require special attention?

### Persons with inadequate immunization records

Children and adults with incomplete immunization records, or no immunization records, should be considered unimmunized and should follow the catch-up schedule ([see page 9](#)), regardless of possible previous immunization.

In the case of polio specifically, many newcomers to Canada may have received immunization through an oral preparation that does not cover all three types of poliovirus. Immunization should be considered complete only with documented proof of age-appropriate complete immunization against all three types. Otherwise, they should likewise follow the catch-up schedule ([see page 9](#)).

### Persons at risk of exposure to wild poliovirus (especially travellers)

Previously unimmunized children travelling to areas where poliovirus is known or suspected to be circulating should start a primary series of an IPV-containing vaccine. Children who have completed their polio immunization schedule do not require additional doses of IPV vaccine before travelling. For adults previously immunized against polio, a single lifetime dose of polio-containing vaccine is recommended for travellers at increased risk of exposure to polio.



### Infants born prematurely

Premature infants in stable clinical condition should be immunized at the same chronological age and according to the same schedule as full-term infants. Hospitalized premature infants should receive continuous cardiac and respiratory monitoring for 48 hours after their first immunization.

### Pregnant people

In Canada, pertussis is endemic, and newborn infants are at the greatest risk of hospitalization or death due to the disease. Immunization with **Tdap** during pregnancy is safe and can convey immediate protection to the unborn child, persisting after birth.

One dose of **Tdap** is recommended during all pregnancies, regardless of the pregnant parent's prior immunization history. This injection is ideally administered between 27 and 32 weeks of gestation, although benefit is still conferred when immunization occurs anytime after 13 weeks of gestation and before birth.

Antibodies from the pregnant parent wane rapidly after birth. As such, prenatal immunization with **Tdap** should be offered in each pregnancy, regardless of the interval between pregnancies.

One booster dose of **IPV** may also be considered for pregnant people at increased risk of exposure to wild poliovirus.



## Post-exposure prophylaxis for tetanus-prone injury

There is an increased risk of tetanus infection associated with certain injuries, and an immediate booster injection with an age-appropriate vaccine may be required (**DTaP-IPV** for children aged 6 years and under, **Tdap** for children and adolescents aged 7 to 17 years, **Td** for adults aged 18+).



Injuries prone to tetanus infection include any wound contaminated with dirt, feces, soil, or saliva, particularly puncture wounds, animal bites, and burns. Any injury with the presence of necrotic tissue should also be considered tetanus-prone.

The most important goal following such an injury is the removal of toxins and bacteria through timely and thorough cleaning of the wound. Once that has been completed, it is important to ascertain the immunization history of the person affected, including the interval since the last dose was received.

For people who have previously received three or more doses of Tdap/DTaP during routine immunization, an age-appropriate booster is recommended only if it has been more than 10 years since the last dose (or 5 years for serious wounds).

For people who have not previously received at least three doses of Tdap/DTaP during routine immunization (or whose immunization history is unknown), an age-appropriate booster should be administered regardless of the severity of the wound, along with an injection of human tetanus immunoglobulin (HyperTET™/TIg) to provide immediate passive protection.

Individuals with humoral immune deficiencies should receive human tetanus immunoglobulin for severe wounds, regardless of prior immunization history.

## Immunization Schedules

**Table 2: Recommended Routine Tdap/DTaP/IPV-containing Immunization for Healthy Children Aged 2 Months to 17 Years**

<b>At 2 months of age</b>	One dose of <b>DTaP-IPV-Hib</b> or <b>DTaP-HB-IPV-Hib*</b> , depending on provincial or territorial schedule
<b>At 4 months of age</b>	One dose of <b>DTaP-IPV-Hib</b> or <b>DTaP-HB-IPV-Hib*</b> , depending on provincial or territorial schedule
<b>At 6 months of age</b>	One dose of <b>DTaP-IPV-Hib</b> or <b>DTaP-HB-IPV-Hib*</b> , depending on provincial or territorial schedule
<b>Between 12 and 23 months of age</b>	One dose of <b>DTaP-IPV-Hib</b>
<b>Between 4 and 6 years of age</b>	One dose of <b>DTaP-IPV</b> or <b>Tdap-IPV</b> , depending on provincial or territorial schedule
<b>Between 14 and 16 years of age</b>	One dose of <b>Tdap</b>

\* NOTE: Lasting hepatitis B immunity is achieved after three doses.

**Table 3: Tdap/Td/IPV-containing Booster Schedule for Healthy Adults Aged 18+**

<b>Every 10 years, as measured from the previous dose of any Tdap/DTaP/Td vaccine</b>	One dose of <b>Td</b>
<b>Upon presentation, if not previously vaccinated as an adult with a Tdap/DTaP vaccine protecting against pertussis</b>	One dose of <b>Tdap</b> , regardless of the interval since any previous immunization
<b>Upon presentation, if not previously vaccinated against polio and if at increased risk of exposure to wild poliovirus</b>	Two doses of <b>IPV-containing vaccine</b> , given 4 to 8 weeks apart, followed by a third dose 6 to 12 months after the second dose
<b>During pregnancy, between 27 and 32 weeks of gestation</b>	One dose of <b>Tdap</b> , regardless of previous immunization history. One booster dose of <b>IPV</b> may also be considered for pregnant people at increased risk of exposure to wild poliovirus.

## Accelerated and Catch-up Schedules

If rapid protection is required for an infant, the first dose of **DTaP-IPV-Hib** or **DTaP-HB-IPV-Hib** may be given as early as 6 weeks of age, with the second and third doses following at intervals as short as 4 weeks. A booster dose of **DTaP-IPV-Hib** should be given 12 months after the third dose of the primary series. Subsequent boosters should follow on the normal schedule.

Previously unimmunized children under the age of 7 years should be given three doses of **DTaP-IPV** or **DTaP-IPV-Hib** at 8-week intervals, followed by a booster dose of **DTaP-IPV** or **Tdap-IPV** 12 months after the third dose.

Previously unimmunized children aged 7 years or older should be given three doses of **Tdap-IPV** at 8-week intervals, followed by a fourth booster dose of **Tdap-IPV** 12 months after the third dose.