

Pocket Guide for Immunizers: Influenza Immunization 2023 – 2024

The purpose of this pocket guide is to serve as a tool for health care providers to learn more about seasonal influenza vaccines in Canada and make strong recommendations to their patients.



Influenza is a contagious respiratory disease. Influenza in humans is caused by the influenza A and influenza B viruses. Seasonal influenza epidemics occur annually in Canada, mainly in the late fall and winter months. It is estimated that, in a given year, influenza causes 12,200 hospital stays and 3,500 deaths in Canada.



Influenza can cause mild to severe illness. While most people will recover within 7 to 10 days, some people are at greater risk for experiencing severe complications, including people with chronic illnesses, adults 65 and older, children 0 to 59 months of age, residents of nursing homes and other chronic care facilities, people who are pregnant, and Indigenous peoples. Complications can include pneumonia, cardiovascular complications, and the worsening of underlying chronic health conditions.

New strains of influenza virus circulate every year, which is one of the reasons annual immunization against influenza is recommended. As well, vaccination against influenza is an important component to help manage healthcare capacity during the influenza season in the fall and winter months, especially in the context of ongoing COVID-19 activity and community transmission of other respiratory viruses.

What vaccines are available?

Categories of Influenza Vaccines in Canada

There are three categories of influenza vaccines authorized for use in Canada: inactivated influenza vaccines (IIV), recombinant influenza vaccines (RIV), and live attenuated influenza vaccines (LAIV).

Formulations of Influenza Vaccines

Influenza strains predicted to be circulating in a given influenza season are incorporated into **trivalent influenza vaccines** and **quadrivalent influenza vaccines**. **Trivalent influenza vaccines** protect against three different influenza virus strains (typically two strains of influenza A and one strain of influenza B). **Quadrivalent influenza vaccines** protect against four different influenza virus strains (typically two strains of influenza A and two strains of influenza B).

Types of Influenza Vaccines

There are three types of influenza vaccines. **Standard-dose influenza vaccines** provide protection against influenza and are offered for persons 6 months of age and older. **High-dose influenza vaccines** contain **four times** the amount of antigen than the amount contained in standard-dose influenza vaccines. They are specifically made and recommended for persons 65+ to improve their immune response to the vaccine. **Adjuvanted influenza vaccines** contain an adjuvant, an ingredient added to some vaccines to help produce a stronger immune response in vaccine recipients. They are specifically made and recommended for children 6-23 months and persons 65+ to improve their immune response to the vaccine.



Table 1: Preparations authorized for use in Canada

Class Code	Class Details	Authorized Ages for Use	Vaccine Brand Name	Vaccine Code
IIV3-Adj	Inactivated trivalent influenza vaccines – adjuvanted (created using egg-based manufacturing)	65 years of age and older	Fluad®	IIV3-Adj-Seqirus
		6 to 23 months of age	Fluad Pediatric®	IIV3-Adj-Pediatric-Seqirus
IIV4-SD	Inactivated quadrivalent influenza vaccines – standard dose (created using egg-based manufacturing)	5 years of age and older	Afluria® Tetra	IIV4-SD-Seqirus
		6 months of age and older	Flulaval® Tetra	IIV4-SD-GSK
		6 months of age and older	Fluzone® Quadrivalent	IIV4-SD-Sanofi
		6 months of age and older	Influvac® Tetra	IIV4-SD-VC
IIV4-cc	Similar to IIV4-SD, except created using cell culture-based manufacturing (cc)	6 months of age and older	Flucelvax® Quad	IIV4-cc-Seqirus
IIV4-HD	Similar to IIV4-SD, except contains four times the amount of antigen (high-dose)	65 years of age and older	Fluzone® High-Dose Quadrivalent	IIV-HD-Sanofi
RIV4	Recombinant quadrivalent influenza vaccine (created using recombinant manufacturing)	18 years of age and older	Supemtek™	RIV4-Sanofi
LAIV4	Live-attenuated quadrivalent influenza vaccine (created using egg-based manufacturing)	2 to 59 years of age	FluMist® Quadrivalent	LAIV4-AstraZeneca

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?

IIV4-SDs (including IIV4-cc-Seqirus) are administered as a 0.5 mL dose intramuscularly (IM).
IIV4-SD-VC may be administered by IM or deep subcutaneous injection.

IIV3-Adj-Pediatric-Seqirus is administered as a 0.25 mL dose by IM injection. **IIV3-Adj-Seqirus** is administered as a 0.5 mL dose by IM injection.

IIV-HD-Sanofi is administered as a 0.7 mL dose by IM injection.

RIV4-Sanofi is administered as a 0.5 mL dose by IM injection.

LAIV4-AstraZeneca is given as a nasal spray at a dose of 0.2 mL (0.1 mL in each nostril).

How do I choose which vaccine to give?

Recommendations on which influenza vaccine to use can be based on age (please see chart below). For information on who should not receive influenza vaccines, or specifically LAIV4, please see the sections titled [Who should not receive influenza vaccines?](#) and [Who should not receive LAIV4?](#)

Table 2: Recommendations for use of influenza vaccines by age group

Age Group	Influenza Vaccines: Recommendations for Use
6 to 23 months of age	<ul style="list-style-type: none"> An IIV4-SD or IIV4-cc should be administered in this age group, with the exception of IIV4-SD-VC. If an IIV4-SD or IIV4-cc is not available, the IIV3-Adj-Pediatric-Seqirus should be administered.
2 to 17 years of age	<ul style="list-style-type: none"> An IIV4-SD, IIV4-cc, or LAIV4 should be administered in this age group, although IIV4-SD-VC should not be used in children under 3 years of age.
18 to 59 years of age	<ul style="list-style-type: none"> An IIV4-SD, IIV4-cc, RIV4, or LAIV4 should be administered in this age group. Please take into consideration that there is some evidence that IIV may provide better efficacy than LAIV in healthy adults.
60 to 64 years of age	<ul style="list-style-type: none"> An IIV4-SD, IIV4-cc, or RIV4 should be administered in this age group.
65 years of age and older	<p><i>For individual-level decision-making:</i></p> <ul style="list-style-type: none"> An IIV3-Adj, IIV4-SD, IIV4-HD, IIV4-cc, or RIV4 should be administered in this age group. If an IIV4-HD vaccine is available, it should be used given it provides better protection against influenza than IIV4-SD vaccines in adults 65 years of age and older. <p><i>For public health program-level decision-making:</i></p> <ul style="list-style-type: none"> Any one of the IIV3-Adj, IIV4-SD, IIV4-HD, IIV4-cc, or RIV4 should be recommended at the program level. Comparisons on which influenza vaccines should be recommended for immunization programs cannot be made, as there is insufficient evidence demonstrating the incremental value of different influenza vaccines (i.e., NACI has not conducted cost-effectiveness assessments for these vaccines).

Who should receive influenza vaccines?

Recommendations on who should receive the influenza vaccines can be made at the **individual level** and **program level**. Individual-level recommendations are meant for immunizers so that they can advise individual patients on how to protect themselves against influenza. Program-level recommendations take into account factors that benefit population health, and are meant for provinces and territories making decisions on how to structure influenza immunization programs.

Individual-level Decision-making

Anyone over the age of **6 months** should receive an annual influenza vaccine, with a special focus on groups for whom influenza vaccines are particularly recommended (see Table 3). Anyone **9 years of age and older** requires only **one dose** per season.

Please note: Children **6 months of age up to 9 years of age** receiving the influenza vaccine for the first time in their lives should receive **two doses** of the seasonal influenza vaccine with a minimum interval of **4 weeks** between doses. Children who received **one or more doses of an influenza vaccine in the past** should only receive **one dose** of an influenza vaccine in every season thereafter.

Program-level Decision-making

NACI recommends that the groups in Table 3 be prioritized to receive influenza vaccines.

Table 3: Groups for whom influenza vaccination is particularly recommended

People at high risk for influenza-related complications or hospitalization	People capable of transmitting influenza to those at high risk
<ul style="list-style-type: none"> • All children 6 to 59 months of age • Adults and children with the following chronic health conditions: <ul style="list-style-type: none"> • Cardiac or pulmonary disorders (includes bronchopulmonary dysplasia, cystic fibrosis, and asthma) • Diabetes mellitus and other metabolic diseases • Cancer and immune-compromising conditions • Renal disease • Anemia or hemoglobinopathy • Neurologic or neurodevelopmental conditions (excluding migraines and psychiatric conditions without neurological conditions) • Morbid obesity (BMI of 40kg/m² and over) • Children/adolescents 6 months to 18 years of age with chronic conditions treated for long periods with acetylsalicylic acid • All individuals who are pregnant • People of any age living in nursing homes or other chronic care facilities • Adults 65 years of age and older • Indigenous peoples 	<ul style="list-style-type: none"> • Health care and other care providers in facilities who could transmit influenza to people at high risk of influenza complications • Household contacts of individuals at high risk (irrespective of whether the at-risk person has been vaccinated against influenza), including: <ul style="list-style-type: none"> • Household contacts of infants less than 6 months of age • Household contacts of pregnant persons expecting to give birth during the influenza season • People providing regular child care to children 0 to 59 months of age • People providing services within closed or relatively closed settings to persons at high risk <p>Other high-risk groups</p> <ul style="list-style-type: none"> • People providing essential community services • People who are in direct contact with poultry infected with avian influenza during culling operations

Who should not receive influenza vaccines?

Influenza vaccines should **not** be administered to people in the following groups:

- People who have had an anaphylactic reaction to a previous dose of influenza vaccine, or any of the vaccine components of a specific influenza vaccine (with the exception of egg).
 - People who have had an anaphylactic reaction to one of the components in a specific influenza vaccine may be offered another influenza vaccine that does not contain the implicated component. This must be done in consultation with an allergy specialist.
- People who have developed Guillain-Barré Syndrome (GBS) within 6 weeks of a previous influenza vaccination, unless another cause was found for GBS.

In general, immunization should be **postponed** for people with serious acute illness. Influenza vaccines can be administered to people with minor or moderate acute illness, with or without fever.

Who should not receive LAIV4?

In addition to the contraindications above, it is recommended that LAIV4 should not be administered to the groups outlined in Table 4.

Table 4: Contraindications and precautions related to LAIV4

People who should not receive LAIV4	Additional precautions for LAIV4
<ul style="list-style-type: none"> • People with immune-compromising conditions <ul style="list-style-type: none"> • Note: This excludes children with stable HIV infection on antiretroviral therapy (ART) and with adequate immune function. • People with severe asthma (defined as currently on oral or high-dose inhaled glucocorticosteroids or active wheezing) or medically attended wheezing in the 7 days prior to the proposed date of vaccination <ul style="list-style-type: none"> • Note: LAIV4 is not contraindicated for people with a history of stable asthma or recurrent wheezing which is not active. • Children less than 24 months of age, due to increased risk of wheezing • Children 2 to 17 years of age currently receiving aspirin or aspirin-containing therapy • Pregnant people <ul style="list-style-type: none"> • Note: LAIV4 is not contraindicated in breastfeeding individuals. 	<ul style="list-style-type: none"> • LAIV4 should not be administered until 48 hours after antiviral agents active against influenza are stopped. • Antiviral agents, unless medically indicated, should not be administered until 2 weeks after receipt of LAIV4 so that the antiviral agents do not kill the replicating vaccine virus. • LAIV4 should be deferred, and an IIV or RIV can be used, in cases where significant nasal congestion might impede delivery of LAIV4 to the nasopharyngeal mucosa. • LAIV4 recipients should avoid close contact with people with severe immune-compromising conditions for at least 2 weeks following vaccination (there is a theoretical risk for transmitting a vaccine virus and causing infection). • People under 18 years of age should avoid using aspirin-containing products for at least 4 weeks after receipt of LAIV4.

Note on Table 4

For more information on LAIV and the theoretical risk for transmitting a vaccine virus, please refer to the NACI statement [Recommendations on the Use of Live, Attenuated Influenza Vaccine \(FluMist®\): Supplemental Statement on Seasonal Influenza Vaccine for 2011-2012](#).

Can influenza vaccines be given at the same time as other vaccines?

All seasonal influenza vaccines, including LAIV4, may be administered at the same time as, or any time before or after, administration of other vaccines (either live or inactivated). This includes COVID-19 vaccines for those aged 6 months of age and older.

Based on expert opinion, NACI recommends that LAIV4 can be given together with, or at any time before or after the administration of, any other live attenuated or inactivated vaccine. However, NACI recognizes that some vaccine providers may continue to choose to give LAIV4 and other live vaccines separated by at least 4 weeks as a professional preference.

Remember

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

What about side effects and adverse reactions?

Seasonal influenza vaccines have a stable and safe profile. Serious adverse events are rare following influenza vaccination, and in most cases, there is not enough data to suggest a causal association. Mild to moderate side effects are more common.

IM-administered Influenza Vaccines

Injection site reactions are common but are generally mild and short-lived. **Systemic reactions** (e.g., headache, fatigue) are more commonly seen after administration with an IIV-HD compared to IIV-SD, but these reactions are generally mild and short-lived as well.

Recombinant vaccines appear to have a similar safety profile to IIVs.

LAIV4

The most common side effects experienced by recipients of LAIV4 are **nasal congestion** and **runny nose**.

Guillain-Barré Syndrome (GBS) and Oculorespiratory Syndrome (ORS)

GBS and ORS are adverse events following immunization (AEFIs) of particular interest to the National Advisory Committee on Immunization (NACI) and should be reported if there is a suspected case of either.

GBS is rare, but there is a small attributable risk of GBS after immunization with an influenza vaccine. However, the risk of experiencing GBS after influenza infection is notably higher than that from receiving an influenza vaccine.

ORS was identified during the 2000-2001 influenza season. ORS is rare and characterized by the presence of bilateral red eyes and one or more associated respiratory symptoms that starts within 24 hours of influenza vaccination. It is not an allergic reaction. Individuals who have experienced ORS **without lower respiratory tract symptoms** may safely be revaccinated with influenza vaccines. Individuals who experienced ORS **with lower respiratory tract symptoms** should have an expert review.