The Public Health Agency of Canada (PHAC) in partnership with the National Collaborating Centre for Infectious Diseases (NCCID) present:

Fall and Winter Respiratory Illnesses 2024-25

September 24, 2024

Housekeeping

Please use the Q&A tab to pose content-related questions to the speakers at any time.

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nccid@umanitoba.ca

Webinar recording and slides will be made available at nccid.ca

National Collaborating Centre for Infectious Diseases

Centre de collaboration nationale des maladies infectieuses

Introductions and disclosures of conflicts of interest

Moderator:

1. Claudyne Chevrier, PhD – National Collaborating Centre for Infectious Diseases (NCCID)
    - No conflicts of interest to declare

Speakers:

1. RSV: April Killikelly, PhD – National Advisory Committee on Immunization (NACI) Secretariat
    - No conflicts of interest to declare

2.Seasonal influenza: Angela Sinilaite, MPH, DrPH(c) – National Advisory Committee on Immunization (NACI) Secretariat
    - No conflicts of interest to declare

3.COVID-19: Bryna Warshawsky, MDCM, MHSc, FRCPC – Medical Advisor for the Public Health Agency of Canada
    - No conflicts of interest to declare

Webinar objectives
Fall and Winter Respiratory Illnesses 2024-2025

At the end of this webinar, participants will be able to:

1. Discuss RSV, influenza and COVID-19 in Canada.

2. Discuss vaccines and/or monoclonal antibodies available for these respiratory viruses.

3. Identify where to access NACI guidance, Canadian influenza antiviral guidelines, and other resources relevant to the prevention and treatment of respiratory illnesses during the 2024-2025 respiratory virus season.

NACI and CIG are Canadian immunization resources

- The **National Advisory Committee on Immunization** (NACI):
  - Makes recommendations for the use of vaccines currently or newly approved for use in humans in Canada.
  - Recommendations are for the vaccination of individuals and for vaccine programs.
- **Provinces and Territories** are responsible for their vaccine policies and immunization programs.
- NACI recommendations may be broader or narrower than the conditions of use **approved** by Health Canada.

- The **Canadian Immunization Guide** (CIG):
  - Is a resource for health care providers, vaccine program decision makers and other Canadian stakeholders.
  - Developed by the Public Health Agency of Canada based on recommendations and statements of expert advisory committees, such as NACI and the Committee to Advise on Tropical Medicine and Travel (CATMAT).

Canadian Immunization Guide
National Advisory Committee on Immunization (NACI): Membership and representation
Committee to Advise on Tropical Medicine and Travel (CATMAT): Statements and publications

Using gender additive language

- In acknowledgement that not all people giving birth or breastfeeding will identify as women or mothers, NACI and the CIG now use gender additive language.
  - e.g., using the term 'woman' alongside gender neutral language
- In a clinical context, language and documentation should reflect the gender identity of the individual.

Respiratory Syncytial Virus (RSV)

Some people are at a higher risk for developing severe RSV disease, especially infants and older adults

Infants	Older adults

[NACI: Statement on the prevention of respiratory syncytial virus disease in infants]

[NACI Summary: Statement on the prevention of respiratory syncytial virus disease in older adults]

Infants and older adults: RSV infection is a major cause of lower respiratory tract illness

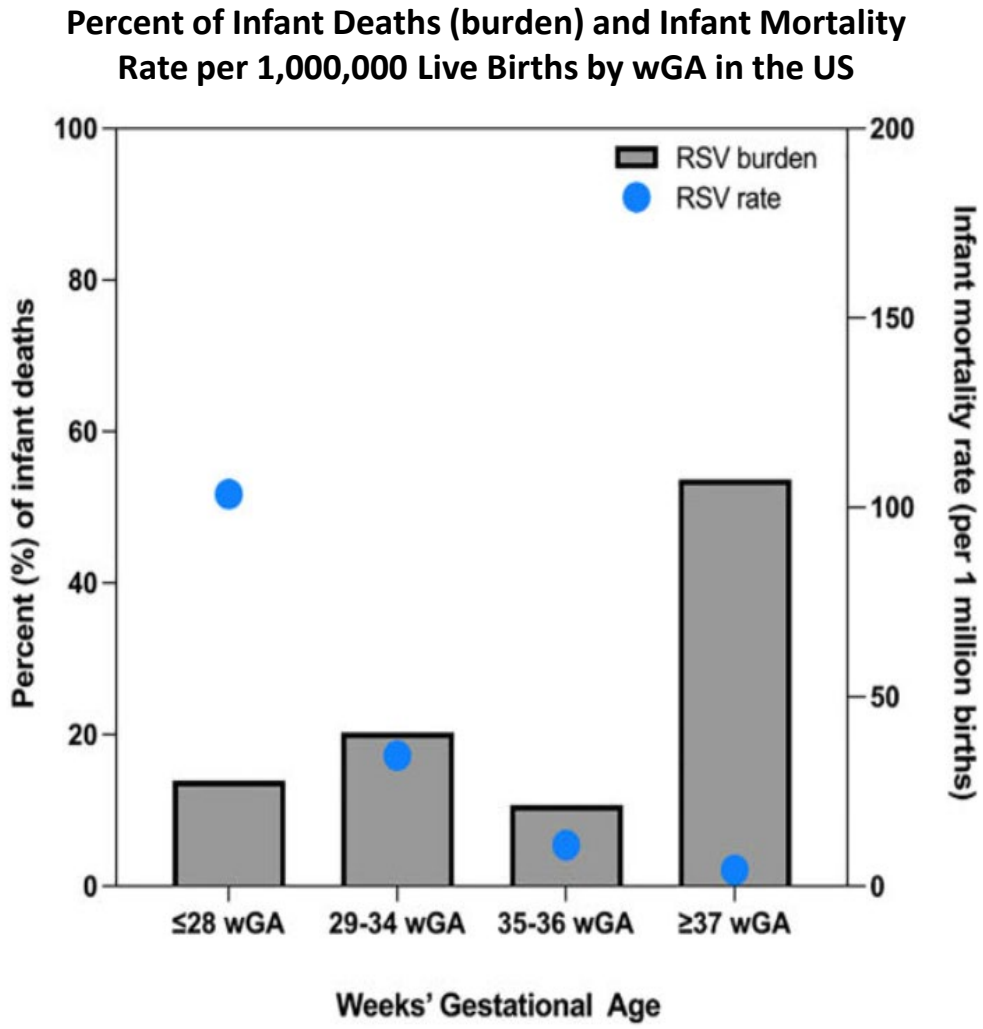
- Typical **symptoms**: nasal congestion, cough, low grade fever and loss of appetite that last for approximately 1 to 2 weeks
- **In infants**, RSV is:
  - one of the most common respiratory viruses
  - the most common cause of bronchiolitis and pneumonia
- **In older adults**, RSV can:
  - cause serious respiratory disease, particularly in those at increased risk due to chronic medical conditions.
- RSV infection in infants and older adults can lead to **hospitalization** and intensive care unit admission
  - While death is very uncommon for infants, it can occur in older adults
- **Transmitted** by:
  - respiratory particles
  - contaminated surfaces
- Incubation period is 2 to 8 days.
- **No specific treatment** for RSV disease.

Infants may only present with decreased activity, difficulty breathing, difficulty feeding or irritability.

Respiratory syncytial virus (RSV): Symptoms and treatment
Respiratory syncytial virus (RSV): Canadian Immunization Guide
NACI: Statement on the prevention of respiratory syncytial virus disease in infants
NACI: Statement on the prevention of respiratory syncytial virus disease in older adults

Infants: severe RSV disease is more likely in the first months of life

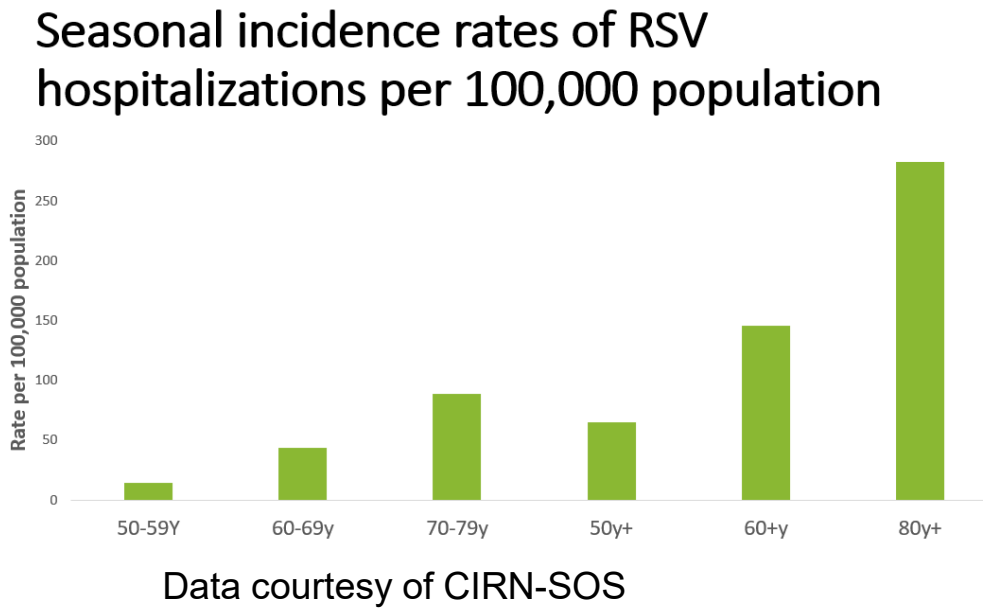
- **Risk** of severe RSV disease is higher with certain **medical conditions**, including:
  - ➢ Prematurity and chronic respiratory, cardiac or immunocompromising conditions (see slide 20)
- Some infants remain at risk during their **second** RSV season.
- While risk of severe outcomes is larger in high-risk infants, health care burden is greatest in healthy term infants.



NACI: Statement on the prevention of respiratory syncytial virus disease in infants
Burden of disease of respiratory syncytial virus in infants, young children and pregnant women and people
Mortality Associated With Respiratory Syncytial Virus, Bronchiolitis, and Influenza Among Infants in the United States: A Birth Cohort Study From 1999 to 2018

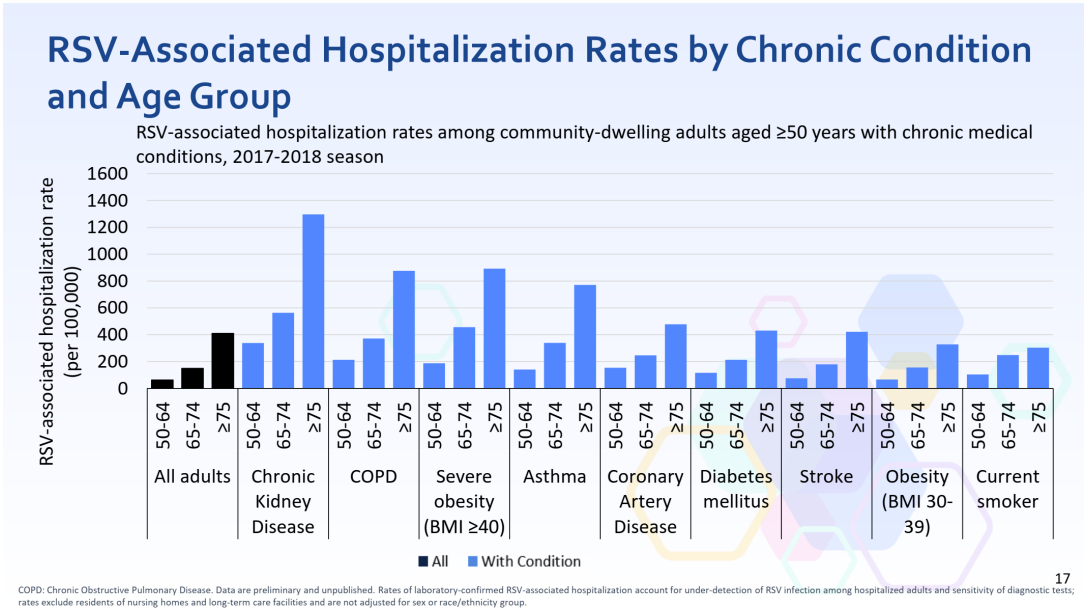
For older adults, risk of severe RSV disease increases with age and with comorbidities

- Infection does not confer protective immunity against reinfections, which recur throughout life and become more serious with advanced age in older adults.
- More robust data exist for medically attended RSV and hospitalization associated with RSV,
  - compared to data for ICU admissions and deaths associated with RSV.



Data courtesy of CIRN-SOS

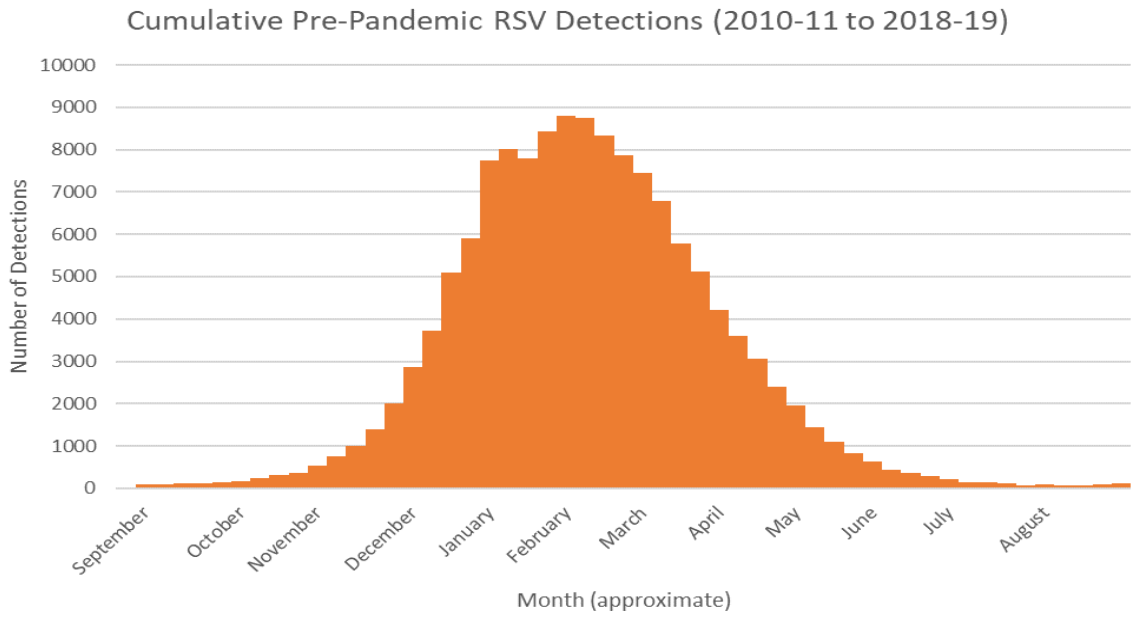
[NACI: Statement on the prevention of respiratory syncytial virus disease in older adults]

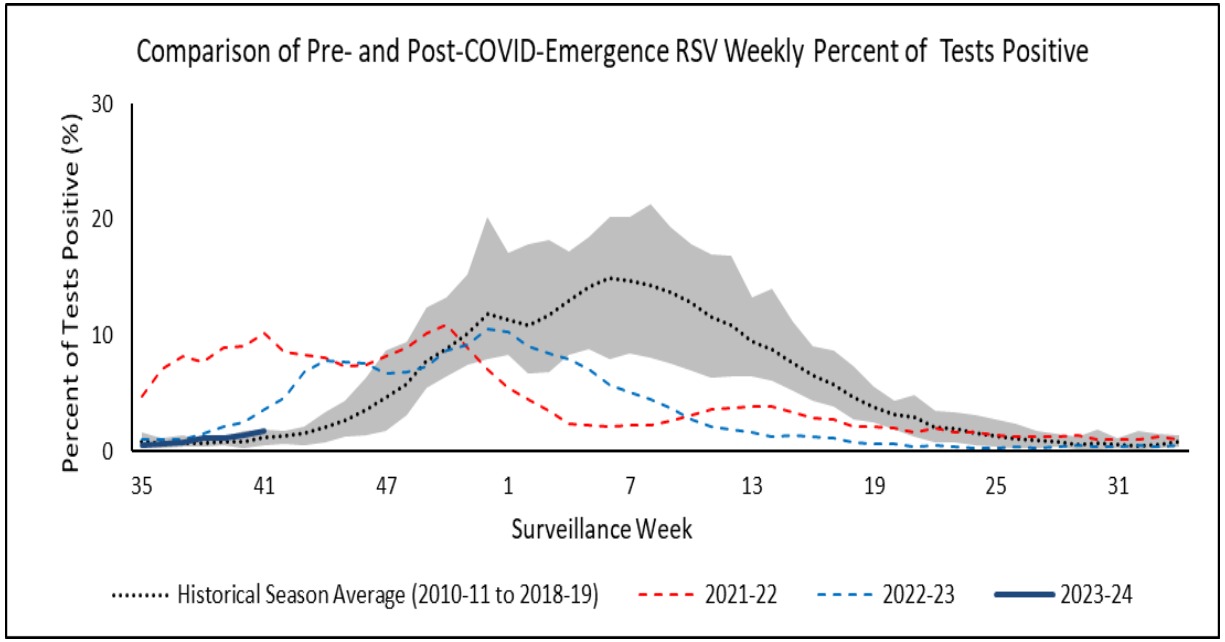


[Source: CDC: Figure taken from ACIP February 2024 meeting presentation: Chronic Conditions as Risk Factors for RSV-Associated Hospitalization]

RSV has a typical seasonal pattern and does not require strain-specific vaccine updates each year

- **Seasonality** typically November to April:
  - Peak cases in January/February.*
  - Can vary provincially, and due to latitude and other environmental factors.
- No large sequence changes over time:
  - No need for strain-specific vaccine updates.





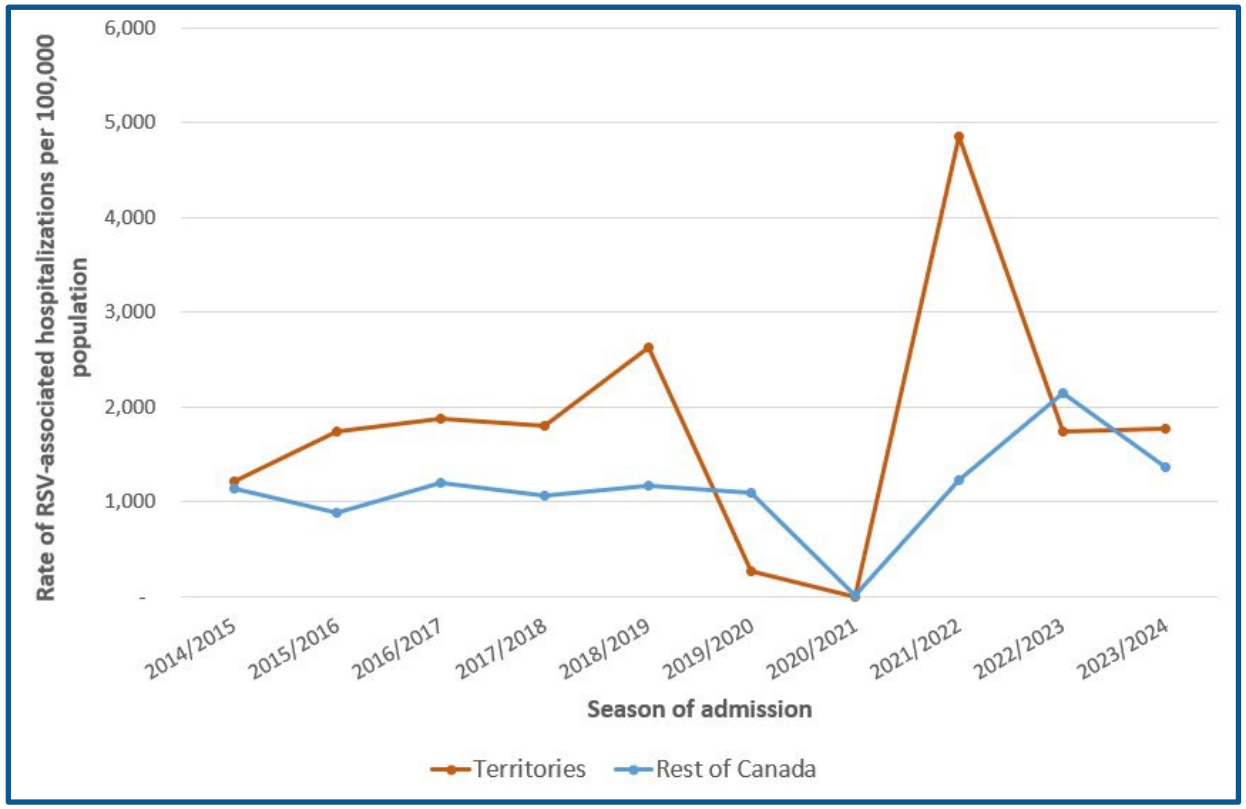
*Differences noted during COVID-19
Data courtesy of the Canadian Respiratory Virus Detection Surveillance System

Canada: Respiratory Virus Report, Week 23 - ending June 8, 2024

Higher burden of RSV hospital admissions in northern and remote settings compared to the rest of Canada

- In Canada, approximately 2% of all infants are hospitalized with RSV in their first year of life.
- In some remote communities, RSV hospitalization rates have been as high as 5 to 17% of all live births.

Comparison of RSV-associated hospitalizations (per 100,000 population) between the Territories and the rest of Canada, 2014/15 to 2023/24 seasons.



Due to the small population, a small change in numbers can cause a large fluctuation in the data season to season. Data for the 2023-2024 season is limited from Aug 2023 to March 2024 due to availability of data.

RSV: Canadian Immunization Guide

Data provided by the Centre for Emerging and Respiratory Infections and Pandemic Preparedness, and were extracted from the Canadian Institute of Health Information (CIHI) Discharge Abstract Database (DAD), Canada excluding Quebec, July 2, 2024.

Infant and older adult protection against RSV using passive and active immunization

Infant protection (passive immunization)		Older adult protection (active immunization)
Monoclonal antibodies (mAbs): Beyfortus/nirsevimab (Sanofi) Synagis/palivizumab (AstraZeneca) Clesrovimab (Merck)	**Vaccines used in pregnancy to provide infant protection:** Abrysvo/RSVpreF (Pfizer)	**Vaccines for older adults:** Arexvy/RSVPreF3 (GSK) Abrysvo/RSVpreF (Pfizer) mResvia/mRNA-1345 (Moderna)

LEGEND: = authorized by Health Canada; = not authorized by Health Canada; = not (yet) submitted to Health Canada

Passive Immunization:

- RSV specific antibodies given either directly to the infant via injection or transplacentally through vaccination during pregnancy.
- Protection conferred by passive immunization is temporary.
- Passive protection cannot be boosted. For ongoing protection, subsequent doses need to be given.

Active Immunization:

- Adults have been previously infected with RSV but due to waning immunity, can experience repeat infections; older adults are at increased risk of severe disease.
- Vaccines augment infection acquired immune responses.
- Boosting of protection by repeat vaccination remains unclear.

Updated Canadian guidance related to the prevention of RSV disease in infants

Infant protection
(passive immunization)

Monoclonal antibodies:

- Beyfortus/nirsevimab (Sanofi)
- Synagis/palivizumab (AstraZeneca)

Vaccines used in pregnancy to provide infant protection:

- Abyrysvo/RSVpreF (Pfizer)

- 2022: NACI updated guidance for use of palivizumab/Synagis in 2022 for infants at highest risk (approximately 5000 eligible per year in Canada).

- 2023-2024: Canada's Drug Agency (CDA, previously called CADTH) developed guidance for use of nirsevimab/Beyfortus in a 3-tiered structure.
  - Nirsevimab was not available in Canada for the 2023-2024 season.

- 2024**: NACI developed guidance for prevention of RSV disease in infants, including for nirsevimab/Beyfortus and RSVpreF/Abrysvo.**

Nirsevimab (Beyfortus) for Respiratory Syncytial Virus Prevention in Neonates and Infants | CDA-AMC

Clinical trials: nirsevimab and RSVpreF can reduce the risk of hospitalization and of medically attended RSV infection in infants

	nirsevimab/Beyfortus to infant	RSVpreF/Abrysvo vaccine for pregnant women and pregnant people
RSV RTI* with hospitalization in infants	↓ 81-83%	↓ 57%
Medically attended RSV RTI* in infants	↓ 80%**	↓ 51%***

*RTI (respiratory tract infection) **in healthy infants ***infants in their first RSV season

- Nirsevimab/Beyfortus:
  - Protective efficacy immediately.
  - **With one injection, efficacious** through 5 months of age and may provide full-season protection (up to 8 months).
- RSVpreF/Abrysvo:
  - Antibodies take time to develop and then transfer to the fetus to provide protective efficacy
    - Therefore, administration needs to be at least 2 weeks before birth
  - Efficacious in the infant's first months.
  - The burden of RSV disease in pregnancy and the extent to which RSV vaccines protect this population is unclear.

RSV: Canadian Immunization Guide
NACI: Statement on the prevention of respiratory syncytial virus disease in infants

Safety data for all infants entering their first RSV season

- Little difference between nirsevimab/Beyfortus and RSVpreF/Abrysvo in severe systemic reactions for both pregnant and infant participants.
  - RSVpreF/ Abrysvo may increase risk of severe local adverse events compared to placebo for pregnant recipients.
- Passive immunization via monoclonal antibodies is considered very safe.
- In RSVpreF/Abrysvo clinical trials, an imbalance was observed in late preterm birth between RSVpreF and placebo recipients.
  - Postmarket surveillance of RSVpreF/ Abrysvo thus far hasn't shown an increased risk of preterm birth
  - Limiting vaccine administration to the Health Canada approved dosing interval from 32 through 36 weeks of gestation mitigates potential risk of preterm birth.
- NACI continues to monitor RSVpreF vaccine and nirsevimab safety data as they emerge and will update its recommendations if needed.

RSV: Canadian Immunization Guide

May 2024 NACI Statement on the prevention of RSV disease in infants: building towards a universal RSV immunization program for all infants

Recommendation 1. Considering the **significant burden of disease** in all infants from RSV and the **impacts of RSV** on the Canadian health system, NACI recommends building towards a **universal RSV** immunization program for **all infants**. Program introduction could occur in **stages** depending on access to supply, cost-effectiveness, and affordability of available options. (**Strong Recommendation**)

Considerations:

- Nirsevimab/Beyfortus is preferred over palivizumab
  - In contexts where there is limited or no availability of nirsevimab, palivizumab should be used according to the NACI 2022 recommendations.

- Nirsevimab is preferred over RSVpreF
  - If it is anticipated that nirsevimab will be administered to a healthy infant, then RSVpreF in pregnancy may not provide added benefit for the healthy infant.

NACI: Statement on the prevention of respiratory syncytial virus disease in infants

May 2024 NACI Statement on the prevention of RSV disease in infants: using nirsevimab to prevent severe RSV disease

Recommendation 2. NACI recommends RSV immunization programs use nirsevimab to prevent severe RSV disease. Programs can build and expand over time depending on access to supply, cost-effectiveness, and affordability of available options. (**Strong Recommendation**)

Nirsevimab should be **prioritized for infants** in the following way**:**

Priority 1:

- Entering, or born during, their first RSV season who are **at increased risk** of severe RSV disease, including those who are born at less than 37 weeks gestational age (List 1).
- Entering their second RSV season and at ongoing increased risk of severe RSV disease (List 1).
- Entering, or born during, their first RSV season whose **transportation** for severe RSV disease treatment **is complex**, and/or whose risk of severe RSV disease **intersects** with established **social and structural health determinants** such as those experienced by some Indigenous communities across First Nations, Métis and Inuit populations.

Priority 2:

- If nirsevimab is priced in a manner to make such programs cost effective, NACI recommends nirsevimab be considered for any infant less than 8 months of age entering, or born during, their first RSV season through universal immunization programs to prevent severe RSV disease.

NACI: Statement on the prevention of respiratory syncytial virus disease in infants

May 2024 NACI Statement on the prevention of RSV disease in infants: List 1 - Definition of infants at increased risk of severe RSV disease

Infants at **increased risk** of severe RSV disease during their **first RSV season:**

- All premature infants (i.e., born less than 37 wGA)
- Chronic lung disease, including bronchopulmonary dysplasia, requiring ongoing assisted ventilation, oxygen therapy or chronic medical therapy in the 6 months prior to the start of the RSV season
- Cystic fibrosis with respiratory involvement and/or growth delay
- Haemodynamically significant chronic cardiac disease
- Severe immunodeficiency
- Severe congenital airway anomalies impairing clearing of respiratory secretions
- Neuromuscular disease impairing clearing of respiratory secretions
- Down syndrome

Infants at **ongoing risk** of severe RSV disease during their **second RSV season:**

- All those listed above, except for infants born at less than 37 wGA and infants with Down syndrome who do not have another medical condition on the list.

NACI: Statement on the prevention of respiratory syncytial virus disease in infants

May 2024 NACI Statement on the prevention of RSV disease in infants: recommendations that RSVpreF may be considered in pregnancy

Recommendation 3. NACI recommends RSVpreF may be considered as an individual decision by a pregnant woman or pregnant person together with information from their pregnancy care provider, in advance of, or during, the RSV season, to prevent severe RSV disease in their infant. At the present time, NACI does not recommend an immunization program for RSVpreF. More data and information are expected to emerge over time and NACI will reconsider this recommendation in the future. (Discretionary recommendation)

Considerations:

- Use of RSVpreF may not be required if a universal nirsevimab program is implemented.

NACI: Statement on the prevention of respiratory syncytial virus disease in infants

May 2024 NACI Statement on the prevention of RSV disease in infants: summary of recommendations

Season	Population protected (population receiving the intervention, if different)	Recommendation
First	Infant at increased risk	Should be offered nirsevimab - Priority 1*
Second	Infant or child at ongoing increased risk	
First	Infant requiring complex transport or risk intersects with social or structural health determinants (e.g. First Nations, Métis and Inuit)	
First	All Infants	Should be offered nirsevimab - Priority 2*
First	All infants (pregnant women and pregnant people)	Individual level: Consider RSVpreF factoring in any potentially available program options
		Immunization programs: At the present time, universal RSVpreF program not recommended

*Program introduction could occur in stages depending on access to supply, cost-effectiveness, and affordability.

NACI: Statement on the prevention of respiratory syncytial virus disease in infants

Key Concepts: RSV Immunization to protect infants

- Infants are naive to RSV and passive immunization provides protection against severe disease. It is unclear to what extent passive immunization prevents infection.
- Passive immunization via monoclonal antibodies (nirsevimab/Beyfortus or palivizumab/Synagis) to the infant or vaccination (RSVpreF/Abrysvo) of pregnant women or pregnant people will provide protection to the infant for as long as the passively administered antibody is biologically available.
- The burden of RSV disease in pregnant women and pregnant people and the extent to which RSV vaccines protect pregnant women and pregnant people is unclear.
- Unclear if vaccination is needed during subsequent pregnancies.
- Passive immunization via monoclonal antibodies is considered very safe. For RSVpreF/Abrysvo there was an imbalance of late preterm births in the phase III study, but subsequent surveillance thus far hasn't shown an increased risk.

Interactive poll #1 RSV infants: Multiple choice

Which products can be used to protect high-risk children in their second RSV season? (Select all that apply)

a) Palivizumab/Synagis
b) Nirsevimab/Beyfortus
c) RSVpreF/Abrysvo
d) RSVpreF3/Arexvy

RSV immunization products in older adults

Older adult protection (Active Immunization)

Vaccines for older adults:

- Arexvy/RSVPreF3 (GSK)
- Abrysvo/RSVpreF (Pfizer)

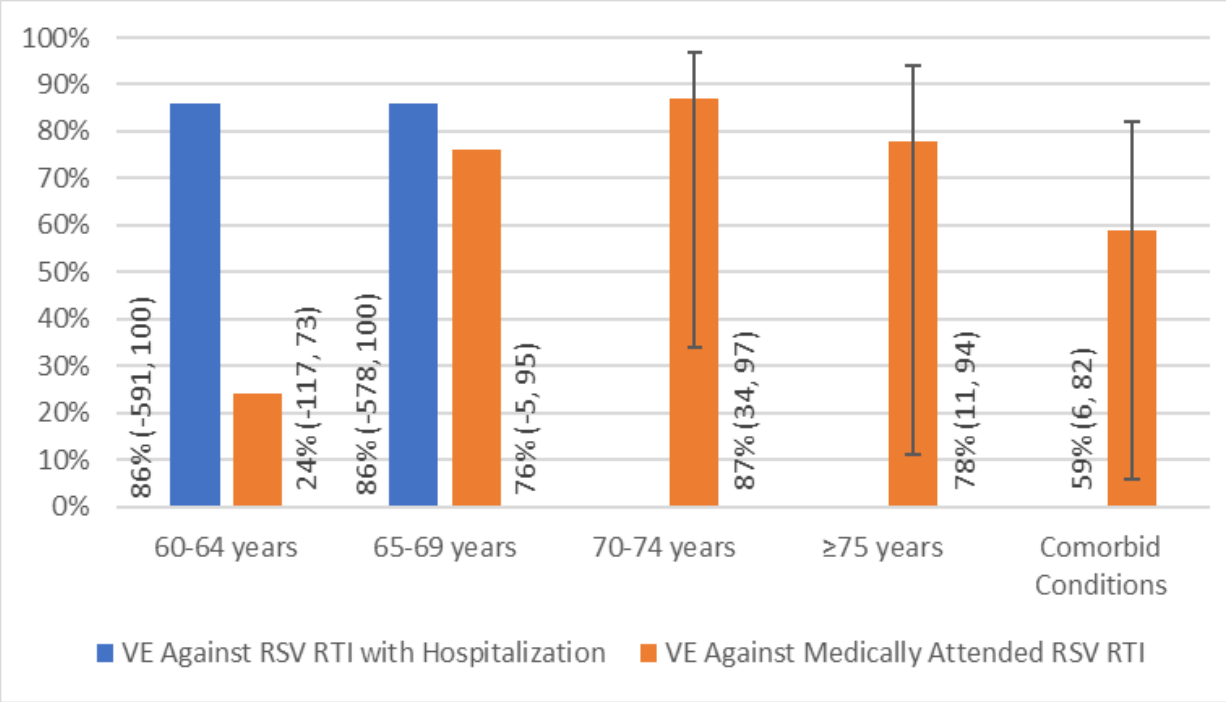
Guidance for use of RSV products in older adults:

- NACI released guidance on the use of RSV products in older adults on July 12, 2024.
- The statement provides recommendations on the use of 2 Health Canada approved vaccines:
  - RSVPreF3 (Arexvy, GSK) is an AS01E adjuvanted vaccine authorized with an indication for all adults 60 years of age and over.
  - RSVpreF (Abrysvo, Pfizer) is an unadjuvanted vaccine authorized with an indication for all adults 60 years of age and over.
    - This formulation is also authorized for pregnant women and pregnant people who are 32 to 36 weeks of gestation to protect infants from RSV.

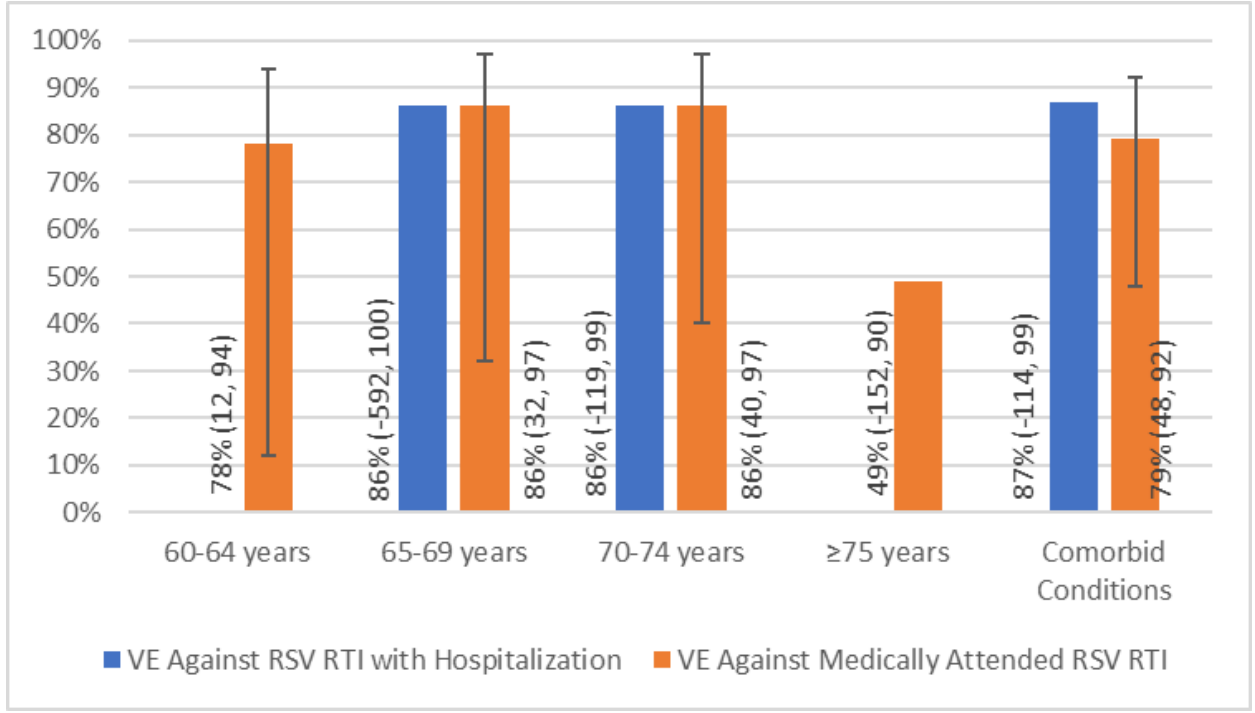
NACI Statement on the prevention of respiratory syncytial virus disease in older adults

RSV efficacy for older adults is maintained throughout age groups but data are limited

- Although vaccine efficacy for hospitalization and medically attended RSV respiratory tract infections were maintained throughout age groups, very limited data were available for older age groups and for those with comorbid conditions.



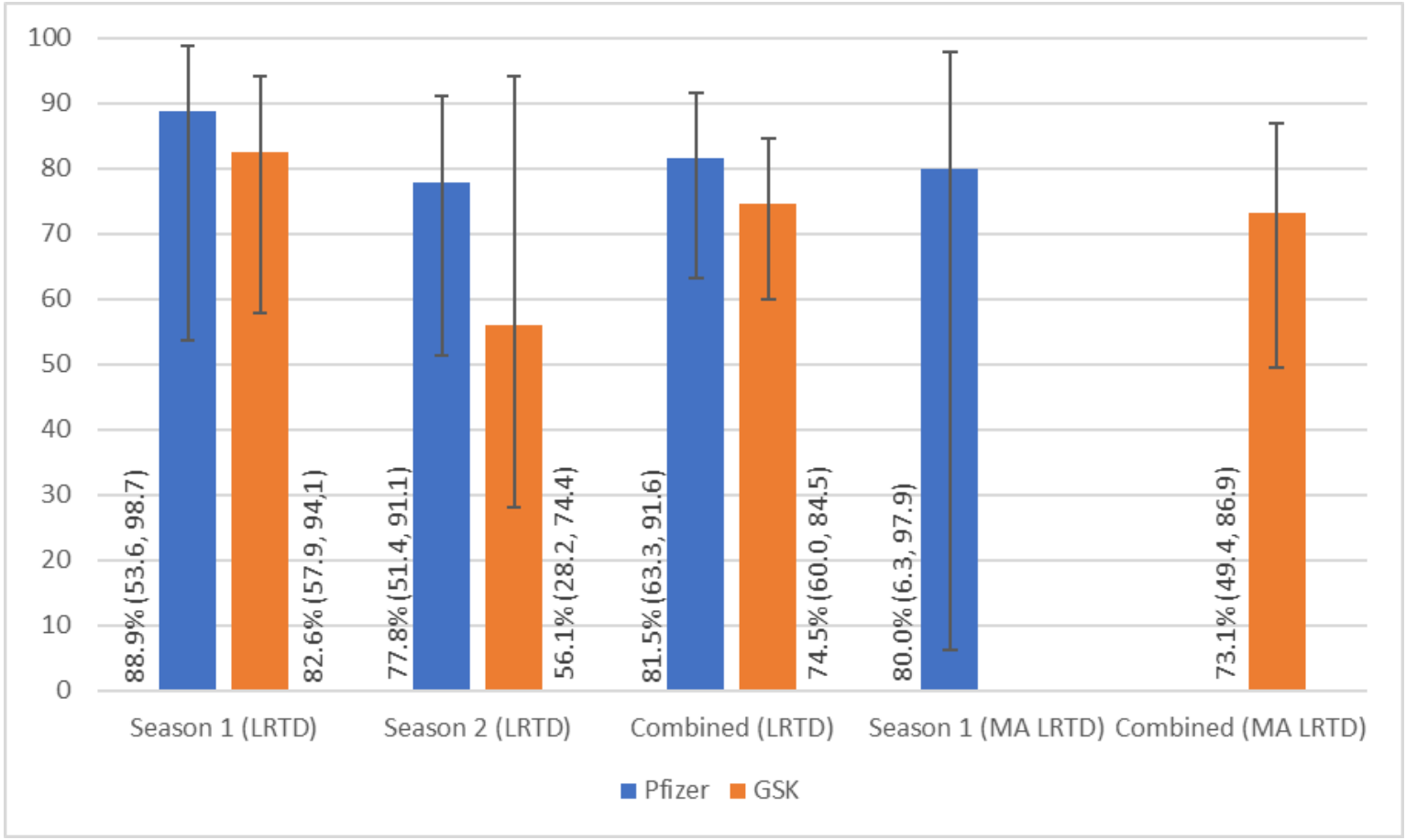
Vaccine efficacy for the **RSVpreF/Abrysvo** vaccine (Pfizer). No events of hospitalization occurred in the 70-74 years, >75 years and comorbid condition groups.



Vaccine efficacy for the **RSVPreF3/Arexvy** vaccine (GSK). No events of hospitalization occurred in the 60-64 years and ≥75 years age groups.

RSV vaccine durability for older adults is at least one season

- Vaccine efficacy may persist across more than one season.
- However, there aren't enough data to say how protective the vaccine will be beyond the first season in some at-risk populations.



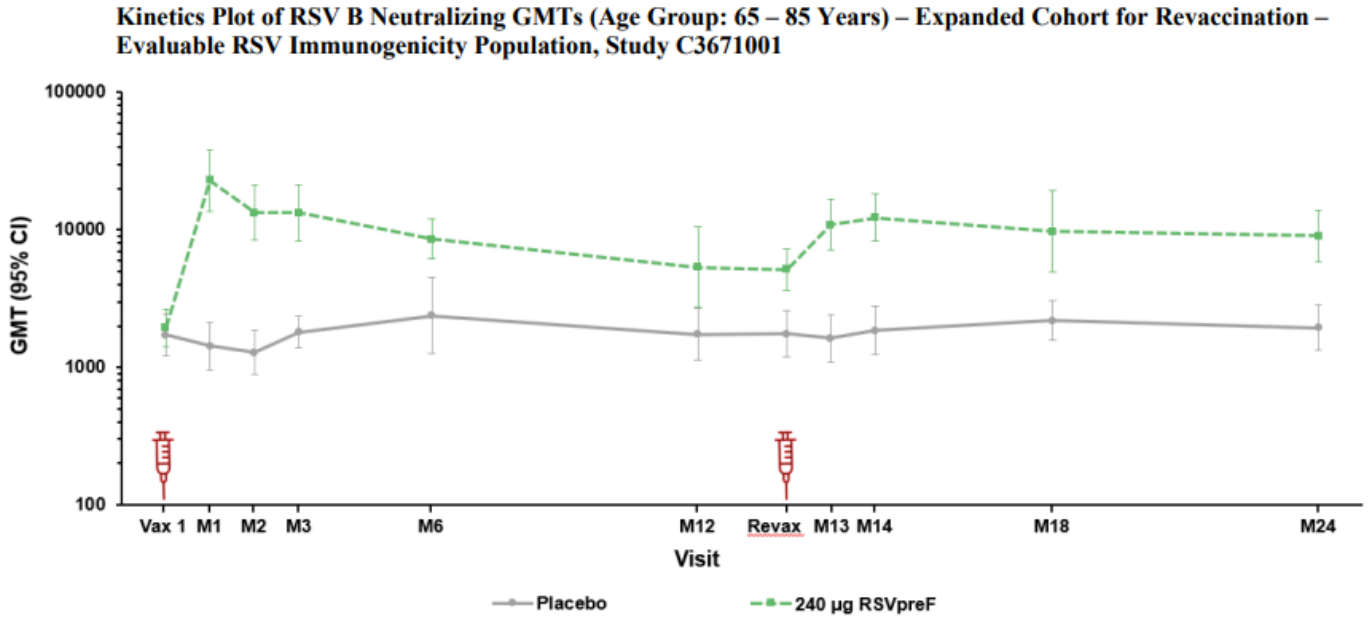
1 - Pfizer Season 2 Safety and Efficacy - ACIP; 2 - Pfizer Announces Positive Top-Line Data for Full Season Two Efficacy of ABRYSVO® for RSV in Older Adults | Pfizer; 3 - FDA Review of Efficacy and Safety of ABRYSVO (VRBPAC); 4 - GSK Season 2 Safety and Efficacy - ACIP; 5 -Efficacy and Safety of Respiratory Syncytial Virus (RSV) Prefusion F Protein Vaccine (RSVPreF3 OA) in Older Adults Over 2 RSV Seasons

LRTD	Lower respiratory tract disease
MA LRTD	Medically attended lower respiratory tract disease

Optimal interval for booster dose is yet to be determined

- It could be that older adults receiving the RSV vaccine may experience a **plateau** of immune response.
  - Where the **boostability** of the immune response may be related to the **interval** between doses.

- Therefore, it may be important to consider the **timing** of giving a vaccine to prevent severe RSV disease with respect to age.
  - E.g., A healthy 62-year-old may wish to wait to be immunized until they are 75 years of age or older, when their risk for severe RSV infection is higher and the benefit of the vaccine is greater.



RSVpreF: Revaccination after 12 months increased neutralizing antibody titer levels, but increases were lower than increases observed after Vaccination 1.

Source: Vaccines and Related Biological Products Advisory Committee February 28-March 1, 2023 Meeting Briefing Document- Sponsor Pfizer

RSV safety data for older adults

- In general, both vaccines are well tolerated.
- Early safety data suggest there may be an increased rate of Guillain-Barré Syndrome (GBS) after RSV vaccination in adults 60 years of age and older.
  - However, the available early data cannot confirm an association at this time.
  - This issue will continue to be monitored closely.

NACI RSV recommendations for older adults

1. NACI recommends RSV immunization programs for **adults 75 years of age and older**, **particularly** for older adults at **increased risk** of **severe RSV disease***. *(Strong Recommendation)*

- Jurisdictions and communities may consider vaccinating individuals who live in or are part of First Nations, Métis, and Inuit communities (regardless of residency) at a younger age given the available evidence on the increased burden of illness due to intersecting structural and social determinants of health.

2. NACI recommends RSV immunization programs for adults **60 years of age and older** who are **residents** of **nursing homes** and other **chronic care facilities**. *(Strong Recommendation)*

3. NACI recommends that RSV vaccines **may be considered** as an **individual decision** by **adults 60-74** years of age **with their health care provider**. *(Discretionary Recommendation)*

- RSV vaccine is optimally administered just before the start of the RSV season. Jurisdictions are encouraged to define the RSV season and administer RSV vaccines based on local epidemiology (prior to the COVID-19 pandemic, the RSV season was typically November to April).

NACI: Statement on the prevention of respiratory syncytial virus disease in older adults

NACI RSV vaccination recommendations for older adults with clinically significant chronic health conditions

Clinically significant chronic health conditions for which RSV vaccination is particularly important:

- Cardiac or pulmonary disorders (includes chronic obstructive pulmonary disease, asthma, cystic fibrosis and conditions affecting ability to clear airway secretions)
- Diabetes mellitus and other metabolic diseases
- Moderate and severe immunodeficiency (refer to the list of immunocompromising conditions developed for COVID-19)
- Chronic renal disease
- Chronic liver disease
- Neurologic or neurodevelopmental conditions (includes neuromuscular, neurovascular, neurodegenerative [e.g., dementia], neurodevelopmental conditions, and seizure disorders, but excludes migraines and psychiatric conditions without neurological conditions)
- Class 3 obesity (defined as body mass index of 40 kg/m2 and over)

Key Concepts: RSV immunization to protect older adults

- Adults who have been previously infected with RSV but due to waning immunity, can experience repeat infections; older adults are at increased risk of severe disease.

- One dose of an RSV vaccine will boost established immune responses to protect older adults for at least a year.
  - The duration of protection is unclear.

- Multiple doses of RSV vaccines over a short timeframe (e.g., 1 month) do not result in boosts to immune response against RSV, unlike COVID-19 vaccines, where multiple doses over a short timeframe does result in increases in immune responses.
  - The optimal interval between doses is yet to be determined.

- Both vaccines are well tolerated overall. There may be an increased rate of GBS following vaccination in older adults; this is being followed closely.

Interactive poll #2 RSV older adults: Multiple choice

Which group of older adults would benefit most from an RSV vaccine? (Select all that apply)

a) Healthy active adults over 60 years of age who live independently

b) Adults 60-74 years old living in long term care

c) Adults over 75 years of age living independently

Seasonal Influenza

Influenza clinical highlights

Seasonal influenza is primarily caused by influenza A and B.

- Seasonal influenza A is further classified into subtypes H3N2 and H1N1.

Most common **symptoms** include:

- fever
- cough
- muscle aches and pains

In some people, especially **children**, nausea, vomiting and diarrhea may occur.

Primarily **transmitted** via:

- aerosols and droplets spread through coughing or sneezing
- direct or indirect contact with respiratory secretions

Influenza infection can also **worsen** certain **chronic conditions**, such as increasing the risk of cardiovascular events.

While most people recover in 7 to 10 days, severe illness can develop.

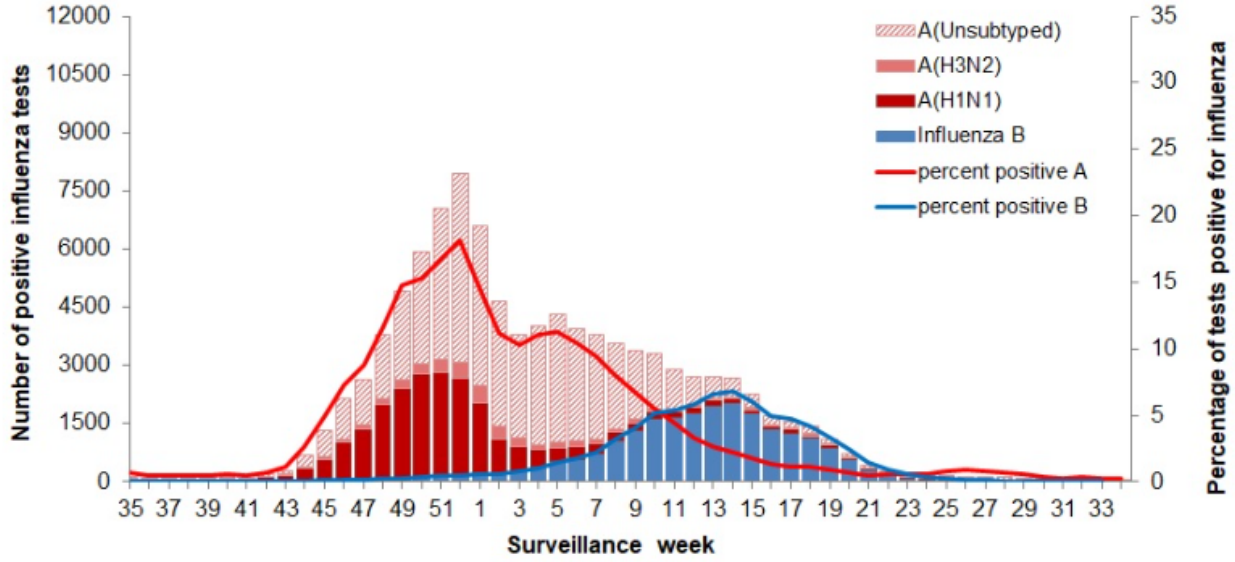
- **Some groups** are at **increased risk** of **influenza-related complications** and **hospitalization,** including pregnant women and pregnant individuals, older adults (65 years of age and older), young children (under 5 years of age), and individuals with chronic health conditions (e.g., cardiac or pulmonary disorders).

Flu (influenza): Symptoms and treatment; Influenza vaccines: Canadian Immunization Guide

Seasonality of influenza is from late fall to spring

Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, week 2023-35 to 2024-34

Number of Laboratories Reporting in Week 34: 31 out of 35



Influenza has seasonal epidemics that occur from **late fall until spring** (November to March), similar to RSV.

- Typically characterized by a wave of influenza A, with a dominant subtype (H3 or H1), and then a wave of influenza B

Each year in Canada, an average of 12,000 hospitalizations and 3,500 deaths are attributed to influenza.

FluWatch report: July 21 to August 24, 2024 (week 30-34)

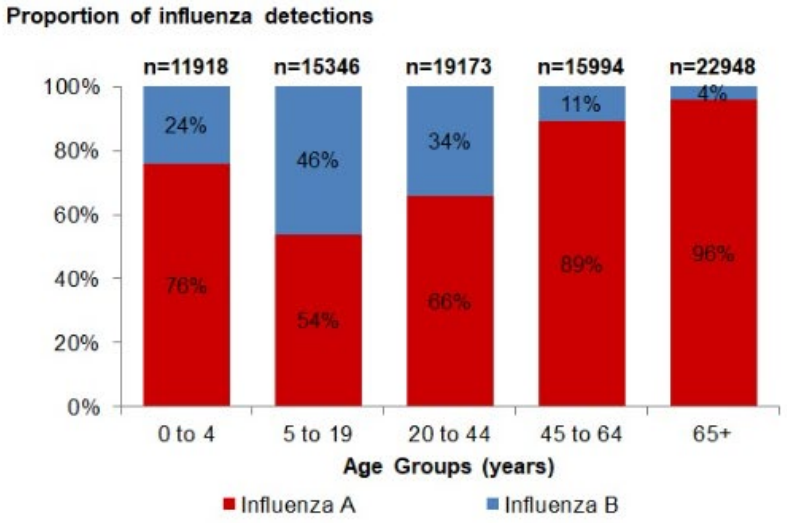
Proportion of positive influenza specimens in Canada is mostly influenza A

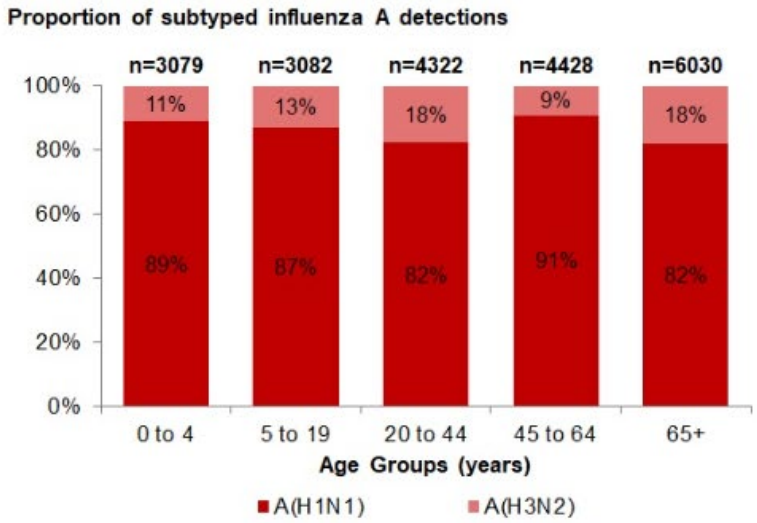
Influenza A strain is the **most common** strain detected in **Canada,** accounting for 77% of detections in the 2023-2024 season.

In Canada and globally, between 2012 and 2017, B/Yamagata viruses caused a larger proportion of influenza B infections than B/Victoria, but in the two years prior to the COVID-19 pandemic, the B/Victoria lineage started becoming dominant

As of March 2020, there have been no confirmed detections of naturally circulating B/Yamagata lineage viruses worldwide.

Proportion of positive influenza specimens by type or subtype and age-group reported through case-based laboratory reporting, Canada, week 2023-35 to 2024-34





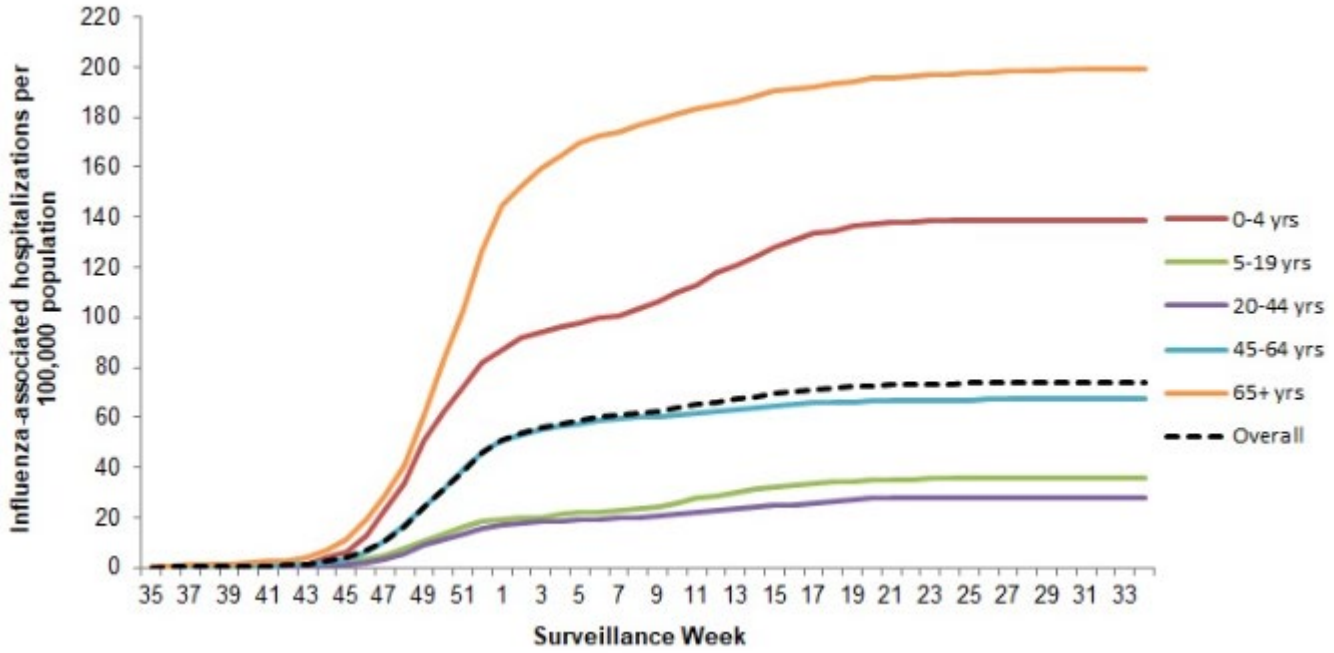
FluWatch report: July 21 to August 24, 2024 (week 30-34)

Influenza-associated hospitalizations is highest in those above 65 followed by those under 4 years of age

Adults aged **65 years of age and older** accounted for **30%** of reported **hospitalizations** associated with influenza.

Adults aged **65 years of age and older** accounted for **71%** of reported **deaths** associated with influenza.

Cumulative rates of influenza-associated hospitalizations by age-group and surveillance week, Canada, participating provinces and territories, week 2023-35 to 2024-34



FluWatch report: July 21 to August 24, 2024 (week 30-34)

Annual seasonal influenza vaccines are developed in response to changes of the influenza virus

- Frequently occurring **antigenic drift** requires seasonal influenza vaccines to be produced **annually,** usually with at least one strain change.
- Based on global surveillance, the **World Health Organization** establishes which virus components to include in the vaccine for the northern and southern hemispheres.
- Influenza vaccines are therefore based on best predictions for the upcoming influenza season and **effectiveness** can vary year to year.
- Several influenza strains can be included in a vaccine.
  - Trivalent vaccine = includes 3 strains
  - Quadrivalent vaccine = includes 4 strains
- A circulating influenza strain within a population can sometimes change during the influenza season.
  - If this happens, the influenza vaccine may not work as well as expected.

World Health Organization (WHO) recommendations for influenza vaccine composition for 2024-2025

- **Trivalent** influenza vaccines for use in the 2024-2025 northern hemisphere influenza season contain the following:

Egg-based vaccines

- an A/Victoria/4897/2022 (H1N1)pdm09-like virus
- an A/Thailand/8/2022 (H3N2)-like virus
- a B/Austria/1359417/2021 (B/Victoria lineage)-like virus

Cell culture or recombinant-based vaccines

- an A/Wisconsin/67/2022 (H1N1)pdm09-like virus
- an A/Massachusetts/18/2022 (H3N2)-like virus
- a B/Austria/1359417/2021 (B/Victoria lineage)-like virus

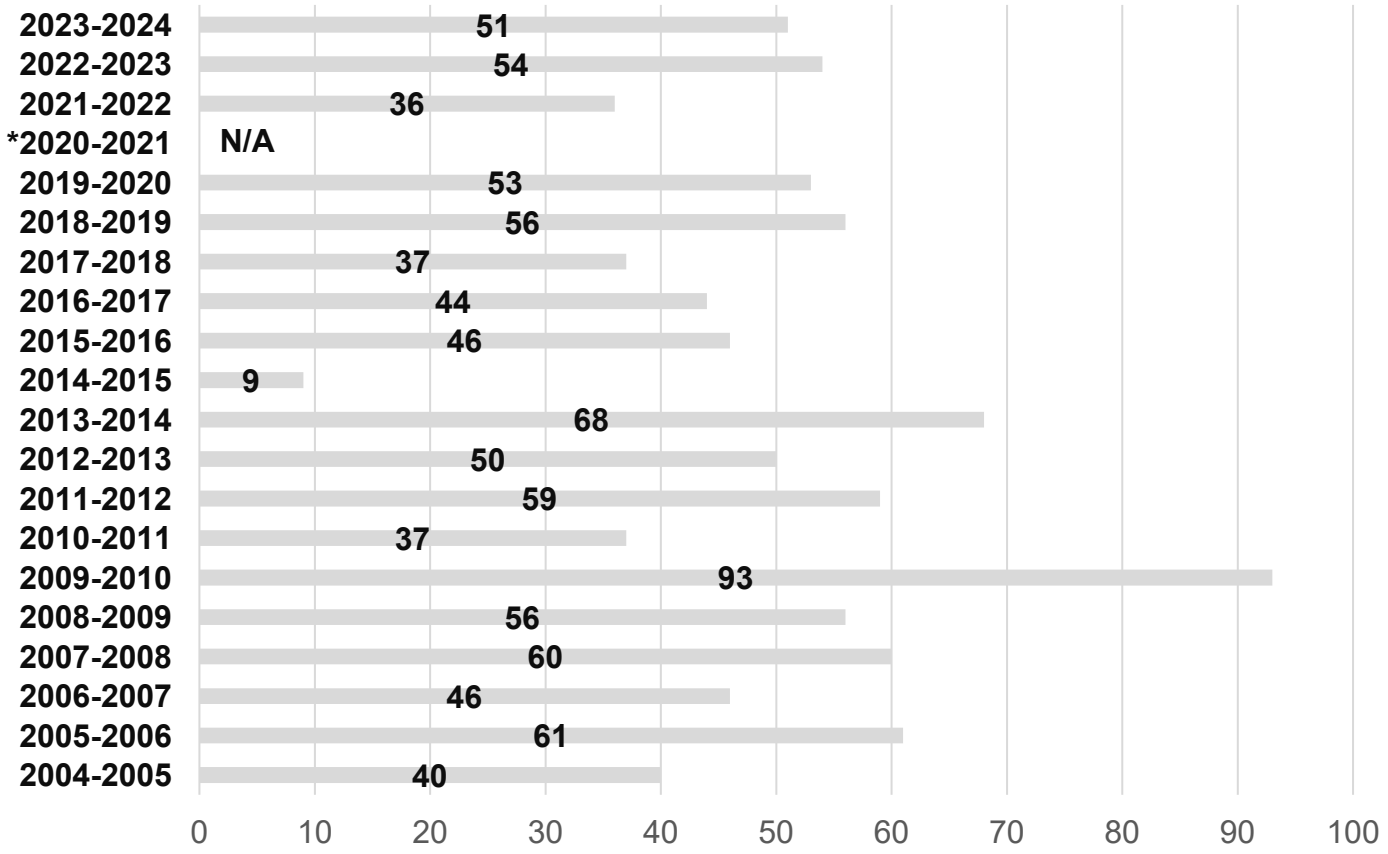
- It remains the opinion of the WHO influenza vaccine composition advisory committee that the B/Yamagata lineage antigen should be excluded from influenza vaccines due to the global absence of circulating B/Yamagata viruses since March 2020.
  - WHO has advised that national/regional authorities should make decisions regarding the transition to trivalent influenza vaccines in their jurisdictions.
- Where **quadrivalent vaccines** are **still in use**, the B/Yamagata lineage component remains **unchanged**: B/Phuket/3073/2013 (B/Yamagata lineage)-like virus.

WHO recommended composition of influenza virus vaccines for use in the 2024-2025 northern hemisphere influenza season

Vaccinated individuals are more likely to be protected

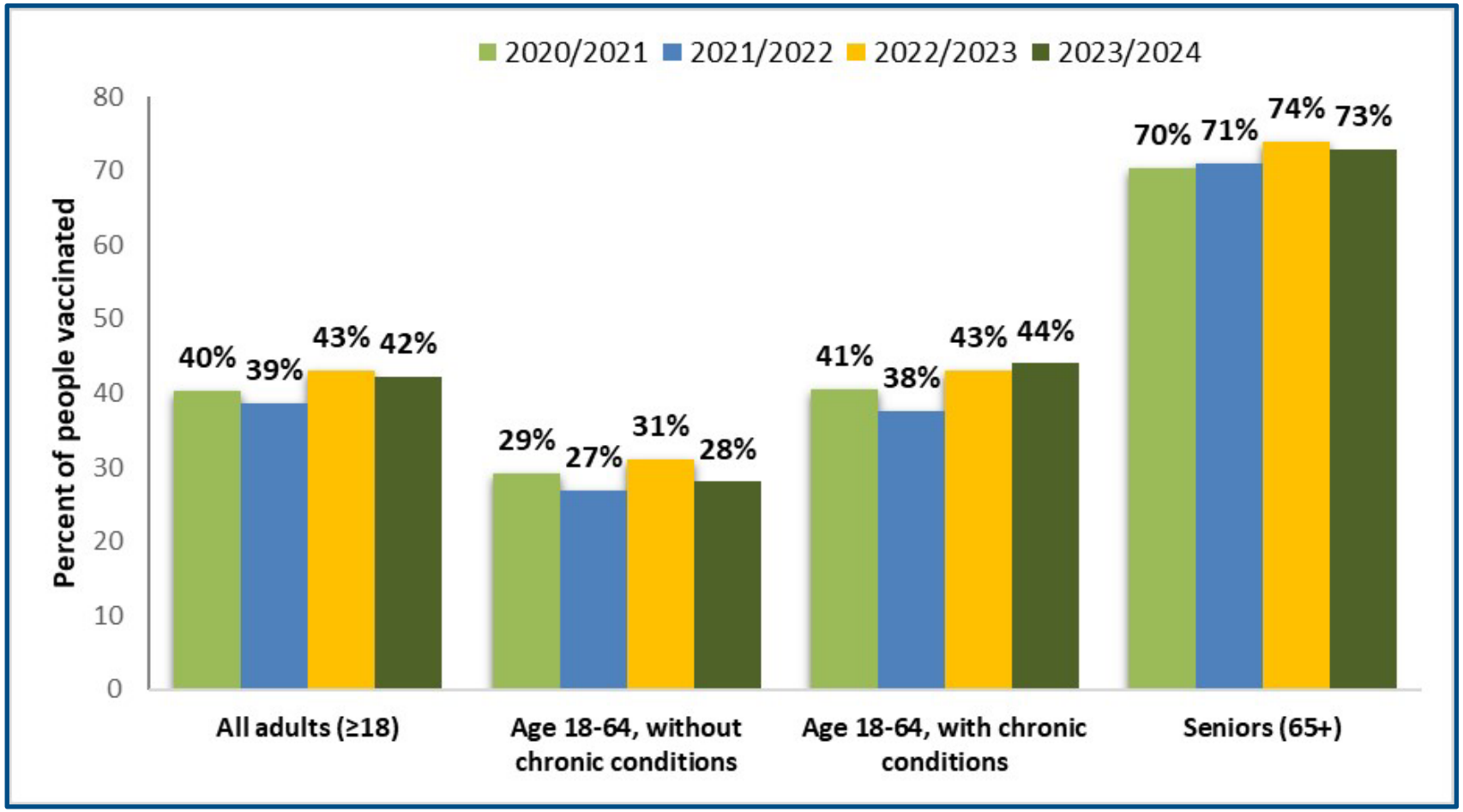
- Influenza vaccine effectiveness depends on how well the vaccine strains match with circulating influenza viruses, the type and subtype of the circulating virus, as well as the health and age of the individual receiving the vaccine.
- People who have received the influenza vaccine and still contract influenza are less likely to suffer serious influenza-related complications or require hospitalization.
- Vaccine-induced immunity to influenza wanes over time.

Canadian Sentinel Practitioner Surveillance Network (SPSN) influenza vaccine effectiveness estimates % (95%CI) 2004-05 to 2023-24 seasons (any influenza type/subtype)



*2020-2021: Due to absence of influenza circulation in BC during the COVID-19 pandemic, vaccine effectiveness evaluation could not be performed.

Canada's Seasonal Influenza Vaccination Coverage Survey results 2023-2024



This survey is conducted every year to collect information on influenza vaccine uptake in Canada.

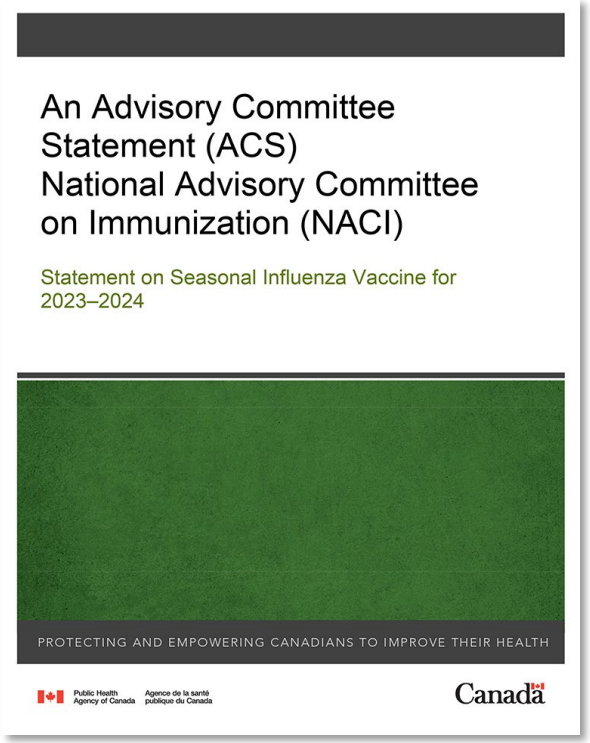
Canada's goal is to have **80% of those who are at higher risk of complications from influenza vaccinated**.

We continuously strive to reach that target.

[Highlights from the 2023-2024 Seasonal Influenza (Flu) Vaccination Coverage Survey]

NACI yearly influenza statement

- Every year, NACI issues a statement on seasonal influenza vaccine. It informs health care providers on optimal use of the vaccines available for influenza in Canada based on the most up to date information available.
  - To find the 2024-2025 statement, see the NACI: Statement on seasonal influenza vaccine for 2024–2025.
  - A summary of the NACI statement is also available
  - The Canadian Immunization Guide chapter on Influenza vaccine summarizes key clinical information on seasonal influenza vaccine administration for vaccine providers.



NACI's recommended groups for whom seasonal influenza vaccination is particularly important

People at high risk of influenza-related complications or hospitalization

- All children 6 to 59 months of age
- Adults and children with chronic health conditions
- All pregnant women and pregnant individuals
- People of any age who are residents of nursing homes and other chronic care facilities
- Adults 65 years of age and older
- Individuals in or from First Nations, Inuit and Métis communities

People capable of transmitting influenza to those at high risk

- Health care workers and other care providers in facilities and community settings who, through their activities, are capable of transmitting influenza to those at high risk
- Household contacts, both adults and children, of individuals at high risk, whether or not the individual at high risk has been vaccinated
- Members of a household expecting a newborn during the influenza season
- Those providing regular child care to children 0 to 59 months of age, whether in or out of the home
- Those who provide services within closed or relatively closed settings to people at high risk

Others at higher risk of exposure

- People who provide essential community services
- People who are in direct contact with poultry infected with avian influenza during culling operations

NACI: Statement on seasonal influenza vaccine for 2024–2025

New or updated information for the 2024-2025 influenza season

Addendum to the NACI Statement on Seasonal Influenza Vaccine for 2024-2025: Transition from Quadrivalent to Trivalent Influenza Vaccines

- **NACI recommends that any age-appropriate quadrivalent or trivalent influenza vaccine should be used for individuals 6 months of age and older who do not have contraindications or precautions.**
  - Both quadrivalent and trivalent formulations are clinically safe and effective.
  - B/Yamagata lineage viruses have not been detected globally since March 2020.
  - Following this change in epidemiology, expert groups have endorsed the exclusion of the B/Yamagata component from influenza vaccine formulations, in alignment with WHO's recommendations for the 2024-2025 Northern Hemisphere season.
- Quadrivalent vaccines were previously preferred for children due to the additional protection conferred by the presence of components from both influenza B lineages. **NACI no longer has a preference between quadrivalent and trivalent influenza vaccine formulations for children.**
- For the 2024-2025 influenza season in Canada, vaccine availability is anticipated to remain unchanged.
  - No trivalent formulations will be available for standard dose or high dose inactivated influenza vaccines (IIV-SD, IIV-HD) or LAIV, while adjuvanted inactivated influenza vaccines (IIV-Adj) will remain trivalent and continue to be available.
  - Addendum to the statement on seasonal influenza vaccine for 2024-2025: Transition from quadrivalent to trivalent influenza vaccines

Updated recommendations on the use of influenza vaccines in older adults

- NACI strongly recommends that high-dose inactivated influenza vaccine (IIV-HD), adjuvanted inactivated influenza vaccine (IIV-Adj) or recombinant influenza vaccine (RIV) should be offered, when available, over other influenza vaccines for adults 65 years of age and older.
- If a preferred product is not available, any of the available age-appropriate influenza vaccine should be used.

Supplemental guidance on influenza vaccination in adults 65 years of age and older

NACI: Statement on seasonal influenza vaccine for 2024–2025

New or updated information for the 2024-2025 influenza season (cont'd)

Notice on Influenza A(H5N1)
• Multiple outbreaks of highly pathogenic avian influenza (HPAI) A(H5N1) have occurred in poultry and wild birds in Canada and the United States (US), with spillover events in dairy cattle in the US. This virus has also spread to numerous other mammals. • In the US as of Sept 11, 2024, 14 humans have acquired mild influenza A(H5Nx) infections from cows and poultry to date in 2024. • NACI reiterates its recommendation that all individuals 6 months of age and older should receive an authorized, age-appropriate seasonal influenza vaccine. This includes those likely to have significant exposure to influenza A(H5N1) through interactions with birds or mammals (such as poultry, livestock, slaughterhouse and processing plant workers, wildlife officers/researchers, and veterinarians). • NACI will be conducting an evidence review to determine if there is a need to permanently expand its list of individuals for whom influenza vaccination is particularly important (List 1) beyond the current group to others at high risk of exposure to circulating A(H5N1)viruses.

H5 Bird Flu: Current Situation | Bird Flu | CDC
Avian influenza A(H5N1): For health professionals
NACI: Statement on seasonal influenza vaccine for 2024–2025
Guidance on human health issues related to avian influenza in Canada

Seasonal influenza vaccine schedule

Population	1 dose	2 doses (4-week interval)
Adults and children 9 years of age and older	X	
Children 6 months to less than 9 years of age who have been vaccinated with 1 or more doses in any previous influenza season	X	
Children 6 months to less than 9 years of age who have never received the influenza vaccine in a previous influenza season		X

Influenza vaccines: Canadian Immunization Guide

Antivirals to treat influenza

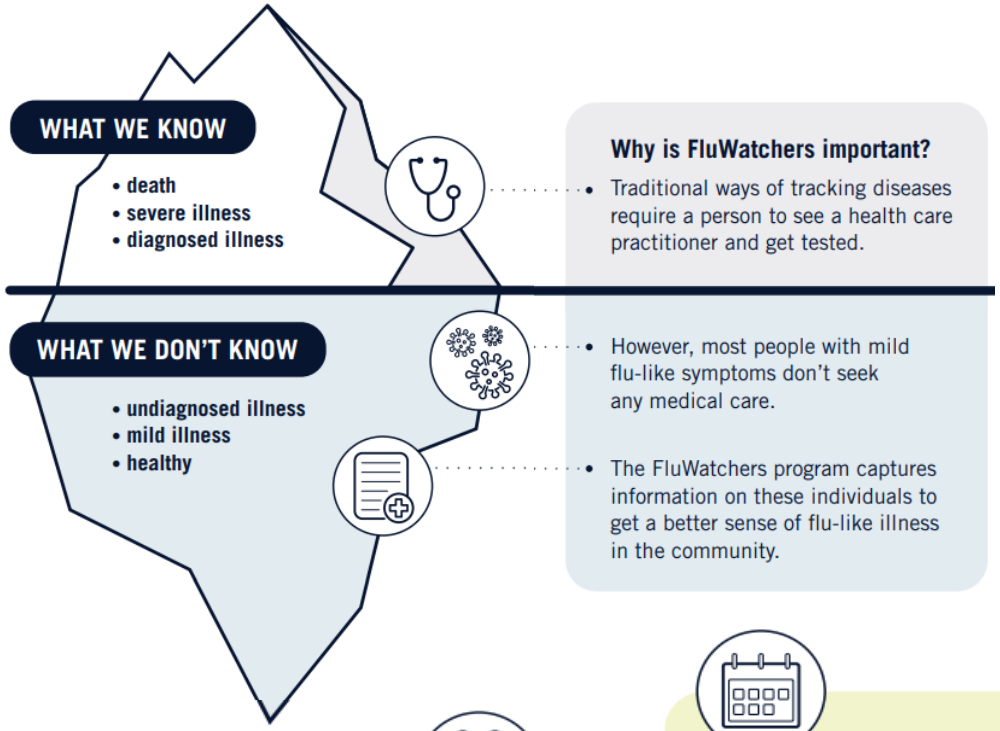
- In the event someone does get influenza, antivirals can be taken to decrease the duration of symptoms and reduce the risk of influenza complications.
- Most people with influenza will become only mildly ill and do not need medical care or antiviral medication.
- Antivirals are recommended for those with influenza who have
  - Risk factors for complications of influenza (regardless of disease severity), OR
  - Serious disease (i.e., severe, complicated or progressive illness, or hospitalized)
- Antivirals should be initiated as soon as possible after symptom onset for greatest benefit, within 48 hours. Certain populations may warrant initiation of antivirals even after 48 hours from symptom onset has passed.
  - ➢ Individuals who are suspected of having influenza do not need laboratory confirmation to initiate antivirals.

For more information:

- AMMI Canada 2023 update on influenza: Management and emerging issues
- 2021–2022 AMMI Canada guidance on the use of antiviral drugs for influenza in the COVID-19 pandemic setting in Canada
- Aoki & al. (2019). Use of antiviral drugs for seasonal influenza: Foundation document for practitioners – Update 2019

What is FluWatchers?

FluWatchers is an online health-monitoring platform that helps track the spread of flu and flu-like illness (like COVID-19) across Canada.



Why is FluWatchers important?

- Traditional ways of tracking diseases require a person to see a health care practitioner and get tested.
- However, most people with mild flu-like symptoms don't seek any medical care.
- The FluWatchers program captures information on these individuals to get a better sense of flu-like illness in the community.

Who can participate?

Anyone who lives in Canada can participate, and participants can also report on behalf of household members

What do FluWatchers do?

Volunteers answer a **quick** and **anonymous** questionnaire each week on whether they've had a cough or fever or were healthy.

Google "FluWatchers" for more info and to sign up!

SARI Surveillance

- Health care practitioners should report severe acute respiratory infections (SARI) to their local public health unit by following the SARI protocol
- SARI alerts should trigger clinicians to "Think, Tell and Test"
- Case report form is readily available online
- Consider animal and travel exposure histories for those exhibiting influenza like illness

Protocol for Microbiological Investigations of Severe Acute Respiratory Infections (SARI)

Key takeaways: Influenza

1. No naturally occurring influenza B/Yamagata lineage viruses have been detected internationally since March 2020.
2. NACI no longer has a preference between quadrivalent and trivalent influenza vaccine formulations.
3. NACI strongly recommends that IIV-HD, IIV-Adj or RIV* should be preferentially offered for adults 65 years of age and older.
4. Influenza infection can worsen certain chronic health conditions, including cardiovascular risk.
5. NACI reiterates its recommendation that all individuals 6 months of age and older should receive a seasonal influenza vaccine each fall.
    - This includes those likely to have significant exposure to influenza A(H5N1) through interactions with birds or mammals (such as poultry, livestock, slaughterhouse and processing plant workers, wildlife officers/researchers, and veterinarians).

*IIV-HD: high-dose inactivated influenza vaccine; IIV-Adj: adjuvanted inactivated influenza vaccine; RIV: recombinant influenza vaccine

Interactive poll #3 seasonal influenza: True or false

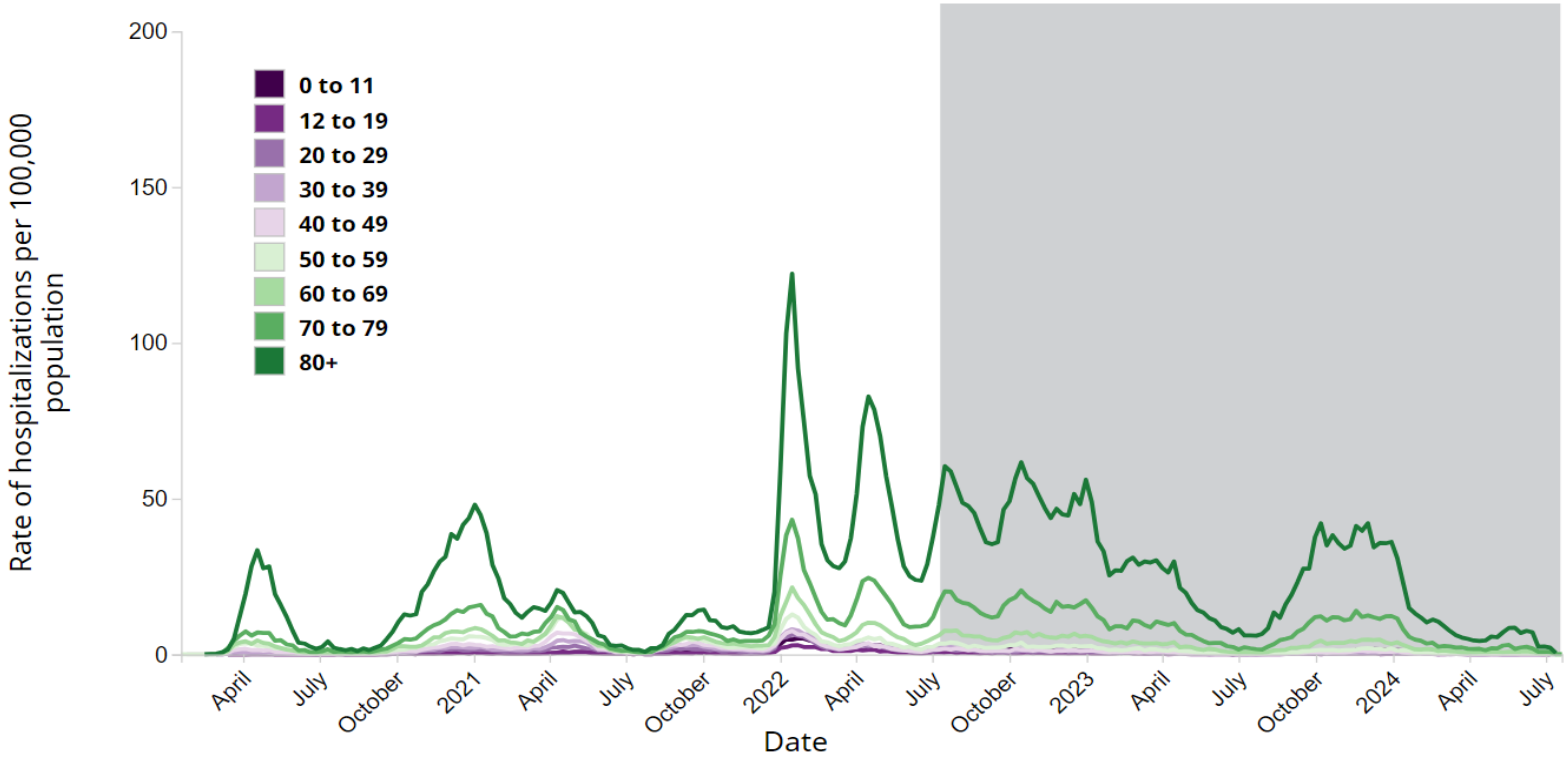
True or false:

NACI no longer preferentially recommends quadrivalent vaccines over trivalent vaccine formulations for children.

COVID-19

Rate of hospitalizations of COVID-19 cases (as of July 20, 2024)

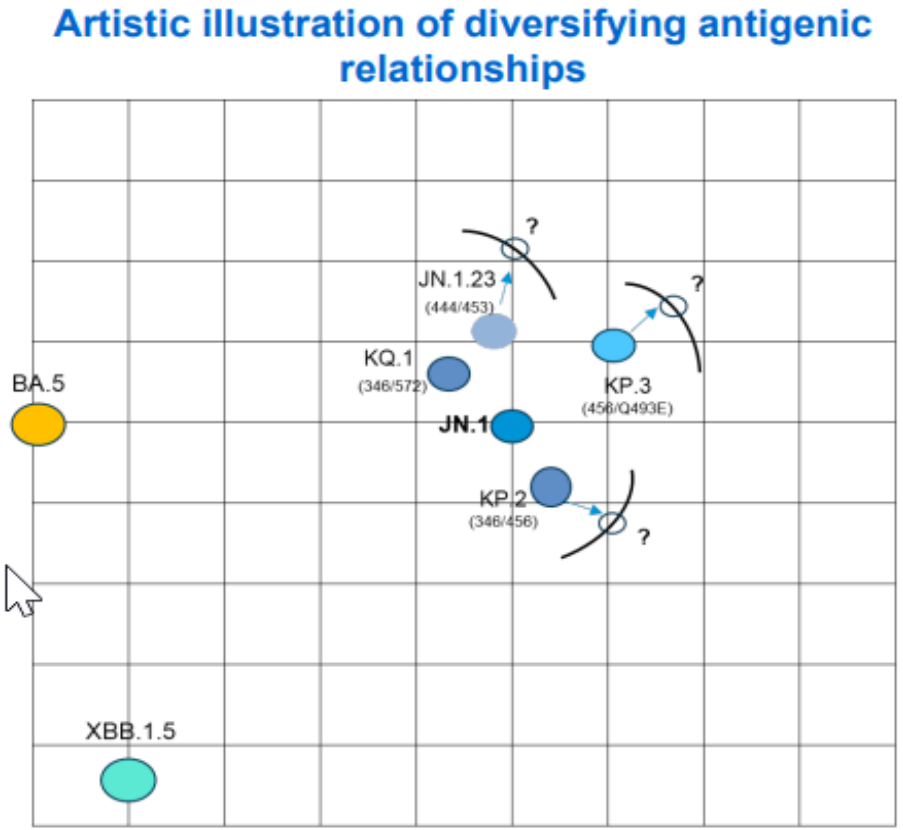
Weekly rate of COVID-19 cases hospitalized per 100,000 population by age group in Canada as of July 20, 2024



- As of the week ending September 14, 2024, SARS-CoV-2 percent positivity in Canada was 18.6%.
- Hospitalization rates remain relatively low. Peak hospitalization was January 15, 2022.
- Hospitalization and ICU admissions remain highest among the oldest age groups.
- Seasonality has not been established, however increased activity does overlap with circulation of other respiratory viruses in the fall and winter.

COVID-19 epidemiology update: Current situation

Strain evolution and strain selection for 2024-2025 COVID-19 vaccine



Drawn to show that emerging variants may be antigenically diverging from each other. Each square represents 2-fold antigenic distance.

- XBB strains were replaced by JN.1 strains since the end of 2023 and into 2024
  - XBB strains and JN.1 strains quite antigenically different, so XBB.1.5 vaccine works less well against JN.1 strains
  - JN.1 strains continue to evolve into related sub-lineages such as KP.2 and KP.3, including currently circulating KP.3.1.1
- On June 13, 2024, the US Food and Drug Administration (FDA) specially recommended the **KP.2 sublineage of JN.1, if feasible.**
  - Moderna and Pfizer-BioNTech to target **KP.2 sublineage**
  - Novavax to target **JN.1 sublineage**
- Due to antigenic similarity, response is likely to be similar to whichever JN.1 sublineage strain is used

Dr. David Wentworth. Vaccine and Related Biologics Products Advisory Committee (VRBPAC) meeting, June 5, 2024

Reasons to receive updated COVID-19 vaccines as recommended

- Vaccine protection decreases over time
  - more decline against infection but also decline in protection against severe disease
  - more recent vaccination increases protection (including in those previously infected)

- Strain evolution
  - updated strain in the vaccine is more closely related to circulating strains
  - updated vaccines generally resulting in a better immune response against circulating strains than the previous vaccine

COVID-19 vaccines: Canadian Immunization Guide
Guidance on the use of COVID-19 vaccines during the fall of 2024

Fall 2024 NACI guidelines on COVID-19 vaccination

Individuals who are at increased risk of SARS-CoV-2 infection or severe illness from COVID-19 (both previously vaccinated and unvaccinated) should receive a recently updated vaccine in the fall of 2024:	
All adults 65 years of age and older	
Those 6 months and older who are:	Residents of long-term care homes and other congregate living settings
	Individuals with underlying medical conditions that place them at higher risk of severe COVID-19, including those who are moderately to severely immunocompromised and children with complex health needs
	Pregnant women and people who are pregnant
	Individuals in or from First Nations, Métis and Inuit communities
	Members of racialized and other equity-deserving communities
	People who provide essential community services

All other previously vaccinated and unvaccinated individuals (6 months of age and older) who are not at increased risk for SARS-CoV-2 infection or severe COVID-19 disease (i.e., not on the list above) **may receive** the most recently updated vaccine in the fall of 2024.

Guidance on the use of COVID-19 vaccines during the fall of 2024

COVID-19 Immunization vaccine options for fall 2024 (as of Sept 16, 2024)

Product	Vaccine type	Age group
Moderna Spikevax KP.2	mRNA, monovalent	6 months of age and older
Pfizer-BioNTech Comirnaty KP.2*	mRNA, monovalent	12 years of age and older (product for younger ages not being purchased)
Novavax Nuvaxovid JN.1**	Protein sub-unit, monovalent	12 years of age and older

* In Canada beginning in fall 2024 and for the upcoming year, Pfizer-BioNTech will not be available for children less than 12 years of age.
** Novavax will not be purchased federally.

Guidance on the use of COVID-19 vaccines during the fall of 2024

Schedule for previously vaccinated people (as of Sept 9, 2024)

Age group	Number of doses	Dose and product	Minimum interval from last dose
6 months to less than 5 year	1	25 mcg Moderna Spikevax	3 months
5 to 11 years	1	25 mcg Moderna Spikevax	3 months
12 years and over	1	50 mcg Moderna Spikevax 30 mcg Pfizer-BioNTech Comirnaty 5 mcg Novavax Nuvaxovid	3 months

Guidance on the use of COVID-19 vaccines during the fall of 2024

Schedule for unvaccinated people (as of Sept 9, 2024)

Age group	Number of doses	Dosage and product	Recommended Interval
Not immunocompromised			
6 months to less than 5 year	2	25 mcg Moderna Spikevax	8 weeks apart
5 to 11 years	1	25 mcg Moderna Spikevax	NA
12 years and over	1	50 mcg Moderna Spikevax 30 mcg Pfizer-BioNTech Comirnaty 5 mcg Novavax Nuvaxovid[a]	NA
Moderately to severely immunocompromised			
6 months to less than 5 year	3	25 mcg Moderna Spikevax	4-8 weeks
5 to 11 years	2, a third dose may be given[b]	25 mcg Moderna Spikevax	4-8 weeks
12 years and over	2, a third dose may be given[b]	50 mcg Moderna Spikevax 30 mcg Pfizer-BioNTech Comirnaty 5 mcg Novavax Nuvaxovid	4-8 weeks

a. For Novavax Nuvaxovid, 2 doses of vaccine may be authorized as the primary series for those 12 years of age and over, however, for those in this age group who are not immunocompromised, 1 dose may be used in the primary series.

b. New recipients of hematopoietic stem cell transplantation (HSCT) and chimeric antigen receptor (CAR) T cell therapy should be vaccinated with 3 doses, regardless of previous vaccination history, with 4 to 8 weeks between doses.

Guidance on the use of COVID-19 vaccines during the fall of 2024

COVID-19 vaccines help to prevent post-COVID-19 condition (PCC)

The World Health Organization defines post COVID-19 condition as:

- Usually occurring **within 3 months** from the onset of COVID-19 with symptoms that last for at least 2 months and cannot be explained by an alternative diagnosis
- Common symptoms include fatigue, shortness of breath, cognitive dysfunction among others, and generally have an **impact on everyday functioning**[1]

Estimated prevalence of PCC varies:

- Approximately 15% of adults with confirmed or suspected SARS-CoV-2 infection developed PCC in one Canadian study from October 2022[1]
- Incidence of PCC may be lower now

To the extent that **vaccination prevents infection, it also prevents PCC.**

People who are vaccinated and become infected may have additional protection against PCC compared to those who are not vaccinated

- Evidence in this area continues to accumulate

[1] COVID-19 for health professionals: Post COVID-19 condition (long COVID); Canadian Guidelines for Post COVID-19 Condition

Nirmatrelvir-ritonavir (Paxlovid)

- Paxlovid helps prevent hospitalization and death in those at high risk for severe COVID-19 disease.

- People who are moderately to severely immunocompromised are at the highest risk for progressing to severe COVID-19.
  - The clinical evidence to support this is best summarized in the Canada's Drug Agency reimbursement review.

- The role of Paxlovid in post-COVID condition is uncertain and research is ongoing.

- Provincial and territorial recommendations regarding the use of Paxlovid should be consulted.

Paxlovid COVID-19 Treatment - University of Saskatchewan

Other schedule-related issues

Time to consider waiting for vaccination if person has test-confirmed SARS-CoV-2 infection:

- **Not previously vaccinated:** 8 weeks if not immunocompromised; 4-8 weeks if moderately to severely immunocompromised
- **Previously vaccinated:** 3 to 6 months

Interchangeability:

- Any age-authorized COVID-19 vaccine can be used to complete a primary series started with another vaccine or for subsequent doses

Guidance on the use of COVID-19 vaccines during the fall of 2024

Concurrent vaccine administrations for RSV, influenza and COVID-19

Vaccines		Before other vaccines (including live, non-live vaccines)	Concurrent (i.e., same day) with other vaccines (including live, non-live vaccines)	After other vaccines (including live, non-live vaccines)
RSV*	RSVpreF3/Arexvy (adults 60 years of age and older)	✓	✓**	✓
	RSVpreF/Abrysvo (pregnant women and pregnant people who are 32-36 weeks gestation and adults 60 years of age and older)	✓	✓**	✓
Influenza Includes both live and non-live vaccines (for those 6 months of age and older)		✓	✓	✓
COVID-19 (for those 6 months of age and older)		✓	✓	✓

*For information on RSV monoclonal antibodies, please see the section on "Concurrent administration with other vaccines" in: Respiratory syncytial virus (RSV): Canadian Immunization Guide
**If possible, RSV vaccine should be given at least 6 weeks before or after non-seasonal vaccines, for example, shingles or diphtheria-tetanus vaccines, to avoid inadvertently attributing an adverse event from another vaccine to the RSV vaccine.

If more than one vaccine is due at the same visit, concurrent administration ensures vaccines are not missed or delayed and avoids additional visits.

NACI: Statements and publications
Vaccine administration practices: Canadian Immunization Guide

Key takeaways – COVID-19

1. SARS-CoV-2 continues to circulate in Canada and globally, with no seasonality yet established

2. SARS-CoV-2 virus continues to evolve with JN.1 sublineages predominating

3. NACI recommends the use of the most recently updated COVID-19 vaccine to address waning immunity and strain evolution

4. The KP.2 strain (a sublineage of JN.1) is being used for mRNA vaccines and the JN.1 strain is being used in the protein subunit vaccine

5. Vaccination is recommended for previously vaccinated and unvaccinated individuals at increased risk of SARS-CoV-2 infection or severe COVID-19 disease. All other previously vaccinated and unvaccinated individuals (6 months of age and older) who are not at increased risk may receive the most recently updated vaccine in the fall of 2024

For more information:

- NACI statement updates
- Canadian Immunization Guide: COVID-19 vaccines
- Canadian Guidelines for Post COVID-19 Condition

Interactive poll #4 COVID-19: Which of the following are true?

Receiving an updated COVID-19 vaccines in fall 2024 is expected to help:

a) Increase protection from previous vaccination or infections that have waned over time

b) Induce a better immune response to currently circulating strains that are more closely related to the updated vaccine

c) Prevent serious illness that can result in hospitalizations and deaths

d) Reduce the strain on our health care system

e) All of the above

Webinar evaluation

Please complete our short webinar **evaluation survey** – your feedback is important to us.

Link to the webinar recording and slides will be available at **nccid.ca**

Use your phone's camera to scan the QR code to access the evaluation survey

National Collaborating Centre for Infectious Diseases

Centre de collaboration nationale des maladies infectieuses

Webinar Q&A

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National Collaborating Centre for Infectious Diseases

Centre de collaboration nationale des maladies infectieuses

Supplemental slides

Acknowledgements – National Advisory Committee on Immunization (NACI):

NACI members: R Harrison (Chair), V Dubey (Vice-Chair), M Andrew, J Bettinger, N Brousseau, A Buchan, H Decaluwe, P De Wals, E Dubé, K Hildebrand, K Klein, M O'Driscoll, J Papenburg, A Pham-Huy, B Sander, and S Wilson.

Liaison representatives: L Bill/ M Nowgesic (Canadian Indigenous Nurses Association), S Buchan (Canadian Association for Immunization Research, Evaluation and Education) E Castillo (Society of Obstetricians and Gynaecologists of Canada), J Comeau (Association of Medical Microbiology and Infectious Disease Control), M Lavoie (Council of Chief Medical Officers of Health), J MacNeil (Center for Disease control and Prevention), M McIntyre (Canadian Nurses Association), D Moore (Canadian Paediatric Society), M Osmack (Indigenous Physicians Association of Canada), J Potter (College of Family Physicians of Canada), A Pucci (Canadian Public Health Association), D Singh (Canadian Immunization Committee), and A Ung (Canadian Pharmacists Association).

Ex-officio representatives: E Ebert (National Defence and the Canadian Armed Forces), P Fandja (Marketed Health Products Directorate, Health Canada), E Henry (Centre for Immunization Surveillance and Programs (CISP), PHAC), M Lacroix (Public Health Ethics Consultative Group, PHAC), M Maher (Centre for Immunization Surveillance (CIS), PHAC), J Kosche (Centre for Vaccines and Therapeutics Readiness (CVTR), PHAC), C Pham (Biologic and Radiopharmaceutical Drugs Directorate, Health Canada), M Routledge (National Microbiology Laboratory, PHAC), M Su (COVID-19 Epidemiology and Surveillance, PHAC), and T Wong (First Nations and Inuit Health Branch, Indigenous Services Canada).

Acknowledgements – NACI RSV working group:

- **NACI Members**: N Brousseau (Chair), M Andrew and J Papenburg
- **NACI Liaison Representatives**: S Buchan (CAIRE), E Castillo (SOGC), and D Moore (CPS)
- **External experts:** T Bogler, S McNeil, E Rafferty, and J Robinson
- **Liaison Representatives:** A Britton (CDC/ACIP), K Fleming-Dutra (CDC/ACIP), J Jones (CDC/ACIP), and M Melgar (CDC/ACIP)
- **Ex-officio representatives:** Ming Yu Cao (HC/BRDD) and Fabian Schwarz (HC/BRDD)
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- **Ex-officio representatives:** K Daly (ISC), G Coleman (HC/BRDD) and M Willcott (HC/BRDD)
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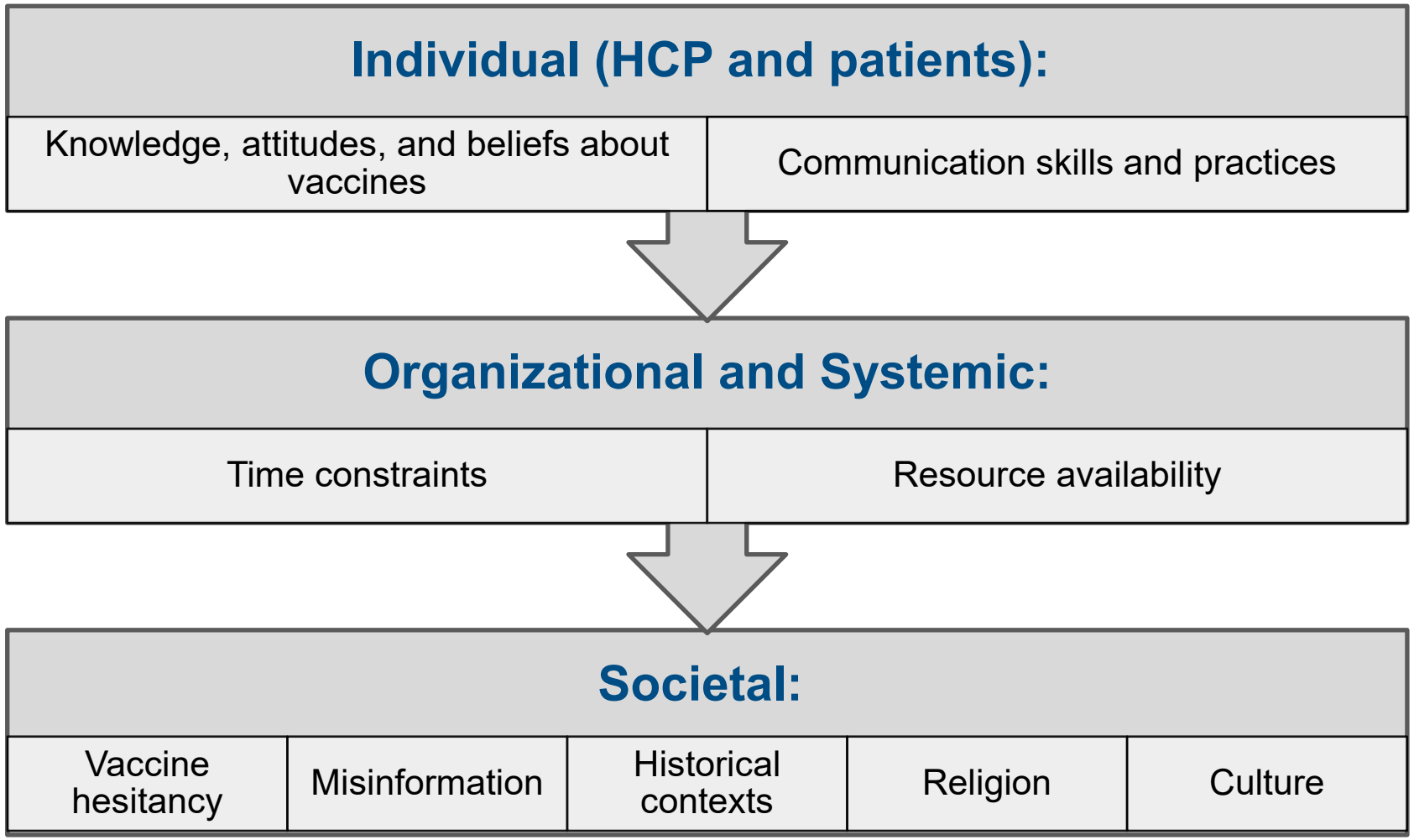
Health care provider role in vaccine uptake: Enabling access, building confidence, and identifying and addressing barriers

Factors that influence patient – health care provider (HCP) communication



Strategies and tips for effective conversations with patients

1. **Recommend the vaccine:**
   - Check patients' vaccination status regularly
   - Proactively initiate the conversation about needed vaccines and provide clear recommendations
   - Use an approach that presumes vaccine acceptance
2. **Your patients might want to know about:**
   - Risk and severity of the disease, effectiveness of the vaccine, importance of vaccination depending on their risk factors
   - The type of vaccine being used, vaccine safety and side effects, including safety of concurrent administration with other vaccines if that is being recommended
3. **Cultivate a safe space**
   - Seek to understand the patient's values, concerns, understanding of vaccines and past experiences with vaccination
   - Provide enough time to receive and address questions
   - Consider the patient's preferred approaches to receiving information, including language and literacy (including health and digital literacy) as well as culturally sensitive approaches

General resources

Personal protective measures

In addition to immunization, personal protective measures help reduce the risk of getting or spreading a respiratory infectious disease. More information can be found at the following links:

Respiratory infectious diseases: How to reduce the spread with personal protective measures

Clean your hands to help reduce the spread of infectious diseases

Help reduce the spread of respiratory infectious diseases

Respiratory infectious diseases: Break the chain of infection

The masking webpage is being updated to apply to respiratory infectious diseases broadly and will be published in the coming weeks:

COVID-19 mask use: Advice for community settings

Vaccine Injury Support Program (VISP)

- All vaccines used in Canada are regulated by Health Canada and must meet rigorous standards for safety, efficacy and quality before their use is authorized. Unfortunately, rare, serious adverse events can occur.

- The **Vaccine Injury Support Program (VISP)** ensures that all people in Canada who have experienced a serious and permanent injury as a result of receiving a Health Canada authorized vaccine, administered in Canada, on or after December 8, 2020, have fair and timely access to financial support.

- What is a **serious and permanent injury**?
  - A severe, life-threatening or life-altering injury that may require in-person hospitalization, or a prolongation of existing hospitalization; **and**
  - results in persistent or significant disability or incapacity, or where the outcome is a congenital malformation or death

Pan-Canadian program (VISP) (outside Quebec): https://vaccineinjurysupport.ca/en
Quebec's program (VICP): https://www.quebec.ca/en/health/advice-and-prevention/vaccination/vaccine-injury-compensation-program

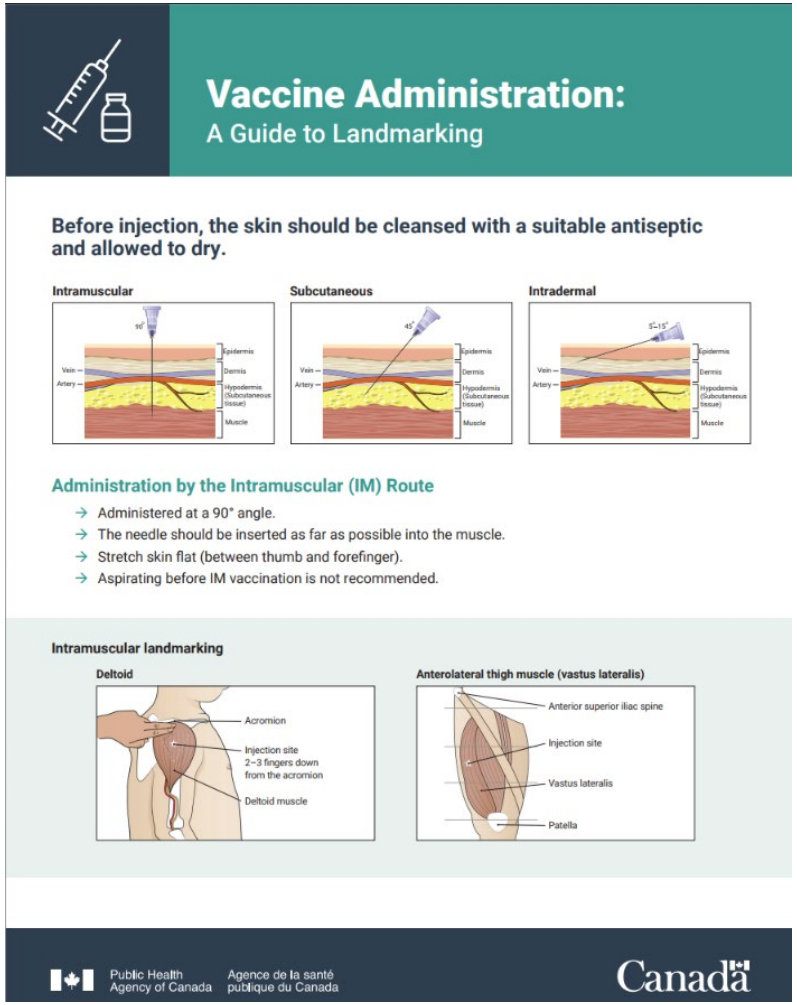
Immunization resources

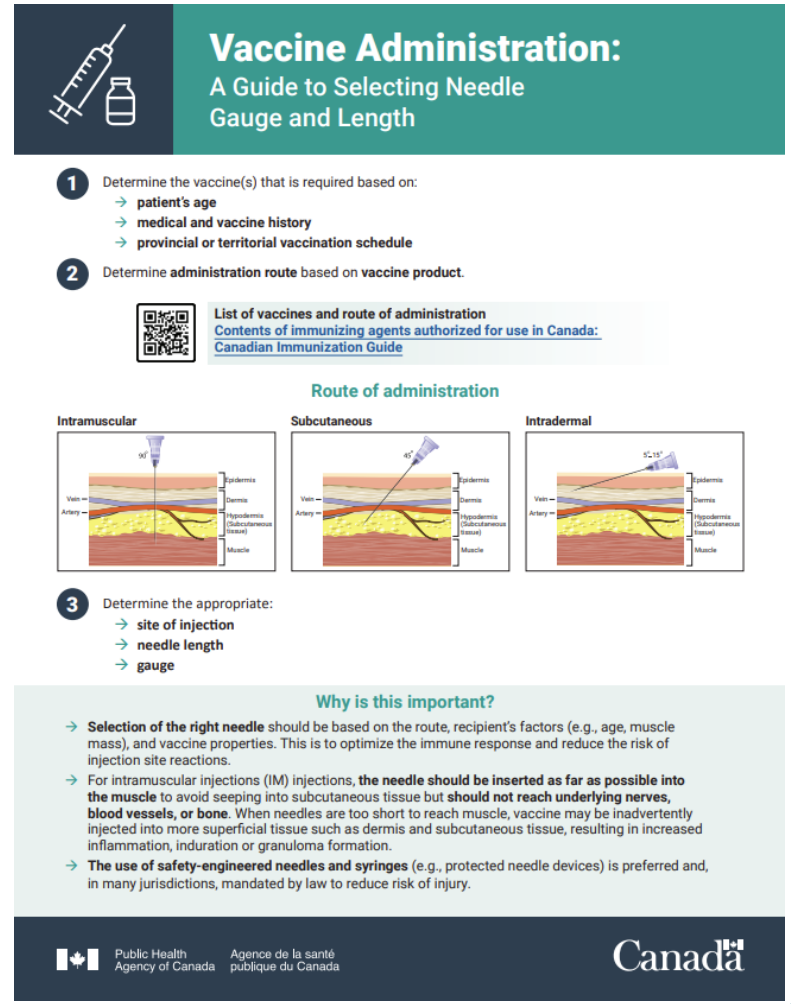
Clinical resources for immunizers:

- Vaccine administration: landmarking and needle selection tools
  - Coming soon to canada.ca

Additional resources can be found:

- [Immunization resources for health professionals: Printable awareness products]





PHAC vaccination guides and social media

Recently updated guides are available to download in **English** and **French**:

[A Parent's Guide to Vaccination]

[An Adult's Guide to Vaccination]

[A Teen's Guide to Vaccination]

PHAC and HC social media accounts:

- Healthy Canadians on Facebook
- Public Health Agency of Canada on LinkedIn
- @GovCanHealth and @CPHO_Canada on Twitter
- @HealthyCdns on Instagram
- Healthy Canadians on YouTube

Immunize Canada resources

Free resources for frontline providers, available for download at: https://immunize.ca/

RSV: https://immunize.ca/respiratory-syncytial-virus-rsv
Influenza: https://immunize.ca/influenza-campaign
COVID-19: https://immunize.ca/covid-19

Immunize Canada is a national coalition of non-governmental, professional, health, government and private sector organizations with a specific interest in promoting the understanding and use of vaccines recommended by the National Advisory Committee on Immunization (NACI).

RSV supplemental slides

RSV monoclonal antibodies (passive immunization)

	palivizumab/Synagis (AstraZeneca)*	nirsevimab/Beyfortus (Sanofi)*
Demographics	Infants less than 24 months of age	Neonates and infants during their **first** RSV season
		Children up to 24 months of age who remain vulnerable to severe RSV disease through their **second** RSV season
Dosing	15 mg/kg Maximum 5 doses given about every 28 days for usually 4 months	1st RSV season • 50 mg if <5 kg • 100 mg if ≥5 kg
		2nd RSV season • 200 mg as 2 injections (2 x 100 mg)
Route	Intramuscular injection	Intramuscular injection
Reconstitution	Not required	Not required
Concurrent administration	May be concurrently administered with any other live or inactivated vaccines	May be concurrently administered with any other live or inactivated vaccines

*Information is based on product monographs and NACI statement

RSV vaccines (active immunization)

	RSVpreF3/Arexvy (GlaxoSmithKline Inc.)* Respiratory Syncytial Virus Vaccine Recombinant, AS01E Adjuvanted	RSVpreF/Abrysvo (Pfizer)* Respiratory Syncytial Virus Stabilized Prefusion F Subunit Vaccine
Demographics	Adults 60 years of age and older	Adults 60 years of age and older
		In pregnancy, from 32 to 36 weeks' gestation (to protect their infants from birth through 6 months of age)**
Dosing	Single dose 0.5 mL	Single dose 0.5 mL
Route	Intramuscular injection	Intramuscular injection
Reconstitution	Reconstitution required using adjuvant suspension	Reconstitution required using provided dilutant
Adjuvant	Yes	No
Concurrent administration	May be concurrently administered with any other live or inactivated vaccines. Preferrable to wait 6 weeks before or after non-seasonal vaccines to avoid inadvertently attributing an adverse event from another vaccine to the RSV vaccine.	May be concurrently administered with any other live or inactivated vaccines. Preferrable to wait 6 weeks before or after non-seasonal vaccines to avoid inadvertently attributing an adverse event from another vaccine to the RSV vaccine.

*Information is based on product monographs and NACI statement.
**Protective efficacy takes time to develop, vaccine should be administered at least 2 weeks before birth to allow for the transplacental transfer of protective antibodies.

RSV resources

Select RSV articles:

- Burden of Disease of Respiratory Syncytial Virus in Older Adults and Adults Considered at High Risk of Severe Infection | medRxiv
- CCDR: Burden of disease of RSV in infants, children and pregnant women and people

Webinar

- CPHA Webinar: Respiratory Syncytial Virus: What you need to know

Seasonal influenza supplemental slides

NACI recommended dose and route of administration, by age, for influenza vaccine types authorized for the 2024–2025 influenza season

Age group	Influenza vaccine type (route of administration)						Number of doses required
	IIV-SD (IM)	IIV-cc (IM)	IIV-Adj (IM)	IIV-HD (IM)	RIV (IM)	LAIV (intranasal)	
6 to 23 months	0.5 mL	0.5 mL	0.25 mL	-	-	-	1 or 2
2 to 8 years	0.5 mL	0.5 mL	-	-	-	0.2 mL (0.1 mL per nostril)	1 or 2
9 to 17 years	0.5 mL	0.5 mL	-	-	-	0.2 mL (0.1 mL per nostril)	1
18 to 59 years	0.5 mL	0.5 mL	-	-	0.5 mL	0.2 mL (0.1 mL per nostril)	1
60 to 64 years	0.5 mL	0.5 mL	-	-	0.5 mL	-	1
65 years and older	0.5 mL	0.5 mL	0.5 mL	0.7 mL	0.5 mL	-	1

To learn more about specific recommendations on the choice of seasonal influenza vaccine visit the canada.ca webpage: NACI: Statement on seasonal influenza vaccine for 2024–2025

Abbreviations: IIV-Adj: adjuvanted inactivated influenza vaccine; IIV-cc: mammalian cell culture based inactivated influenza vaccine; IIV-HD: high-dose inactivated influenza vaccine; IIV-SD: standard-dose inactivated influenza vaccine; RIV: recombinant influenza vaccine; IM: intramuscular; LAIV: live attenuated influenza vaccine.

Who should not receive a live attenuated influenza vaccine (LAIV)

Immune compromising conditions due to underlying disease, therapy, or both (except for children with stable HIV infection on HAART and with adequate immune function).
Severe asthma defined as currently on oral or high-dose inhaled glucocorticosteroids or active wheezing.*
Medically attended wheezing in the 7 days prior to the proposed date of vaccination, due to increased risk of wheezing.
Children less than 24 months of age due to increased risk of wheezing following administration of LAIV.
Children 2 to 17 years of age currently **receiving aspirin or aspirin-containing therapy**. Due to the association of Reye's syndrome with aspirin and wild-type influenza infection, aspirin-containing products in children less than 18 years of age should be delayed for 4 weeks after receipt of LAIV.
Individuals **who are pregnant** because it is a live attenuated vaccine and there is a lack of safety data at this time.**

*LAIV is **not contraindicated** for people with a history of stable asthma or recurrent wheeze.
LAIV is **not contraindicated in breastfeeding (lactating) individuals; however, there are limited data for the use of LAIV in this population.

NACI: Statement on seasonal influenza vaccine for 2024–2025

Timing of LAIV vaccines and antiviral agents

LAIV should **not** be administered:

- until 48 hours after antiviral agents active against influenza (e.g., oseltamivir, zanamivir) are stopped,
- **and** those antiviral agents, unless medically indicated, should not be administered until 2 weeks after receipt of LAIV.

This is so that the **antiviral agents do not inactivate** the replicating **vaccine virus.**

If the above anti-viral agents are administered from 48 hours pre-vaccination with LAIV to 2 weeks post-vaccination:

- revaccination should take place at least 48 hours after the antivirals are stopped, **or**
- inactivated influenza vaccine (IIV) could be given at any time.

NACI: Statement on seasonal influenza vaccine for 2024–2025

Which antivirals are approved in Canada for the treatment of influenza?

Neuraminidase inhibitor	
Oseltamivir (oral)	• oral capsule, liquid suspension • persons 1 year and older • generic version available • primary agent in Canada for treatment of suspected or confirmed influenza
Zanamivir (inhalation)	• powder for oral inhalation through a plastic device • aged ≥7 years • not recommended in patients with airway diseases (e.g., asthma, COPD) • should be considered for patients not responding to oseltamivir therapy, those who have developed influenza while receiving oseltamivir prophylaxis, or those in whom influenza B infection is confirmed or strongly suspected
Peramivir (IV)	• given intravenously • aged ≥2 years (approved but not marketed in Canada)
Cap-dependent endonuclease inhibitor	
Baloxavir marboxil (PO)	• oral tablets (1 dose) • aged ≥12 years (approved but not marketed in Canada)

*Amantadine is not recommended due to resistance among influenza A. Influenza B viruses are inherently resistant to adamantanes.

Aoki & al. (2019). Use of antiviral drugs for seasonal influenza: Foundation document for practitioners – Update 2019

Aoki & al. (2022). 2021–2022 AMMI Canada guidance on the use of antiviral drugs for influenza in the COVID-19 pandemic setting in Canada

General principles on influenza antiviral therapy

The following considerations and recommendations are based on the Association of Medical Microbiology and Infectious Disease Canada (AMMI) *Use of antiviral drugs for seasonal influenza: Foundation document for practitioners—Update 2019*.

Indications for treatment may be structured around the following considerations:

1. Severity of illness
2. Presence of risk factors or comorbid medical conditions
3. Interval between onset of illness and initiation of antiviral therapy
4. Likely influenza types causing infection

Recommendations for treatment:

- Antivirals should be initiated as rapidly as possible after onset of illness as the benefits of treatment are much greater with initiation at <12 hours than at 48 hours. (**Strong recommendation**).
- Antiviral therapy should be initiated even if the interval between illness onset and administration of antiviral medication is >48 hours if the illness is:
  - severe enough to require hospitalization
  - progressive, severe or complicated, regardless of previous health status
  - or if the individual is from a group at high risk for severe disease (**Strong recommendation**).

Treatment algorithms can be found in Appendices A to D in the AMMI Foundation document for practitioners – update 2019.

Aoki & al. (2019). Use of antiviral drugs for seasonal influenza: Foundation document for practitioners – Update 2019

AMMI Canada updates

AMMI Canada 2023 update on influenza: Management and emerging issues

Guidance on the use of chemoprophylaxis with neuraminidase inhibitors for post-exposure was published in 2013 AMMI Canada Foundation document, updated in 2019.

The updated guidance provides an overview of:

- Characteristics of the 2022-2023 influenza season
- Prevention of influenza
- Influenza antiviral use to reduce the impact on the health care system
- The potential role of multiplex respiratory testing
- Emerging issues related to highly pathogenic avian influenza (HPAI) virus

Updated antiviral algorithm, which now includes highly pathogenic avian influenza

COVID-19 supplemental slides

COVID-19 resources

NACI Statements

- May 3, 2024: NACI statement on the use of COVID-19 vaccines during the fall of 2024 Guidance on the use of COVID-19 vaccines during the fall of 2024

Canadian Immunization Guide

- Canadian Immunization Guide: COVID-19 vaccines COVID-19 vaccines: Canadian Immunization Guide - Canada.ca

Federal and select COVID-19 resources

- COVID-19 health product industry
- COVID-19 epidemiology update
- COVID-19: For health professionals
- COVID-19 signs, symptoms and severity of disease: A clinician guide
- AMMI Canada Practice Point: Updated recommendations for treatment of adults with symptomatic
- COVID-19 in 2023–2024 | Journal of the Association of Medical Microbiology and Infectious Disease Canada