RSV immunization in older adults

Three vaccines have been authorized by Health Canada for the prevention of severe respiratory syncytial virus disease in older adults. These vaccines have demonstrated effectiveness in reducing hospitalizations and other serious outcomes.

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Background

Respiratory syncytial virus (RSV) is a common seasonal respiratory virus. Alongside influenza and SARS-CoV-2, it is a leading cause of severe respiratory infections in both adults and infants, although this review will focus on RSV in adults. The risk of severe outcomes, including hospitalization and death, increases with both age and comorbidities. An Ontario study on the burden of RSV showed the incidence of hospitalization was 2.0 per 100 000 for those 18–49 years of age, compared with 134.7 per 100 000 for those 80 years of age or older and 370.9 per 100 000 for transplant recipients.[1] A systematic review of the burden of RSV in Canada showed that the case fatality rate among adults hospitalized for RSV ranged from 5% to 10% and suggested that the overall burden of RSV among older adults could be close to that of influenza.[2] Immunization can offer significant protection for adults against severe outcomes from RSV.

Immunization options for prevention of RSV

Three vaccines are currently authorized by Health Canada for the prevention of RSV in older adults:

- RSVpreF (Abrysvo, manufactured by Pfizer Canada ULC) is an unadjuvanted, protein subunit vaccine authorized for the prevention of lower respiratory tract disease caused by RSV in adults 60 years of age and older and in adults 18–59 years of age at increased risk of RSV disease. RSVpreF can also be used in pregnancy to confer infant protection, but this indication is beyond the scope of this review.
- RSVPreF3 (Arexvy, manufactured by GSK Canada) is an adjuvanted protein subunit vaccine authorized for the prevention of lower respiratory tract disease caused by RSV in adults 60 years of age and older and in adults 50–59 years of age at increased risk of RSV disease.
- mRNA-1345 (mResvia, manufactured by Moderna, Inc.) is an mRNA vaccine authorized for the prevention of lower respiratory tract disease caused by RSV in adults 60 years of age and older. As of December 2025, mRNA-1345 was not available in Canada but was expected to be available shortly.

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Key points

- Three vaccines have been authorized by Health Canada to prevent respiratory syncytial virus (RSV) infection in older adults; two (RSVpreF and RSVPreF3) are currently available in British Columbia. The National Advisory Committee on Immunization (NACI) strongly recommends that adults 60 years of age and older living in nursing homes or chronic care facilities and all adults 75 years of age and older receive the RSV vaccine. The NACI further recommends that adults 50–74 years of age consider the RSV vaccine in consultation with their health care provider.
- RSVpreF and RSVPreF3 are both given as a one-time dose. They can reduce the risk of RSV-associated hospitalization by almost 80% and offer protection for a minimum of 2 to 3 years. Boosters and subsequent doses are not currently recommended, as their benefit has not yet been elucidated.
- RSVpreF and RSVPreF3 are widely available in pharmacies at a cost of $250–$300 per dose. BC does not currently publicly fund RSV vaccines for older adults, but some private insurance plans may cover the cost.

Further information on RSVpreF and RSVPreF3, including detailed administration instructions, product components, and contraindications, can be found on the Abrysvo and Arexvy biological product pages.[3,4]

National Advisory Committee on Immunization recommendations on RSV immunization in older adults

The National Advisory Committee on Immunization (NACI) has released two statements on the use of RSV vaccines in older adults. The first statement was released in July 2024, reflecting the authorization of two vaccines, RSVpreF and RSVPreF3, while the second statement was released in March 2025, reflecting changes in the age authorization for RSVPreF3 and the authorization of a new RSV vaccine, mRNA-1345.[5,6] NACI makes two types of recommendations. Strong recommendations apply to most populations and should be followed, while discretionary recommendations could be considered, but alternative approaches are reasonable. NACI recommendations for RSV immunization in older adults are as follows:

- Strong recommendation: NACI recommends RSV immunization programs for adults 75 years of age and older, particularly older adults at increased risk of severe RSV disease **[Box]**.
- Strong recommendation: NACI recommends RSV immunization programs for adults 60 years of age and older who are residents of nursing homes or other chronic care facilities.
- Discretionary recommendation: NACI recommends that RSV vaccines be considered as an individual decision by adults 50–74 years of age in consultation with their health care provider.

NACI recommends that any of the three vaccines authorized by Health Canada can be used—in other words, there is no preferential recommendation for any of the vaccines at a population level. However, NACI does articulate that because there is less available data for the safety and efficacy of mRNA-1345 compared with the protein subunit vaccines, and from a programmatic perspective, mRNA-1345 may be less cost-effective due to potentially lower vaccine efficacy.

A Canadian study on RSVpreF and RSVPreF3 showed that immunizing adults over 70 years of age who have chronic medical conditions and all adults over 80 years of age would be cost-effective using a $50 000 per quality-adjusted life year threshold, which is broadly in line with NACI's recommendations.[7]

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

- Cardiac and pulmonary disorders, including chronic obstructive pulmonary disease, asthma, cystic fibrosis, and conditions affecting the ability to clear airway secretions.
- Diabetes mellitus and other metabolic diseases.
- Moderate and severe immunodeficiency.
- Chronic renal disease.
- Chronic liver disease.
- Neurological or neurodevelopmental conditions, including neuromuscular conditions, neurovascular conditions, neurodegenerative conditions (e.g., dementia), and seizure disorders, but excluding migraines and psychiatric conditions in the absence of neurological conditions.
- Class 3 obesity (defined as having a BMI of 40 kg/m^2 or over).

Dose schedule, timing, and boosters

All three vaccines authorized by Health Canada are administered as a one-time, intramuscular dose. RSV-immunizing products are optimally administered just before the start of the RSV season, which typically occurs in the early fall.[8] RSV vaccines can be administered concomitantly or at any time before or after the administration of other non-live vaccines, although consideration can be given to administering RSV vaccines at least 6 weeks before or after non-seasonal vaccines (e.g., the shingles vaccine) to better attribute any reported adverse events.[6]

There is currently a lack of evidence on whether the response to RSV vaccines can be boosted through subsequent doses. For example, a phase 3 RCT of RSVPreF3 reported that revaccination 1 year following initial immunization (i.e., two doses of RSVPreF3 received) resulted in three-season vaccine efficacy in the same range as those that were not revaccinated (i.e., only one dose of RSVPreF3 received).[9]

A study involving RSVpreF showed that revaccination after 12 months increased antibody levels, but they remained at lower levels than observed after the first dose. A study involving mRNA-1345 showed that revaccination after 12 months increased antibody levels to those observed after the first dose.[6] Due to the uncertainty of the effectiveness of booster doses, NACI does not currently recommend booster doses for RSV, although this is an area of emerging research.[6]

Vaccine efficacy

Vaccine efficacy reported in RCTs among adults 60 years of age and older against manufacturer-defined endpoints of RSV-related lower respiratory tract disease over two seasons was 59% for RSVpreF and 67% for RSVPreF3, with waning observed for both vaccines.[10,11]

Vaccine efficacy for RSVpreF declined from 65% to 56% between season one and two, while vaccine efficacy for RSVPreF3 declined from 83% to 56% between season one and two. Additionally, one study demonstrated that RSVPreF3 offered protection into the third season, although vaccine efficacy declined even further to 48%.[9] For mRNA-1345, vaccine efficacy among adults 60 years of age and older was estimated to be 59%.[6,12] Real-world studies have also demonstrated the effectiveness of protein subunit vaccines. A recent review article on the effectiveness of RSVpreF and RSVPReF3 showed a pooled vaccine effectiveness of 79% against hospitalization using three case-control studies and effectiveness of 70% to 73% among immunocompromised adults,[13] indicating

the vaccines confer significant protection against hospitalization.

Vaccine side effects, precautions, and contraindications

In general, RSV vaccines have good safety profiles. The vast majority of reported adverse events are mild to moderate in nature, and very few severe adverse events have been reported.[12,14,15] Local and systemic adverse events were more common among those receiving RSVPreF3 or mRNA-1345 than those receiving RSVpreF.[6] The most common local adverse event was injection site pain, while the most common systemic adverse events were fatigue and headache.

Post-marketing surveillance data indicate that there may be a small but elevated risk of Guillain-Barré Syndrome following administration of protein subunit vaccines (RSVpreF and RSVPreF3), on the order of 1.8 to 4.4 cases of Guillain-Barré Syndrome per million doses of vaccine administered.[16] The only contraindication to RSV vaccines is a history of anaphylaxis to a previous dose of the RSV vaccine or any component of the vaccine.

Accessing RSV vaccines in British Columbia

British Columbia does not currently offer publicly funded RSV vaccines for older adults. While NACI makes clinical and public health recommendations for a vaccine's use, it is up to individual provinces and territories to make funding decisions for vaccines. Public funding for an older adult RSV vaccine program continues to be assessed based on clinical impact, cost, and cost-effectiveness.

RSVpreF and RSVPreF3 are widely available in pharmacies across British Columbia; no prescription is required. The vaccines are priced at $250 to $300 per dose. Although there is no public funding for RSV vaccines for older adults, patients may have private insurance that will offset the cost of the vaccines. The BC Pharmacy Association has a tracker that allows individuals to search for pharmacies with RSV vaccines (www.bcpharmacy.ca/rsv-vaccines).[17]

Other relevant links and references

Some useful links, references, and guidelines are available from NACI, BCCDC, and the BC Pharmacy Association:

- **NACI:** *Updated Guidance on Respiratory Syncytial Virus (RSV) Vaccines for Older Adults Including the Expanded Use of RSVPreF3 for Individuals 50–59 Years of Age and Use of the New mRNA-1345 Vaccine* (www.canada.ca/en/public-health/services/publications/vaccines-immunization/national-advisory-committee-immunization-statement-updated-guidance-rsv-vaccines-older-adults-including-expanded-use-rsvpref3-individuals-50-59-years-age-use-new-mrna-1345-vaccine.html).
- **BCCDC:** Abrysvo (RSVpreF) biological product page (www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/CD%20Manual/Chapter%202%20-%20Imms/Part4/RSV_Abrysvo.pdf).
- **BCCDC:** Arexvy (RSVPreF3) biological product page (www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/CD%20Manual/Chapter%202%20-%20Imms/Part4/RSV_Arexvy.pdf).
- **BC Pharmacy Association:** *Respiratory Syncytial Virus (RSV) Vaccines in Pharmacies* (www.bcpharmacy.ca/rsv-vaccines).

References

1. Buchan SA, Alessandrini J, Drover SSM, et al. Incidence of respiratory syncytial virus-associated hospitalization among adults in Ontario, Canada, 2017–2019. J Infect Dis 2025;232:e799-e810. https://doi.org/10.1093/infdis/jiaf343.
2. Abrams EM, Doyon-Plourde P, Davis P, et al. Burden of disease of respiratory syncytial virus in older adults and adults considered at high risk of severe infection. Can Commun Dis Rep 2025;51:26-34. https://doi.org/10.14745/ccdr.v51i01a04.
3. BC Centre for Disease Control. Respiratory syncytial virus (RSV) vaccine (recombinant, adjuvanted): Arexvy (RSVPreF3). September 2025. Accessed 15 December 2025. www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/CD%20Manual/Chapter%202%20-%20Imms/Part4/RSV_Arexvy.pdf.
4. BC Centre for Disease Control. Respiratory syncytial virus (RSV) vaccine: Abrysvo® (RSVpreF). December 2025. Accessed 15 December 2025. www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/CD%20Manual/Chapter%202%20-%20Imms/Part4/RSV_Abrysvo.pdf.
5. National Advisory Committee on Immunization. Statement on the prevention of respiratory syncytial virus disease in older adults. Modified 9 August 2024. Accessed 21 November 2025. www.canada.ca/en/public-health/services/publications/vaccines-immunization/national-advisory-committee-immunization-statement-prevention-rsv-disease-older-adults.html.
6. National Advisory Committee on Immunization. Updated guidance on respiratory syncytial virus (RSV) vaccines for older adults including the expanded use of RSVPreF3 for individuals 50-59 years of age and use of the new mRNA-1345 vaccine. Modified 9 April 2025. Accessed 25 November 2025. www.canada.ca/en/public-health/services/publications/vaccines-immunization/national-advisory-committee-immunization-statement-updated-guidance-rsv-vaccines-older-adults-including-expanded-use-rsvpref3-individuals-50-59-years-age-use-new-mrna-1345-vaccine.html.
7. Rudd M, Simmons AE, Gebretekle GB, Tuite AR. Cost-effectiveness of respiratory syncytial virus vaccination strategies for older Canadian adults: A multi-model comparison. Can Commun Dis Rep 2025;51:54-67. https://doi.org/10.14745/ccdr.v51i23a01.
8. Government of Canada. Respiratory syncytial virus (RSV) vaccines: Canadian immunization guide. In: Canadian immunization guide: Part 4. Immunizing agents. April 2025. Accessed 15 December 2025. www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/respiratory-syncytial-virus.html.
9. Ison MG, Papi A, Athan E, et al. Efficacy, safety, and immunogenicity of the AS01E-adjuvanted respiratory syncytial virus prefusion F protein vaccine (RSVPreF3 OA) in older adults over three respiratory syncytial virus seasons (AReSVi-006): A multicentre, randomised, observer-blinded, placebo-controlled, phase 3 trial. Lancet Respir Med 2025;13:517-529. https://doi.org/10.1016/S2213-2600(25)00048-7.

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or an atypical presentation is suspected, consider a high-resolution CT or referral to a respirologist for further investigation.[6,7] Pulmonary function tests typically demonstrate a restrictive defect; however, in late-stage disease, there can be mixed defects with obstruction, restriction, and impairment in gas transfer.[2]

In addition to symptom management and RCS avoidance, early management involves minimizing other pulmonary risks. This includes smoking cessation, influenza and pneumococcal immunization, and monitoring and management of comorbid conditions (e.g., chronic obstructive pulmonary disease, pulmonary hypertension, kidney disease).[2]

If you have a patient with a WorkSafeBC claim or suspect silicosis, please indicate on your Form 11 that you would like your patient to be referred to a respirologist or to the WorkSafeBC Visiting Specialist Clinic (respirology). You can also reach a WorkSafeBC medical advisor on the RACE app+ to discuss your patient's case. If you have concerns about the RCS exposure described by your patient, reach out to WorkSafeBC's prevention team at 604 276-3100 (Lower Mainland) or 1 888 621-7233. For more information, visit www.worksafebc.com/silica. ■

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References

1. Hoy RF, Jeebhay MF, Cavalin C, et al. Current global perspectives on silicosis—Convergence of old and newly emergent hazards. Respirology 2022;27:387-398. https://doi.org/10.1111/resp.14242.
2. Kahn MR, Klinhom C, Wallace WD, Edminster S. Managing silicosis in the United States: How I do it. CHEST Pulm 2024;2:100103. https://doi.org/10.1016/j.chpulm.2024.100103.
3. CAREX Canada. Silica (crystalline) occupational exposures. Accessed 9 December 2025. www.carexcanada.ca/profile/silica_crystalline-occupational-exposures.
4. Fazio JC, Viragh K, Houlroyd J, Gandhi SA. A review of silicosis and other silica-related diseases in the engineered stone countertop processing industry. J Occup Med Toxicol 2025;20:9. https://doi.org/10.1186/s12995-025-00455-8.
5. Occupational Safety and Health Administration. Occupational exposure to respirable crystalline silica. Federal Register. Updated 18 May 2016. Accessed 9 December 2025. www.federalregister.gov/documents/2016/03/25/2016-04800/occupational-exposure-to-respirable-crystalline-silica.
6. Hoy RF, Dimitriadis C, Abramson M, et al. Prevalence and risk factors for silicosis among a large cohort of stone benchtop industry workers. Occup Environ Med 2023;80:439-446. https://doi.org/10.1136/oemed-2023-108892.
7. Newbigin K, Parsons R, Deller D, et al. Stonemasons with silicosis: Preliminary findings and a warning message from Australia. Respirology 2019;24:1220-1221. https://doi.org/10.1111/resp.13672.

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References

1. Smith A, Forsyth K, Poon C, et al. Balance and connection in BC: The health and well-being of our youth. McCreary Centre Society. 2019. Accessed 27 October 2025. www.mcs.bc.ca/pdf/balance_and_connection.pdf.
2. Garriguet D. Diet quality in Canada. Health Rep 2009;20:41-52.
3. Turpel-Lafond ME. In plain sight: Addressing Indigenous-specific racism and discrimination in B.C. health care. Addressing racism review. Summary report. November 2020. Accessed 27 October 2025. https://engage.gov.bc.ca/app/uploads/sites/613/2020/11/In-Plain-Sight-Summary-Report.pdf.
4. Caring for Kids New to Canada. Vitamin A deficiency. Last updated April 2013. Accessed 27 October 2025. https://kidsnewtocanada.ca/conditions/a.
5. Health Canada. Nutrition for healthy term infants: Recommendations from six to 24 months. Modified 30 October 2025. Accessed 21 November 2025. www.canada.ca/en/health-canada/services/canada-food-guide/resources/nutrition-healthy-term-infants/nutrition-healthy-term-infants-recommendations-birth-six-months/6-24-months.html.
6. Gombart AF, Pierre A, Maggini S. A review of micronutrients and the immune system—Working in harmony to reduce the risk of infection. Nutrients 2020;12:236. https://doi.org/10.3390/nu12010236.
7. Melina V, Craig W, Levin S. Position of the Academy of Nutrition and Dietetics: Vegetarian diets. J Acad Nutr Diet 2016;116:1970-1980. https://doi.org/10.1016/j.jand.2016.09.025.
8. Myers SS, Zanobetti A, Kloog I, et al. Increasing CO_2 threatens human nutrition. Nature 2014;510:139-142. https://doi.org/10.1038/nature13179.

BCCDC

References continued from page 18

10. Ison MG, Papi A, Athan E, et al. Efficacy and safety of respiratory syncytial virus (RSV) prefusion F protein vaccine (RSVPreF3 OA) in older adults over 2 RSV seasons. Clin Infect Dis 2024;78:1732-1744. https://doi.org/10.1093/cid/ciae010.
11. Walsh EE, Pérez Marc G, Falsey AR, et al. RENOIR trial—RSVpreF vaccine efficacy over two seasons. N Engl J Med 2024;391:1459-1460. https://doi.org/10.1056/NEJMc2311560.
12. Wilson E, Goswami J, Baqui AH, et al. Efficacy and safety of an mRNA-based RSV PreF vaccine in older adults. N Engl J Med 2023;389:2233-2244. https://doi.org/10.1056/NEJMoa2307079.
13. Scott J, Abers MS, Marwah HK, et al. Updated evidence for Covid-19, RSV, and influenza vaccines for 2025–2026. N Engl J Med 2025;393:2221-2242. https://doi.org/10.1056/NEJMsa2514268.
14. Papi A, Ison MG, Langley JM, et al. Respiratory syncytial virus prefusion F protein vaccine in older adults. N Engl J Med 2023;388:595-608. https://doi.org/10.1056/NEJMoa2209604.
15. Walsh EE, Pérez Marc G, Zareba, AM, et al. Efficacy and safety of a bivalent RSV prefusion F vaccine in older adults. N Engl J Med 2023;388:1465-1477. https://doi.org/10.1056/NEJMoa2213836.
16. Hause AM, Moro PL, Baggs J, et al. Early safety findings among persons aged ≥60 years who received a respiratory syncytial virus vaccine—United States, May 3, 2023–April 14, 2024. MMWR Morb Mortal Wkly Rep 2024;73:489-494. https://doi.org/10.15585/mmwr.mm7321a3.
17. BC Pharmacy Association. Respiratory syncytial virus (RSV) vaccines in pharmacies. 2025. Accessed 15 December 2025. www.bcpharmacy.ca/rsv-vaccines.