



# Vaccine Confidence InfoBulletin

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Providing credible and timely information on vaccines to health care providers and public health decision makers to support vaccine confidence. Thank you for being a trusted source of vaccine information for individuals and communities across Canada.

## Trending topics

### National Immunization Awareness Week

From April 23<sup>rd</sup> to 30<sup>th</sup>, 2022, PHAC and Immunize Canada celebrate National Immunization Awareness Week (NIAW) and the 20<sup>th</sup> anniversary of World Immunization Week, where organizations are encouraged to raise awareness about the important role of vaccines in global health. Celebrate and amplify outreach efforts through your social media channels using [Immunize Canada's resources](#), the hashtag: **#NIAW2022**, and check out this month's [Community spotlight](#) to find public-focused resources designed to improve understanding of scientific facts in support of vaccine confidence.

### Medicago Covifenz® and Novavax Nuvaxovid™ COVID-19 vaccine authorizations

In February, Health Canada authorized [Novavax Nuvaxovid™ COVID-19 vaccine](#), the first recombinant protein subunit COVID-19 vaccine, and [Medicago Covifenz® COVID-19 vaccine](#), the first COVID-19 vaccine developed by a Canadian-based company, and the first that uses a plant-based virus-like protein technology.

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## ...Trending topics continued

These new COVID-19 vaccines will provide provinces and territories with additional options in their vaccination programs for people who have been unable or unwilling to receive an mRNA COVID-19 vaccine. Read more in the [featured article](#): New COVID-19 vaccines authorizations by Health Canada and NACI statements.

### **Moderna Spikevax™ (50mcg) COVID-19 vaccine authorization for children aged 6 - 11**

On March 17th, 2022, [Health Canada authorized](#) the use of the [Moderna Spikevax™ \(50 mcg\) COVID-19 vaccine](#) in children 6 to 11 years of age. This is the second COVID-19 vaccine authorized in Canada for use in this younger age group. See the [National Advisory Committee on Immunization \(NACI\) statement](#) for recommendations for its use.

### **World Health Day – April 7<sup>th</sup>**

WHO is urging governments and the public to share stories of steps they are taking to protect the planet and their health and prioritize “well-being societies”, calling it the [“Our planet, our health” campaign](#).

Immunization is a cornerstone of that protection. Vaccines are one important part of building healthier populations by helping to protect individuals, as well as communities, by preventing infectious diseases.



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## Featured article

### **New COVID-19 vaccines authorizations by Health Canada and NACI statements**

#### **Novavax Nuvaxovid™ COVID-19 vaccine**

On February 17<sup>th</sup>, 2022, Health Canada authorized the [Novavax Nuvaxovid™ COVID-19 vaccine](#) for use as a two-dose primary series in people 18 years of age and over. [1] This is the first recombinant [protein subunit COVID-19 vaccine](#) authorized for use in Canada. [1] It contains part of the coronavirus, the spike protein that is on the surface of the virus, and an adjuvant called Matrix-M, which helps create a stronger immune response.

Clinical trial data available to date have shown that Novavax Nuvaxovid™ COVID-19 vaccine is highly efficacious (generally ~90%) in preventing confirmed symptomatic COVID-19 disease in the short-term. However, the duration of protection is not yet known and there is currently no data on the efficacy or

effectiveness of the vaccine against the Delta or Omicron variants, as clinical trials were conducted before the emergence of those variants. NACI will review emerging data on the effectiveness of the vaccine on more recent variants as it becomes available.

In clinical trials, side effects were typically mild and resolved within 1 or 2 days. They occurred more frequently after the second dose and were more common in adults 18 to 64 years of age compared to older adults. A few cases of myocarditis and/or pericarditis have been reported following the administration of the vaccine, but there is not yet enough information to determine if cases of myocarditis and/or pericarditis are related to the vaccine. NACI, PHAC and Health Canada will continue to monitor the emerging evidence on the safety of the vaccine.

NACI recommends that the recombinant protein subunit Novavax Nuvaxovid™ COVID-19 vaccine may be offered as a primary series (including in a mixed schedule) to individuals in the authorized age group without contraindications to the vaccine who are unable or unwilling to receive an mRNA COVID-19 vaccine. NACI also recommends that a booster dose of a recombinant protein subunit Novavax Nuvaxovid™ COVID-19 vaccine may be offered ≥6 months after completion of a primary COVID-19 vaccine series to adults without contraindications to the vaccine who are not able or willing to receive an mRNA COVID-19 vaccine. It should be noted that it is not currently authorized as a mixed schedule or booster dose.

For more detailed information on the NACI guidance, consult the [Recommendations on the use of Novavax Nuvaxovid™ COVID-19 vaccine](#) page.

### **Medicago Covifenz® COVID-19 vaccine**

On February 24<sup>th</sup>, 2022, Health Canada authorized the [Medicago Covifenz® COVID-19 vaccine](#) for use as a two-dose primary series in adults 18 to 64 years of age. [2] This is the first authorized COVID-19 vaccine developed by a Canadian-based company, and the first that uses a [plant-based virus-like protein technology](#). [2] The active ingredient of the vaccine consists of virus-like particles that mimic the natural structure of the virus without its genetic material which allows a person's immune system to recognize and generate a response to the viral-like particles without causing infection.

Clinical trial data available to date show that the Medicago Covifenz® COVID-19 vaccine is efficacious (71%) at preventing confirmed symptomatic COVID-19 disease in the short term. However, the duration of protection is not yet known and there is currently no data on the efficacy of the vaccine against the Omicron variant, as clinical trials were conducted before the emergence of the Omicron variant.

Side effects were typically mild and resolved within 1 to 3 days. No serious safety concerns were identified in the clinical trial, noting that in general, vaccine clinical trials are too small to detect the risk of rare and very rare safety events.

NACI will continue to monitor the evidence on the Medicago Covifenz<sup>®</sup> COVID-19 vaccine, including safety and effectiveness data from real world use of the vaccine, as it emerges and will update guidance and recommendations as needed.

NACI recommends that the Medicago Covifenz<sup>®</sup> COVID-19 vaccine may be offered as a primary series (including in a mixed schedule) to individuals in the authorized age group without contraindications to the vaccine who are not able or willing to receive an mRNA COVID-19 vaccine.

Medicago Covifenz<sup>®</sup> is not authorized for use as a mixed schedule or booster dose in Canada at this time. Clinical trials evaluating a booster dose of Medicago Covifenz<sup>®</sup> are planned. NACI will assess the evidence on the use of Medicago Covifenz<sup>®</sup> as a booster dose as it becomes available and will provide guidance as needed.

For more detailed information on the NACI guidance, consult the [Recommendations on the use of Medicago Covifenz<sup>®</sup> COVID-19 vaccine](#) page.

### **How do these new vaccines fit into Canada's vaccination strategy?**

- The authorization of the Novavax Nuvaxovid™ vaccine and the Medicago Covifenz<sup>®</sup> vaccine provides provinces and territories with additional COVID-19 vaccine options.
- These newly authorized vaccines can help remove barriers to vaccination for people who are unable or unwilling to receive mRNA vaccines.
- For some individuals, their cited safety concern or vaccine hesitancy focused on the viral vector or mRNA vaccine platforms. As such, the Novavax Nuvaxovid™ and Medicago Covifenz<sup>®</sup> vaccines may be a COVID-19 vaccine option for them.
- The Government of Canada is working with provincial and territorial governments, Indigenous leadership, and public health partners on integrated planning to support the timely allocation, distribution and administration of COVID-19 vaccine as efficiently, equitably and effectively as possible as soon as they become available.

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## Vaccine confidence corner

Providing evidence-informed tips, strategies and information in support of vaccine confidence.

### **The role of cognitive bias in vaccine attitudes**

Over the next few issues of the Vaccine Confidence InfoBulletin we will describe key cognitive biases and their impact on vaccine attitudes and decision-making, including how to address them with peers and patients.

#### **What is cognitive bias?**

Our brains take mental shortcuts to cope with and effectively process the huge volume of information we encounter every day.

These shortcuts (called heuristics), which can be helpful in navigating our lives, can also distort our perceptions and impact our judgment and decision-making abilities. The results are often so-called “errors in thinking”, referred to as cognitive biases.

#### **How does a cognitive bias affect vaccine attitudes?**

Cognitive biases can impact how we process vaccine information, which information we use to guide our decision-making, our perceptions of risks and benefits of vaccines, how we understand the statistics that might inform our risk calculations, how we are influenced by messaging about vaccines, and more.

#### **Omission bias**

Omission bias is the tendency to perceive the risks of action as being greater or less acceptable than the risks of inaction. In the case of vaccination, people will overemphasize the small risk of a vaccine, despite the risks of getting the disease being significantly higher.

For example, a parent may decide to not vaccinate their child for COVID-19, due to concerns about myocarditis, while not considering equally the risks of infection with COVID-19 if not vaccinated.

## How to address omission bias

If you suspect omission bias is contributing to someone's decision making, you can try to compare the risks more directly and explicitly against one another, in both rate and severity. Additionally, by framing vaccination as the norm and not vaccinating as the 'action', it may shift omission bias in favour of vaccination. Research shows that when vaccination is framed as an "opt-in" activity, people are less likely to vaccinate than a presumptive approach where the action instead is to "opt-out" of vaccination. [3]

[More information on omission bias is available here.](#)



### In Practice

## Addressing omission bias

- ✓ **Presumptive approach:** "You are due for a Tdap vaccine at your visit today. What questions do you have about this vaccine?"
- ✗ **Opt-in approach:** "Would you like the Tdap vaccine at your visit today?"

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## Mis/disinformation monitor alert

Presenting credible sources to debunk mis and disinformation.

### European Medicines Agency (EMA) official's statement used to fuel vaccine misinformation

A poorly formulated statement by an EMA official in mid-January led to [claims that booster doses could weaken the immune response](#). This incident demonstrates the risk of poorly communicated public health information fueling mis and disinformation. The EMA official made the following [statement at a press conference](#) in reference to booster doses:

"If we have a strategy in which we give boosters, let's say, every 4 months, approximately, we will end up potentially having problems with immune response, and it may end up not being as good as we would like it to be... We should be careful in not overloading the immune system with repeated immunization. And secondly, of course, there is the risk of fatiguing the population with the continued administration of boosters."

**Misinformation** is information that is false or misleading, but presented as fact, regardless of intention.

**Disinformation** is information which is intentionally created and circulated to deceive or mislead.

This statement led to both inflammatory anti-vaccine headlines such as “EU Official Admits COVID Vax Destroys Immune System”, as well as misunderstanding of the official's statement in mainstream media.

It was not clear whether the official was raising concerns about: short intervals between vaccines (as he mentioned a 4-month interval), which can reduce the immune response compared to longer intervals; the potential for narrowing of the immune response due to repeated boosting with the same strain; or the idea that too many antigens overload and ultimately harm the immune system. The latter point is a common concern expressed by those who are vaccine hesitant, particularly in the context of routine childhood immunization, and **is false**. Vaccines do not “overload” the immune system. Our immune systems are well equipped to handle a large number of antigens and do so daily as we go about our lives.

This example demonstrates the need for scientists, health care providers and public health officials to communicate effectively and clearly explain complex scientific topics if they are making reference to them, so that their meaning will not be misinterpreted, or misused, as was the case in this example. This has particularly significant implications where the science is informing policy and communications, and further has the potential to undermine public trust and confidence.

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## Science spotlight

Providing explanations of the science underpinning vaccine guidance and public health response.

### **The role of COVID-19 vaccines in the transition towards an endemic state**

As the most recent wave abates and public health measures lift across jurisdictions, it is important to recognize the major contributions that vaccinations have made to control the pandemic. The Omicron wave has seen a lower proportion of cases requiring hospitalization or resulting in death than in previous waves, in part because it was less virulent but also because of the protection that results from the primary series of vaccines with a booster dose.

As the pandemic evolves towards an endemic state, it is important to clarify and reinforce the very important role of vaccines in our response toolbox.

### **Vaccine effectiveness against infection**

The original efficacy rates against symptomatic infection for mRNA vaccines was very high (over 90%), with vaccine effectiveness in real world studies noting a similar level of protection. High levels of protection persisted for several months, although some decline was noted over time particularly in the context of circulating Delta variant. High initial vaccine effectiveness against symptomatic disease led to the hope that preventing infection and transmission was possible, which could potentially lead to disease elimination as a result of herd immunity.

The impact of mRNA vaccines against preventing transmission was used to promote vaccine uptake and formed the basis for vaccine mandates at a time when health systems were being overwhelmed with COVID-19.

It is now apparent that vaccine effectiveness against SARS-CoV-2 infection and transmission decreases over time. Vaccine effectiveness against infection is dependent on high circulating antibody levels of strongly binding antibodies. For variants that are very different from the strain used in the vaccine, as is the case with Omicron, antibodies need to be particularly high and broadly protective. The number of doses, the longer the interval between doses, and the time since last dose all influence the level and/or strength of the antibodies. Regardless of the height of the antibody titres, antibodies decrease over time; therefore, it is expected that protection against infection and symptomatic disease will also decline over time. Well-timed booster doses increase antibody levels, as well as their binding strength; however, antibodies after a booster dose will also decrease over time.

### **What is the goal of Canada's pandemic response?**

While some countries have attempted a "COVID Zero" approach, the transmissibility and rapid mutation of the COVID-19 virus has not made this a viable approach for most countries. Complete prevention of infection and transmission, herd immunity and disease elimination are not the focus of Canada's pandemic response. As defined by Canada's immunization goal, the focus is to minimize serious illness and overall deaths, while minimizing societal disruption.

### **Vaccine protection against severe disease**

Protection against severe disease may be dependent on other components of the immune system (instead of or in addition to circulating antibodies) such as the cellular immune response and memory response. These components are less likely to decrease over time and are more likely to be preserved across different variants of concern.

Protection by two doses of mRNA vaccine demonstrate good protection against severe COVID-19 infection even in the context of the Omicron variants (~65% to 85%), with some decrease over time. A booster dose of an mRNA vaccine raises protection against severe disease from Omicron to over 90%. The extent to which this protection will decrease over time remains to be determined and is being closely monitored.

## What does this mean for how we think about vaccination moving forward?

Vaccine promotion efforts should continue to reinforce the importance of all vaccinations, including COVID-19 booster doses, to prevent serious illness, death, and negative impacts on our health care system. Vaccine policies and approaches, like various measures used during the pandemic, are being reassessed at various levels of government in the context of the decline in circulating virus and decreasing vaccine protection against infection and transmission over time with variants that are very different from the strain used to make the vaccine.

Researchers and governments will continue to track the epidemiology of COVID-19 and further evolve our understanding of the immune response to SARS-CoV-2 infection, COVID-19 symptomatic and severe disease and COVID-19 vaccines. As more evidence becomes available and with the possible emergence of future variants, our approach to vaccination will continue to be refined. NACI will continue to review the evidence to establish longer term boosting strategies that optimize protection, particularly against severe disease.

Additionally, the development of vaccines based on other technologies, such as those targeting mucosal immunity or enhancing cellular responses, as well as new therapeutic options provide us with a more dynamic array of tools to support the return to a new normal, with more opportunities to engage in activities we've avoided through the pandemic. We must continue to view vaccines as one critical part of a broader public health response. As we shift away from emergency pandemic responses, the need for and use of public health measures and available technologies, including new vaccine formulations and approaches, will need to be closely monitored and tailored to the evolving epidemiology.

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## Community spotlight

Putting the spotlight on innovative projects and best practices from communities across Canada.

### The Feed with Dr. G

With National Immunization Awareness Week coming up from April 23 - 30, it is the perfect time to introduce you to Dr. Samir Gupta – aka Dr. G.



With support from PHAC's [Immunization Partnership Fund](#) (IPF), "The Feed with Dr. G" is bringing vaccine science to the public by creating and disseminating a series of targeted social media "explainers" that bust common myths and help overcome barriers to vaccination. Ultimately, the goal of the project is to build vaccine knowledge and confidence, supporting potentially hesitant Canadians to roll up their sleeve for their first, second, or booster dose.

Dr. G is placing a focus on important concepts using the latest in vaccine science and evidence-based communication techniques. Hot topics include “Is the COVID-19 pandemic over?” and “Should you get your COVID booster shot? Here’s the truth”. As both a doctor and a scientist, Dr. G’s mission is to find fresh approaches to make science clear, transparent, and easy to understand – for everyone - and to empower viewers to separate fact from fiction. Support Dr. G and amplify his reach by sharing his videos from [YouTube](#) and [TikTok](#) on your social media channels and directly with your patients.

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## PHAC webinars and webcasts for health care providers

PHAC, in collaboration with the Canadian Vaccination Evidence Resource and Exchange Centre (CANVax) and the National Collaborating Centre for Infectious Diseases (NCCID), offers expert-led webinars focused on providing health care providers with clinical guidance and information related to key vaccine topics.

**Webcasts** are video resources.

**Webinars** are live events, with an audience and question & answer period. These live events are recorded and later posted for viewing.

### Upcoming webinars and webcasts



#### **Needle fear, pain and vaccines - Introduction to the CARD™ system as a framework for vaccination delivery**

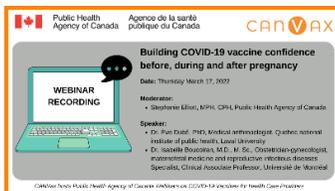
Presented by Dr. Anna Taddio and Dr. Meghan McMurtry.

Learn about contributors to stress-related reactions during vaccination and evidence-based strategies to improve the vaccine experience for people receiving vaccines and those who support them.

**Ready to stream Thursday, April 14, 2022 on [canvax.ca](https://canvax.ca).**

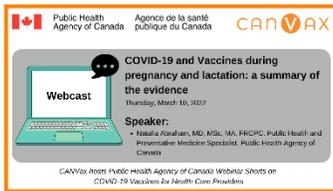
### Webinar and webcast watch list

#### **[Webinar - Building COVID-19 vaccine confidence before, during and after pregnancy: Strategies for health care providers](#)**



Experts, Dr. Ève Dubé and Dr. Isabelle Boucoiran, discuss challenges to vaccine confidence before, during, and after pregnancy and provide healthcare providers with evidence-based strategies to have effective conversations with families. (Recorded live on March 17, 2022.)

## **Webcast - COVID-19 and vaccines during pregnancy and lactation**



Expert Dr. Natalia Abraham shares the latest evidence on the impacts of COVID-19 during pregnancy, and the safety and effectiveness of COVID-19 mRNA vaccines during pregnancy and lactation, and among those planning to become pregnant. (Recorded March 2022.)

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## Contact Vaccine Confidence

[Subscribe](#) to receive the PHAC Vaccine Confidence InfoBulletin directly in your inbox.

Have questions or feedback to share? Email us: [vaccination@phac-aspc.gc.ca](mailto:vaccination@phac-aspc.gc.ca)

Please note that any medical questions should be directed to your local health care provider and any urgent medical questions should be directed to 911 or your local emergency department.

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## Annex

### References

- [1] Health Canada, "Health Canada authorizes Novavax's Nuvaxovid COVID-19 vaccine," 17 February 2022. [Online]. Available: <https://www.canada.ca/en/health-canada/news/2022/02/health-canada-authorizes-novavax-nuvaxovid-covid-19-vaccine.html>.
- [2] Health Canada, "Health Canada authorizes Medicago COVID-19 vaccine for adults 18 to 64 years of age," 24 February 2022. [Online]. Available: <https://www.canada.ca/en/health-canada/news/2022/02/health-canada-authorizes-medicago-covid-19-vaccine-for-adults-18-to-64-years-of-age.html>.
- [3] D. J. Opel, C. Zhou, J. D. Robinson, N. Henrikson, K. Lepere, R. Mangione-Smith and J. A. Taylor, "Impact of Childhood Vaccine Discussion Format Over Time on Immunization Status," *Academic pediatrics*, vol. 18, no. 4, pp. 430-436, 2018.