

# Vaccine Confidence InfoBulletin

Issue 9 | January 2022 | Public Health Agency of Canada (PHAC)

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 topic

### Pediatric infection and hospitalization

Some jurisdictions across Canada have been reporting a rise in pediatric hospitalizations, in particular in Canada's most populous provinces of Ontario, British Columbia, Alberta, and Quebec. However, this uptick is not necessarily a reflection of a rise in serious disease in kids. Many hospitalized COVID-19 cases in children may be incidental, meaning that they were admitted for something else (e.g., appendicitis), but upon routine admission screening, tested positive for COVID-19. Given how prevalent the Omicron variant is in the population, there is a higher likelihood of having COVID-19 at any given time, including when an individual enters the hospital. However, some physicians and hospitals have been raising the alarm over a potential increase of severe illness in very young children. On January 5<sup>th</sup>, [CHEO, The Hospital for Sick Children \(SickKids\), McMaster Children's Hospital and Kingston Health Sciences Centre](#) reported having admitted a total of six babies under the age of twelve months with COVID-19 since mid-December. All six of them were born to unvaccinated parents.

[Read more in the featured article: COVID-19 vaccines urged for pregnant people.](#)

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## Featured article

### COVID-19 vaccination urged for people who are pregnant

An increase in hospitalizations of young infants born to unvaccinated parents in Ontario during the month of December prompted several children's hospitals to issue a joint statement urging people who are pregnant to be vaccinated for COVID-19 to protect themselves and their babies.

Pregnancy increases the risk of severe outcomes of COVID-19 for a person who is pregnant, including the need for ICU admission, invasive mechanical ventilation, extracorporeal membrane oxygenation (ECMO), and people who are pregnant are at an increased risk of death due to COVID-19.<sup>1,2,3</sup> Additionally, infection with SARS-CoV-2 during pregnancy has been associated with increases in poor pregnancy outcomes, such as an increase in preterm birth, preeclampsia, stillbirth, and low birth weight.<sup>4</sup> The proportion of pregnant people vaccinated for COVID-19 in Canada is difficult to estimate and the uptake of booster doses in pregnancy is unknown. To improve protection against SARS-CoV-2, including against the Omicron strain, a booster dose is recommended for adults 18+, including during pregnancy.

No safety concerns specific to pregnancy have been noted with COVID-19 vaccines. Numerous studies demonstrate that there has been no increase in miscarriage, small for gestational age, or stillbirth associated with vaccination at any stage during pregnancy<sup>5</sup>. Additionally, vaccination during pregnancy may provide some additional protection to newborns by passing protective antibodies through the placenta. These antibodies may protect the baby after birth, as may antibodies passed through human milk during breastfeeding.<sup>6</sup>



For more information see:

- Chief Public Health Officer Dr. Theresa Tam's [statement in support of vaccination during pregnancy and lactation \(November 26, 2021\)](#)
- The Society of Obstetricians and Gynecologists' [recommendations for pregnant individuals to be vaccinated \(revised and reaffirmed November 4, 2021\)](#)
- Ontario's Chief Medical Officer of Health's [memo to health units and hospitals urging prioritization of pregnant individuals for booster doses \(January 4, 2022\)](#)



## Discussing vaccination during pregnancy

### In Practice

- **Start by listening and asking questions.** What are their specific concerns? What do they know about the risks of COVID-19 during pregnancy? How do they understand their own personal risk of contracting or becoming re-infected with COVID-19 and potential impacts on their health and that of their baby?
- **Use your relationship with the individual and your knowledge of them as a jumping off point.** Tailor your advice and discussion to their concerns and individual context (e.g., risk of exposures in workplace, family; risks to vulnerable family members). Avoid an “information dump”, which can be overwhelming.
- **Allow the conversation to unfold over several visits, where possible.** Avoid rushing a decision or pressuring the individual. Invite hesitant family members to ask questions as well.
- **Do not link vaccination in pregnancy to “the greater good” or collective responsibility.** Focus on the health and wellbeing of the family.

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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.

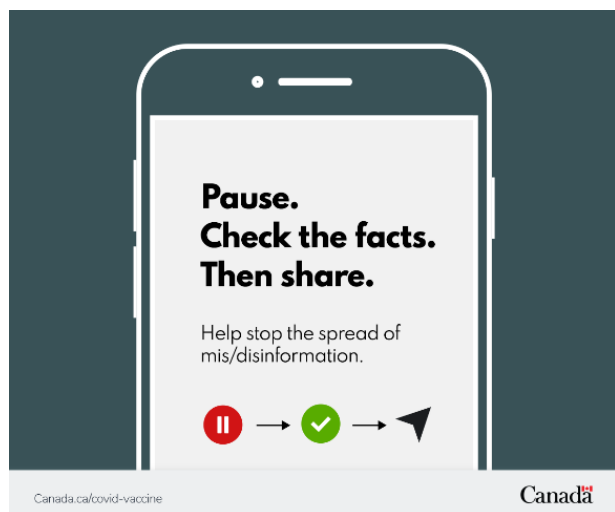
### What is cognitive bias?

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.



### Anchoring bias

Anchoring bias, a type of cognitive bias, is the tendency to put greater weight or value on the first piece of information we learn about a topic. That original information then serves as the reference point, or “anchor”, for how we interpret and understand new information. This is a challenge for vaccine confidence due to the large volume of circulating misinformation. Simple exposure to vaccine mis- and disinformation can diminish confidence in the vaccine and impact judgement and perceptions of new or more accurate information.

## How to address anchoring bias

“Prebunking” vaccine misinformation can be an effective strategy. When we warn individuals in advance of possible vaccine myths and why they are wrong, we build their resilience to misinformation, and provide an anchor to accurate information. [More information on anchoring bias is available here.](#)

### Base rate fallacy

Base rate fallacy, another type of cognitive bias, is the tendency to not consider, or consider less, how common a characteristic in a group is when looking at specific information relating to events or individuals. For example, most SARS-CoV-2 infections in Canada are currently occurring in vaccinated people. At first glance this information may seem to indicate that you are more likely to get COVID-19 if you are vaccinated. However, when considering the number of cases in vaccinated people, you also need to consider the number of vaccinated people (which is very large). When you divide the number of cases in vaccinated people by the appropriate denominator, which is the number of vaccinated people, you obtain a rate in the vaccinated; this gives you a better sense of the impact on vaccinated people. This rate in vaccinated people can then be compared with the rate in unvaccinated people which is the number of cases in unvaccinated people divided by the number of unvaccinated people.

## How to address base rate fallacy

When considering a rate or risk while discussing with others, ensure that you are using the right denominator to shape your understanding. For example, the number of cases in the vaccinated population needs to be assessed as a rate that uses the number of vaccinated people (which is very large) as the denominator. [More information on base rate fallacy and COVID-19 is available here.](#)

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## Mis/disinformation monitor alert

Presenting credible sources to debunk mis- and disinformation.

Social media has allowed for the widespread sharing of vaccine misinformation, and foreign disinformation campaigns and bots have increased its proliferation.<sup>7</sup> In this issue, we take a look at the credible sources that were used to debunk a false rumor that was circulated on social media.

### The rumour

[Social media posts](#) circulating around early December claimed 400 children (age not specified) were treated in one week at a hospital in Calgary for adverse reactions related to COVID-19 vaccines. These posts claim the source was a message from a "friend whose wife is a nurse."

### How this rumour was debunked

This misinformation was corrected by [Alberta Health Services in a Twitter post on December 8, 2021](#). They confirmed that they had not had any pediatric hospitalizations related to COVID-19 vaccination at that time.

Additional data supporting the debunking of this rumour can be found in [reported side effects following COVID-19 vaccination in Canada](#). This surveillance report is updated on a weekly basis by the Public Health Agency of Canada. It includes all possible Adverse Events Following Immunization (AEFI) that have been reported by local public health units, including events that required hospitalizations or prolongation of existing hospitalization (regardless of whether they have been linked to the vaccines).

### DID YOU KNOW?

**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.

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## Science spotlight

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

### The science of vaccine intervals



The recent surge of the Omicron variant has caused some to consider shortening intervals for boosters and pediatric vaccines. Understanding the immunology behind the interval recommendations may help healthcare providers discuss vaccine intervals with their patients.

### How optimal vaccine intervals in Canada were determined

Intervals between vaccine doses are often determined by clinical trial testing. In the context of a public health crisis, vaccine manufacturers opted to choose the shortest possible interval between 1st and 2nd doses of the primary series so that the vaccines would be available as quickly as possible; the manufacturers' recommended intervals are 21-days for the Pfizer BioNTech (Comirnaty<sup>®</sup>) vaccine and 28-days for the Moderna (Spikevax<sup>™</sup>) vaccine. When vaccines began to roll out in Canada, in the face of an initially limited supply, NACI recommended a longer interval between vaccines for two reasons:

- To allow for as many people as possible to get first doses with the limited supply
- The members of NACI understood that longer intervals would lead to a better immune response based on two immunological concepts based on decades of research: affinity maturation and decreased immune interference.

### Affinity maturation

Vaccines work by allowing our bodies to build defenses against infectious pathogens before being exposed to them. These defenses are built in stages over time. The initial defenses that are built rapidly following vaccination are a sort of "first draft" and may not provide very effective or long-lasting protection. However, when the body is exposed to the antigen again through vaccination or infection, a better response is made building off of the memory B cells that are made with the first exposure.

More time between vaccine doses allows for optimal B cell maturation, known as affinity maturation, so that when the immune system encounters the vaccine again it produces better binding antibodies that may be more protective, durable and broad. These types of antibodies may result in better protection on exposure to the same or different variants of the virus.

### Decreased immune interference

Circulating antibodies reach their peak soon after vaccination and then begin to decline. If a second dose of vaccine is introduced into the body when there is still a high level of circulating antibodies, these antibodies may mask binding sites on the vaccine antigen preventing a good response to the vaccine. In addition, the circulating antibodies may also bind the antigen, tagging it for destruction, which may reduce antigen availability and therefore decrease vaccine response. Allowing time for circulating antibodies to decrease between doses will help prevent immune interference and optimize responses to vaccines.

### NACI recommends the following intervals between doses:

- At least 8 weeks between the first and second doses in the primary series for those 5 to 11 years of age.
- 8 weeks between the first and second doses in the primary series for those 12 years of age and over.
- 4- to 8-week interval between each dose in the primary series for individuals who are moderately to severely immunocompromised.
- At least 6 months between the primary series and the booster in those 18 years of age and over.

#### Key Takeaways

### The Science of vaccine intervals

- Longer intervals between vaccine doses may allow for better, more protective immune responses against future infection. This may be important to improve protection against current and future variants of concern.
- Omicron is likely to be a dominant virus in the population for a few months and future variants may emerge. It will be important to optimize protection over the long term and not only during the current surge.
- Vaccines are only one part of a dynamic public health response. Layering vaccination with timed and targeted public health measures and individual protective practices continues to be essential to reduce risk. This includes wearing a well fitting and well constructed mask when likely to encounter others from outside the household.

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## Omicron & vaccination updates

### Omicron and COVID-19 vaccine effectiveness

Receiving **two COVID-19 vaccine doses** provides good protection against severe illness and hospitalization caused by Omicron, but it is less effective against infection.

Getting an **mRNA booster dose** can provide even better protection against severe illness and hospitalization caused by Omicron and improves protection against infection.<sup>8,9</sup>

Due to Omicron's high transmissibility and presence in our communities, it's important that everyone continues to follow public health guidance - **#WashMaskSpace**.



### COVID-19 vaccination for children 5-11 years

There's now new and reassuring real-world safety evidence from both the United States (US) and Canada suggesting that the COVID-19 vaccine for children 5-11 years has a **good safety profile** and is well tolerated.

In the US, very rare cases of myocarditis have been reported after Pfizer-BioNTech (Comirnaty®) COVID-19 vaccination in children 5-11 years, mostly after the 2<sup>nd</sup> dose in males. These reports are occurring much less often than in adolescents 12-17 years and young adults.<sup>10</sup>

### What's new from NACI

#### [Updated recommendations on the use of COVID-19 vaccines in children 5 to 11 years of age](#)

NACI has strengthened their recommendation on the use of the COVID-19 vaccine for children 5-11 years from discretionary (may be offered) to strong (should be offered). NACI now recommends that a **complete series with the Pfizer-BioNTech (Comirnaty®) vaccine (10 mcg) should be offered** to children 5 to 11 years of age who do not have contraindications to the vaccine, with a dosing interval of at least 8 weeks between doses.



NACI continues to recommend an **interval of at least 8 weeks** between doses for this age group as it gives children the opportunity to develop better and longer-lasting immunity and further minimizes the very rare risk of myocarditis following vaccination.

A 3-dose primary series with the Pfizer-BioNTech (Comirnaty®) COVID-19 vaccine (10 mcg) should be offered to children 5-11 years of age who are moderately to severely immunocompromised using **an interval of 4 to 8 weeks between each dose**. For individuals who have previously received two doses of the Pfizer-BioNTech (Comirnaty®) COVID-19 vaccine (10 mcg), a third dose of the Pfizer-BioNTech (Comirnaty®) vaccine (10 mcg) should be offered 4 to 8 weeks after the second dose.

- A longer interval will likely result in a better immune response and a longer duration of protection. If a longer interval is being considered, risk factors for exposure to the virus, including local epidemiology, and the risk of severe outcomes should be taken into account.

### **COVID-19 vaccination for adolescents 12-17 years**

From a recent U.S. study, the 2-dose Pfizer-BioNTech (Comirnaty®) COVID-19 vaccination in adolescents showed very good protection against multisystem inflammatory syndrome in children (MIS-C). From that same study, among critically ill MIS-C patients requiring life support, all were unvaccinated.<sup>11</sup>

For more information on MIS-C, see this [recent Canada Communicable Disease Report \(CCDR\) article](#).

NACI continues to recommend that a complete series with an mRNA COVID-19 vaccine should be offered to adolescents 12 to 17 years of age who do not have contraindications to the vaccine, with a dosing interval of 8 weeks between the first and second dose.

The use of Pfizer-BioNTech (Comirnaty®) COVID-19 vaccine (30 mcg dose) is preferred to Moderna (Spikevax™) COVID-19 vaccine (100 mcg) dose to start or continue the mRNA primary vaccine series. This is because there has been a lower risk of myocarditis/pericarditis with the Pfizer-BioNTech (Comirnaty®) vaccine compared to the Moderna (Spikevax™) vaccine.

NACI continues to closely monitor the evolving evidence on COVID-19 vaccines, including data on the safety and effectiveness of booster doses in adolescents under 18 years of age, particularly those at higher risk of severe illness from COVID-19, and will update its guidance as needed.

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## Community spotlight

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

### Children’s Healthcare Canada (CHC): Immunizing Children with Confidence

With support from PHAC’s [Immunization Partnership Fund \(IPF\)](#), [CHC](#) has developed “Immunizing Children with Confidence: Capacity, Communication, and Community”. This initiative will offer tailored interventions and resources to improve access, awareness, and use of knowledge and resources available to frontline child and youth health care providers. It aims to enable them to safely and confidently vaccinate children, including those who are at increased risk due to COVID-19 and other vaccine-preventable infectious diseases. For helpful tools to support vaccine communicators, vaccine providers and families with pediatric vaccination visit [Children Healthcare Canada’s resources](#).

### National Kids and Vaccines Day

**#KidsVaccinesDay**



On January 27th, 2022, Children’s Healthcare Canada, [#ScienceUpFirst](#) and [The Sandbox Project](#), joined forces to create [National Kids and Vaccines Day](#). They encourage everyone to participate in the day's events through their own efforts, and by promoting the programs and resources currently being planned using the hashtag [#KidsVaccinesDay](#).

CHC is hosting a free half-day conference - [Vaccination Conversations Pop-Up Event](#) - to provide healthcare providers with the skills, tools, and information necessary to confidently promote and provide vaccinations to children and their families.

[#ScienceUpFirst](#) will host a free [National Kids and Vaccines Town Hall](#) event at 5 p.m. PST / 8 p.m. EST/ 9 p.m. AST. This live event will answer questions from kids, caregivers and educators about vaccines and the ongoing COVID-19 pandemic.

The Sandbox Project and the [Young Canadians Roundtable on Health \(YCRH\)](#) have put together a [database of resources](#) for kids and parents to help kids understand the importance and safety of vaccines, and to make them feel more confident walking into their appointments.

### About IPF

PHAC’s [Immunization Partnership Fund \(IPF\)](#) provides funding for projects that improve access to vaccines and encourage vaccine acceptance and uptake. Funded projects build capacity of health care providers as vaccinators and vaccination promoters; support community-based COVID-19 education, outreach, and vaccine promotion; and build capacity for evidence-based and culturally appropriate vaccine communication.

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## PHAC webinars 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 healthcare providers with clinical guidance related to key vaccine topics.

### Webinar watch list

- [COVID-19 Vaccine for Pediatric Use in Canada](#)
- [Preparing for Pediatric COVID-19 Immunization and Adult Booster Doses](#)
- [Revaccination with COVID-19 Vaccines after Anaphylaxis](#)
- [Contraindications to COVID-19 Vaccines](#)
- [Seasonal Influenza Immunization 2021-2022](#)
- [Addressing COVID-19 Vaccine Hesitancy in Clinical Practice](#)

Subscribe to The [CANVax Boost](#) newsletter and [NCCID News Alerts](#) to stay up-to-date on upcoming PHAC webinars.

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## Stay current

[Subscribe](#) to stay up-to-date on the latest guidance and information from the **Canadian Immunization Guide (CIG)** and/or the **National Advisory Committee on Immunization (NACI)** including recommendations, statements, and literature reviews.

The [CIG](#) is a comprehensive resource on immunization developed based on recommendations and statements of expert advisory committees, including NACI and the Committee to Advise on Tropical Medicine and Travel (CATMAT).

[NACI](#) makes recommendations for the use of vaccines currently or newly approved for use in humans in Canada, including the identification of groups at risk for vaccine-preventable diseases for whom vaccination should be targeted.

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## Vaccine confidence feedback

- Do you have questions or comments?
- Do you have a success story or best practice to share with your colleagues across the country?
- Do you wish to be added to the distribution list to receive the PHAC Vaccine Confidence InfoBulletin directly?

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 healthcare provider and any urgent medical questions should be directed to 911 or your local emergency department.

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## Annex

### Featured resources

#### CIG COVID-19 chapter

- On December 23, 2021, **PHAC published a new COVID-19 vaccine chapter of the CIG**. This chapter includes NACI's recommendations on the use of COVID-19 vaccines up to and including October 29, 2021.
- This marks a change in the way that NACI COVID-19 vaccine advice is being presented to healthcare providers, to make the information more accessible and to present it in a format similar to other vaccines.
- Future NACI guidance on the use of COVID-19 vaccines will continue to be published on the NACI webpage as short statements or rapid responses. These statements will be incorporated into the CIG COVID-19 vaccine chapter as quickly as possible for healthcare providers. Previous iterations of NACI's recommendations on the use of COVID-19 vaccines will remain on the NACI webpage under the COVID-19 section.
- The [COVID-19 vaccine chapter](#) can be found under Part 4: Active Vaccines of the [Canadian Immunization Guide](#).

#### Child & youth resources

- [Quick reference guide on use of COVID-19 vaccines for children \(5 to 11 years of age\)](#)
- [Quick reference guide on use of COVID-19 vaccines for youth and adults \(12 years and over\)](#)
- [Making COVID-19 vaccination decisions for children 5 to 11 years of age – guidance for parents and guardians](#)
- [The CARD™ System for coping with needle fear and anxiety in children](#)
- [COVID-19 Vaccine Communications Toolkit | Pediatric Vaccination \(5-11\)](#)

#### Fertility & pregnancy resources

- [Society of Obstetricians and Gynaecologists of Canada \(SOGC\) statement on COVID-19 vaccination in pregnancy](#)
- [Canadian Surveillance of COVID-19 in pregnancy: epidemiology, maternal and infant outcomes](#)
- [“Ask the Expert” video - can the COVID-19 vaccines affect fertility?](#)

## Vaccine Injury Support Program (VISP)

- Canadians who support public health by being vaccinated should be supported should they experience a serious and permanent injury as a result of vaccination. Though rare, these injuries can occur.
- The Vaccine Injury Support Program (VISP), launched on June 1, 2021, provides financial support to people who have experienced a serious and permanent injury after receiving a Health Canada-authorized vaccine, administered in Canada, on or after December 8, 2020.
- Raymond Chabot Grant Thornton Consulting Inc., the independent third party administering the VISP, recently released program statistics on its website. This includes information on the number of claims received, the number of claims processed, and the amount of compensation paid. Program information, including information on how to submit a claim, and complete statistics can be found at: [vaccineinjurysupport.ca](http://vaccineinjurysupport.ca).

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<sup>5</sup> Fu W, Sivajohan B, McClymont E, Albert A, Elwood C, Ogilvie G, Money D. Systematic review of the safety, immunogenicity, and effectiveness of COVID-19 vaccines in pregnant and lactating individuals and their infants. *Int J Gynaecol Obstet*. 2021 Nov 4. doi: 10.1002/ijgo.14008. Epub ahead of print. PMID: 34735722.

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<sup>10</sup> Su, JR. COVID-19 vaccine safety updates: Primary Series in children and adolescents ages 5-11 and 12-15 years, and booster doses in adolescents aged 16-24 years. Advisory Committee on Immunization Practices (ACIP). 2022 Jan 5. VEARS (Vaccine Adverse Event Reporting System) data presented to ACIP. <https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2022-01-05/02-COVID-Su-508.pdf>.

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