

Updated March 24, 2022

Alberta COVID-19 Immunization Program – Information on Immunization after COVID-19 Infection

Alberta has adopted the recent recommendations of the [National Advisory Committee on Immunization \(NACI\)](#) regarding when individuals may receive a COVID-19 vaccine after a COVID-19 infection. A summary can be found on page 4 below.

In Alberta, [eligible](#) individuals with a prior COVID-19 infection are currently recommended to continue to receive COVID-19 vaccines under this guidance; however, it is acknowledged that an optimal interval between previous COVID-19 infection and COVID-19 vaccination (primary series or booster dose) is currently unknown. Clinical discretion and assessment based on individual circumstances is advised.

Updated information and rationale are outlined below.

Overview of Evidence

- There is evidence that recovery from COVID-19 infection provides some immunity against COVID-19 re-infection; however, the strength and duration of protection from infection-acquired immunity is not fully known at this time and may vary by individual factors.
 - The level of protection from infection-acquired immunity may vary in each individual depending on how mild or severe their prior infection was, the time elapsed since they have recovered from infection, as well as their age and whether they have a compromised immune system or chronic medical conditions.
 - Evidence collected by the [World Health Organization](#) indicates that individuals with mild or asymptomatic infection tend to have lower antibody levels than those with severe disease. The duration of protection also may vary depending on disease severity.
 - Evidence suggests that immunity against re-infection for infection-acquired immunity and breakthrough infection for vaccine-acquired immunity appears to wane with time, particularly in older adults.
 - Individuals with immunocompromising and chronic conditions are also more likely to have a less robust immune response, and subsequently lower levels of protection, after recovering from infection.
- [Evidence](#) shows that getting a COVID-19 vaccine after recovering from COVID-19 infection provides added protection compared to those who remained unvaccinated.
- Available clinical evidence from COVID variants prior to Omicron indicate there is no increase in reported serious adverse events (including myocarditis- see [the Considerations section](#) for more information) after administration of a dose of a COVID-19 vaccine in someone previously infected. No Omicron-specific evidence on this topic is available at this time.
- Non-severe systemic adverse events (including fever, headache, body aches, and fatigue) were higher in individuals, primarily in younger adults, with prior infection compared to an infection-naïve population following administration of a first dose of vaccine. Systemic side effects reported after the second dose were similar between the two groups, and mostly mild or moderate.
- The differences in frequency and severity of adverse events following a booster dose in individuals with previous infection relative to individuals with no history of previous infection is currently unknown; however, this continues to be actively monitored.
 - Generally, reactions reported after getting a booster shot are similar to those after the second dose. Fever, headache, fatigue, and pain at the injection site were the most commonly reported side effects, and overall, most side effects were mild to moderate.

Interval

- There is not enough evidence to recommend a specific optimal interval between infection and immunization. Alberta is aligning with the guidance provided by [National Advisory Committee on Immunization](#). NACI provided the guidance based on immunological principles, available evidence, and expert opinion.
- A longer interval between infection and vaccination may result in a better immune response as this allows time for this response to mature in breadth and strength, and for

circulating antibodies to decrease, thus avoiding immune interference when the vaccine is administered.

- Overall, it is expected that individuals who have been infected with COVID-19 may benefit the most from future vaccine doses by timing them strategically in relation to the time since infection, using similar immunological principles to those informing intervals between vaccine doses. Emerging evidence indicates that a longer interval between COVID-19 infection and vaccination is associated with improved antibody responses to COVID-19 vaccines.

COVID-19 re-infection and variants of concern

- Real-world evidence and numerous reports have documented the risk of reinfection with Omicron is higher than risk of reinfection with previous variants. Omicron may also be able to evade some of the immunity conferred by COVID-19 vaccines or a previous COVID-19 infection.
- The spike protein structure of the Omicron variant differs from previous variants, and the structural differences may affect the extent and duration of protection from a previous infection against Omicron infection.
 - A [UK study](#) suggests that Omicron variant is 3-8 times more likely to re-infect someone with a previous COVID-19 infection compared to other variants that have been studied.
 - The [updated study](#) also suggests that vaccination (two doses and three doses) in those who were previously infected (prior to November 30, 2021) increased protection against Omicron infection compared to previous infection alone.
- [Emerging evidence](#) in previously vaccinated individuals suggests Omicron infection may boost previous vaccine-induced protection; however, the duration of protection from Omicron infection is unknown.

General Recommendations

- Individuals who have recovered from COVID-19 infection may consult with their health care provider to discuss timing of immunization based on their risk of re-infection, including potential risks of exposure (e.g. workplaces or living situations with direct contact to other individuals), risks of severe illness from COVID-19 reinfection or risks of transmission to other individuals who are at increased risk of severe illness, as well as the circulation of variants of concern in the community.
- Individuals with a history of confirmed COVID-19 infection and who have not previously received a dose of COVID-19 vaccine can be provided COVID-19 vaccine as soon as their acute symptoms resolve and they are no longer infectious, or they may follow suggested intervals outlined in the table (with the exception of those with MIS-C who should wait at least 90 days).
- An mRNA vaccine is recommended as a primary series or booster dose following recovery from COVID-19 infection except in the event of contraindication or refusal.

Table 1. Suggested intervals between previous COVID-19 infection and COVID-19 vaccination

COVID-19 infection timing relative to COVID-19 immunization	Population	Suggested interval between COVID-19 infection and immunization
Infection prior to initiation or completion of a primary COVID-19 immunization series	Individual 5 years of age and older without certain immunocompromising conditions AND no history of multisystem inflammatory syndrome in children (MIS-C)	8 weeks after symptom onset or positive test (if asymptomatic).
	Individuals 5 years and older with certain immunocompromising conditions (as listed above) AND no history of MIS-C	4 to 8 weeks after symptom onset or positive test (if asymptomatic).
	Individuals 5 years and older with a previous history of MIS-C (multisystem inflammatory syndrome in children), regardless of immunocompromised status	Receive the vaccine when clinical recovery has been achieved or at least 90 days since the onset of MIS-C, whichever is longer.
Infection after primary series but before booster dose	Individuals 12 years and older currently eligible for booster dose	3 months after symptom onset or positive test (if asymptomatic) AND at least 5 months from completing the primary series.

These intervals are based on NACI guidance and clinical discretion is advised.

- Individuals not sure whether they were infected before should not get a serology test before immunization to determine whether they were previously infected.

Clinical Considerations

Individuals Who Received Anti-SARS-CoV-2 Monoclonal Antibodies

- As a precautionary measure, COVID-19 immunization should be delayed for at least 90 days after the receipt of anti-SARS-CoV-2 monoclonal antibodies or convalescent plasma provided for treatment of COVID-19 infection. This applies to people who received these therapies before receiving any COVID-19 vaccine dose or between doses.

Myocarditis and/or Pericarditis Risk

- It is unknown if individuals with a history of previous myocarditis and/or pericarditis, including as a result of previous COVID-19 infection, are at higher risk of vaccine-associated myocarditis and/or pericarditis. Further information is available [here](#).
 - Generally, deferral of COVID-19 immunization is not required for those with a prior history of myocarditis or pericarditis that is unrelated to COVID-19 mRNA vaccines as long as the individual has recovered from the condition.

- For additional clinical considerations regarding COVID-19 vaccine dose(s) following myocarditis/pericarditis, please see the “Myocarditis” section of the [biological products page](#).
- The Pfizer-BioNTech COVID-19 vaccine is recommended as the preferred choice of mRNA COVID-19 vaccine for Albertans 12 to 29 years of age to start and/or complete their primary series. More information for Albertans ages 12 to 29 is available [here](#).
- There is emerging evidence that indicates a potential reduction of myocarditis risk with a longer interval between first and second doses of mRNA COVID-19 vaccine. While there is no conclusive evidence that a longer interval between infection and vaccine would show the same trend, as a precaution, this same approach could be applied to the interval between infection and the first dose of vaccine.

AEFI/AESI reporting

- Health care professionals are reminded of their critical role and mandated responsibility to report adverse events following immunization that meet Alberta’s definition of an adverse events following immunization (AEFI) and adverse events of special interest (AESI). For information on what needs to be reported and when, go to: <https://www.albertahealthservices.ca/info/Page16187.aspx>.