

Coronavirus COVID-19

BC Centre for Disease Control | BC Ministry of Health



Clinical Guidance on COVID-19 Vaccines for Solid Organ Transplant Recipients

This guidance is intended for healthcare providers and is based on known evidence as of April 18, 2023.

People who have received an organ transplant may require specific advice and counseling prior to COVID-19 immunization. There may be questions about the efficacy of vaccines in people who are immunosuppressed, and care considerations about the timing of immunization relative to treatment.^{1,2}

Is COVID-19 immunization recommended for solid organ transplant recipients?

COVID-19 vaccines should be encouraged for people with solid organ transplants and are not contraindicated, including those who have had a COVID-19 infection. This recommendation is based on the following review:

- **Canadian Society of Transplantation** recommend that vaccine may be given to the pre- and post-transplant patient population when it is available to them, and they may receive any of the Health Canada approved vaccines that are available to them, if age requirements are met.³
- **National Advisory Committee on Immunization** recommends that immunosuppressed individuals be offered the vaccine.^{4,5}
- **Clinically worse outcomes from COVID-19 infection:** COVID-19 outcomes in organ transplant recipients have ranged from mild disease to the need for intensive care unit care and death.^{6,7} Whether COVID-19 is more severe due to immunosuppression or due to underlying disease or comorbid conditions associated with high COVID-19 risk (such as advanced age, chronic kidney disease, diabetes, and heart/lung disease) is unclear. Lung transplant patients also seem to be at particularly high risk of severe disease.⁶

While data specific to the safety and efficacy of COVID-19 vaccines in solid organ transplant recipients is currently limited, there are data to suggest that the currently available COVID-19 vaccines have efficacy⁸ and it is reasonable to anticipate that vaccination will offer some benefit. Thus, the authors of this guidance agree that the benefits of increased vaccine-induced immunity against COVID-19 for this population outweigh any theoretical risks of immunization.

Is COVID-19 immunization efficacious and safe for solid organ transplant recipients?

Both adults and children who have had a solid organ transplant and people who are immunosuppressed in general were excluded from the clinical trials of the COVID-19 vaccines.⁹⁻¹³

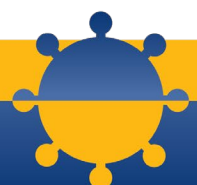
If you have fever, a new cough, or are having difficulty breathing, call 8-1-1.



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Safety data for people with solid organ transplants are available in observational studies. The frequency and severity of adverse events following vaccination with an mRNA COVID-19 vaccine were comparable to that of non-immunosuppressed individuals in these studies and what was reported in clinical trials. Safety data in these populations following vaccination with a viral vector vaccine is not available.

As with most vaccines, there is a potential for blunted immune response in individuals who are immunocompromised due to their disease or treatment.^{1,2} Recently, multiple studies have been published examining the response to SARS-CoV2 mRNA-based vaccines in solid organ transplant (SOT) recipients.¹⁴⁻²⁰ Overall, these studies have shown a lower antibody response to vaccine among SOT recipients when compared to the general population. Emerging studies have shown a detectable SARS-CoV-2 specific T-cells response in some patients, despite a lack of antibody response. Therefore, SOT recipients might derive clinical benefit from the vaccine despite an absent antibody response. Studies to assess vaccine effectiveness, particularly for protection against severe COVID-19 as a clinical end-point in SOT, are still needed.²¹ Studies evaluating immune response in pediatric and adolescent solid organ transplant recipients are ongoing. Early data suggests adolescent transplant recipients may have better antibody response compared to adult recipients.²²

There is one study that suggests that a third dose of COVID-19 vaccine in immunocompromised patients can increase antibody levels.²³ Small studies on third doses of the mRNA COVID-19 vaccines have shown that immunogenicity (immunity measured in the blood) may increase with a third dose.

Transplant recipients who are immunosuppressed from treatment should be informed that they may have a reduced immune response to any authorized COVID-19 vaccine series.⁴ However, they should also be reassured that expert consensus is that benefits of immunization outweigh the risks.^{4,6,7,14}

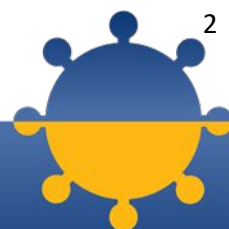
There is a theoretical vaccine side effect that COVID-19 immunization could cause graft rejection. There is one study that found minimal evidence of donor-directed immunologic activity post-vaccination, and all immunologic changes did not correlate to graft dysfunction. The researchers suggest that COVID-19 vaccination is immunologically safe and should continue for transplant recipients.²⁴

Are there any specific contraindications or exceptions for solid organ transplant recipients?

Individuals who have had a severe allergic reaction to an ingredient of one type of COVID-19 vaccine are still able to receive future doses of the other type of vaccine.²⁵ BCCDC has a list of the individual components and their purpose in the vaccines. For a complete list of components in the vaccine, consult the vaccine monographs found at:

www.bccdc.ca/health-info/diseases-conditions/covid-19/covid-19-vaccine/vaccines-for-covid-19.

People with a history of anaphylaxis without known or obvious cause, and those with suspected hypersensitivity or non-anaphylactic allergy to COVID-19 vaccine components, are advised to consult with an allergist prior to immunization. Health-care providers with patients with a history of severe allergic reactions should refer to the product monographs to



review the full ingredient list.⁹⁻¹³ Potential allergens that are known to cause type 1 hypersensitivities in the mRNA vaccines include polyethylene glycol (PEG), and Polysorbate 80 in the VAXZEVRIA (AstraZeneca): viral vector vaccine.

Health Canada continues to monitor any adverse events following immunization through their post-authorization surveillance [process](#).

Currently, it is recommended that COVID-19 vaccines can be given concomitantly with, or any time before or after any other indicated vaccine including the seasonal influenza vaccine.²⁶⁻²⁹

Patients should delay vaccination within the first month post-transplant, during acute rejection treatment (e.g., high dose steroids) or antibody mediated rejection protocols with rituximab - see below.³

Are there specific recommendations or considerations for safe and/or most effective administration?

For the vast majority of solid organ transplant recipients, there are no specific recommendations that need to be considered for COVID-19 vaccine administration. A small subset of adult patients with specific timing considerations (those on the active transplant wait list, have recently had a solid organ transplant, or are undergoing acute rejection therapy) should be contacted directly by their transplant care teams to help with immunization timing.

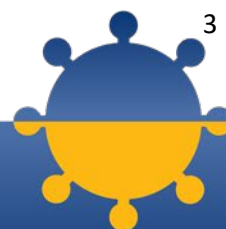
Pediatric transplant patients ages 5 and older are encouraged to be vaccinated. Pediatric patients who had solid organ transplant in the last month; have been treated for acute rejection therapy in the last month; or received rituximab in the last 3 months should contact their transplant care teams to help with immunization timing.

As part of vaccine surveillance for safety and efficacy, solid organ transplant patients should be encouraged to report any significant adverse event to their transplant clinics.

A very small group of pediatric and adult patients who are waiting to receive a solid organ transplant, have recently had a solid organ transplant, or are undergoing acute rejection therapy, will need to be specifically counselled by their post-transplant care teams on the appropriate timing of the COVID-19 vaccines. For these patients, it is recommended:³

- Ideally, immunization should occur two weeks prior to transplant to allow for an immune response. If transplant happens before the second dose (for 2 dose vaccines), resume vaccination at least one month post-transplant.
- Wait at least one month after transplant to receive the COVID-19 vaccine regardless of induction therapy (basiliximab, anti-thymocyte globulin)
- Wait at least one month after active treatment for acute organ rejection (including steroid pulse even if no other drugs given)
- Wait at least three months after rituximab therapy (e.g. antibody-mediated rejection protocols)

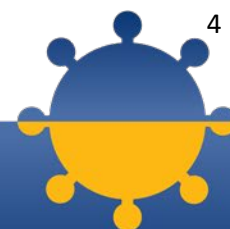
Antibody testing is not recommended after vaccination. The levels of protective antibody and association with vaccine effectiveness are not known.²¹



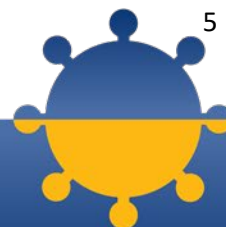
As all solid organ transplant recipients are immunosuppressed to varying degrees, vaccine efficacy is expected to be lower than for those who are not immunosuppressed. It is strongly recommended that patients (and their immediate household) continue to practice infection control measures while COVID-19 is circulating in the community. Household contacts and caregivers of the transplant recipient should also be immunized when possible.³ Regardless of vaccination status, transplant recipients should follow any measures recommended by public health.

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