



Coronavirus COVID-19

BC Centre for Disease Control | BC Ministry of Health



Clinical Guidance on COVID-19 Vaccines for People with Splenectomy or Functional Asplenia

This guidance is intended for health-care providers. It is based on known evidence as of June 20, 2021.

Background and context

This guidance is based on a review of the vaccines approved by Health Canada for the prevention of COVID-19 disease caused by the SARS-CoV-2 virus:

- **mRNA vaccines:** Pfizer-BioNTech (BNT162b2),¹ Moderna (mRNA-1273)²
- **Replication-defective adenoviral vector vaccine:** AstraZeneca/COVISHIELD (ChAdOx1-S),³ Janssen/Johnson & Johnson (Ad26.COV2.S)⁴

Currently, anyone in British Columbia who is 12 years and older (i.e., born in 2009 or earlier) is eligible for COVID-19 immunization. At this time, only the Pfizer-BioNTech mRNA vaccine is authorized for youth aged 12 years and above,¹ and we are expecting that Health Canada will authorize the Moderna mRNA vaccine for 12-17 year olds in the near future. Studies of the COVID-19 vaccines in younger children are ongoing.

- If you receive an mRNA vaccine (Pfizer-BioNTech or Moderna) for your first dose, you will usually be offered the same vaccine for your second dose. However, you may be offered the other mRNA vaccine if the vaccine received for the first dose is not available or is unknown, as the vaccines are very similar. No data currently exist on the interchangeability of the COVID-19 mRNA vaccines. However, there is no reason to believe that mRNA vaccine series completion with a different authorized mRNA vaccine product will result in any additional safety issues or deficiency in protection. You should not receive an AstraZeneca vaccine for your second dose.⁵
- The AstraZeneca/COVISHIELD COVID-19 vaccine program has been stopped in B.C. for first doses, unless there is a contraindication to the mRNA vaccines, or as advised by the Medical Health Officer or an allergist,⁶ due to infrequent (1:50,000) but serious Vaccine-Induced Thrombotic Thrombocytopenia (VITT) blood clotting events after the first dose. The risk of VITT is more than six times lower for the second dose (1:600,000). People who had the AstraZeneca/COVISHIELD vaccine for their first dose have the option of receiving AstraZeneca for their second dose, or, receiving an mRNA vaccine as their second dose. Receiving a mixed vaccine series (AstraZeneca/COVISHIELD for first dose and an mRNA vaccine for the second dose) is permitted based on small studies that suggest that this is likely safe and likely as effective and may be even more effective, but not enough is known to make firm conclusions and data collection is ongoing. There may also be heightened side effects experienced with a mixed vaccine series.



The BCCDC has prepared two information sheets to help navigate that choice:

- For health care professionals: Updated recommendations for AstraZeneca and COVISHIELD vaccines letter for physicians (www.bccdc.ca/health-professionals/clinical-resources/covid-19-care/covid-19-vaccinations/toolkit-for-health-professionals)
- For patients: 2nd dose choice for people who received AstraZeneca/COVISHIELD (www.bccdc.ca/Health-Info-Site/Documents/COVID-19_vaccine/AstraZeneca_2ndDose.pdf)

Another replication defective adenoviral vector vaccine, Janssen/Johnson & Johnson (Ad26.COV2.S)⁴, has been approved by Health Canada but will not be part of BC's COVID-19 immunization program.

The current recommended interval between the 2 doses observed in British Columbia for the general public is 8 weeks. However, for individuals who have been designated by the Ministry of Health as Clinically Extremely Vulnerable (CEV), as of Thursday June 3rd the dose interval is in line with the manufacturer's recommended dosing interval (21 days for Pfizer-BioNTech, 28 days for Moderna, 8-12 weeks for AstraZeneca).

- Asplenia can be anatomical (i.e. splenectomy) or functional (i.e. resulting from conditions that cause atrophy, infarction, infiltration, or engorgement of the spleen).^{7,8} Patients who have had a splenectomy or have functional asplenia are immunocompromised and are at increased risk for severe and overwhelming bacterial infections, particularly from encapsulated bacteria. These bacterial infections are more likely to occur in patients with viral infections.
- In general, people with splenectomy or functional asplenia were excluded from the COVID-19 vaccine trials.¹⁻⁵ Therefore, there are uncertainties as to whether COVID-19 vaccine is efficacious and safe in patients with splenectomy or functional asplenia.

Is COVID-19 immunization recommended for patients with splenectomy or functional asplenia?

COVID-19 vaccines are not contraindicated and should be encouraged for patients who have had a splenectomy or who have functional asplenia, including those who have had COVID-19 infection.

This recommendation is based on the NACI [recommendation](#) which has stated that immunosuppressed individuals should be offered the vaccine if the benefits of vaccine outweigh the potential risks.⁶

Are COVID-19 Vaccines Efficacious and Safe in People with Splenectomy or Functional Asplenia?

People who have had a splenectomy or who have functional asplenia are considered immunocompromised, and people immunocompromised due to disease or treatment were excluded from the clinical trials of the Pfizer-BioNTech, Moderna, AstraZeneca/COVISHIELD, and Janssen vaccines.^{1,2,3,4,5} Therefore, data on whether COVID-19 vaccines are efficacious in patients who have had a splenectomy or have functional asplenia is currently limited. As with most vaccines, there is a potential for blunted immune response in individuals who are immunocompromised due to their disease or treatment.³⁻⁷



As a matter of informed consent, patients who are immunocompromised should be informed about the possibility that individuals who are immunosuppressed may have a diminished immune response to any of authorized COVID-19 vaccines.⁸ However, they should also be reassured that expert consensus is that immunization should proceed as the benefits outweigh the risks.

Following immunization, patients should continue with COVID-19 precautionary measures as outlined in the current advice from the [B.C. Centre for Disease Control](#).

Are there any specific contraindications or exceptions for people with splenectomy or functional asplenia?

Individuals should not receive the vaccines if they have a history of severe allergic reaction to a previous dose of the respective vaccine or any component of the vaccines.⁶ For a complete list of components in the vaccine, consult the vaccine monographs found at:

- Pfizer BioNTech: <https://covid-vaccine.canada.ca/info/pdf/pfizer-biontech-covid-19-vaccine-pm1-en.pdf>
- Moderna: <https://covid-vaccine.canada.ca/info/pdf/covid-19-vaccine-moderna-pm-en.pdf>
- AstraZeneca: <https://covid-vaccine.canada.ca/info/pdf/astrazeneca-covid-19-vaccine-pm-en.pdf> and COVISHIELD: <https://covid-vaccine.canada.ca/info/pdf/covishield-pm-en.pdf>

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.^{1,2,3} Potential allergens that are known to cause type 1 hypersensitivities in the mRNA vaccines include polyethylene glycol (PEG), and Polysorbate 80 in the replication-defective adenovirus vaccines.

| Polyethylene glycol (PEG) | Polysorbate 80 |
|--|--|
| <ul style="list-style-type: none">• Pfizer-BioNTech (BNT162b2)¹• Moderna (mRNA-1273)² | <ul style="list-style-type: none">• AstraZeneca/COVISHIELD (ChADOx1-S)³• Janssen/Johnson & Johnson (Ad26.COV2.S)⁴ |

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

Other than allergy, there are no specific contradictions or exceptions for people who have had a splenectomy or who have functional asplenia.

Currently, it is recommended that COVID-19 vaccines can be given concomitantly with, or any time before or after any other indicated vaccine.¹⁴⁻¹⁶ This is a change from the previous recommendation for a 14-day interval before or after
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receipt of a COVID-19 vaccine. The original advice against co-administration was based on a cautionary approach, as specific studies of co-administration with other vaccines have not been performed. However, substantial data have now been collected regarding the safety of COVID-19 vaccines currently authorized by Health Canada. Extensive experience with non-COVID-19 vaccines has demonstrated that immunogenicity and adverse event profiles are generally similar when vaccines are administered simultaneously as when they are administered alone.

For patients with these conditions due to a haematological malignancy, sickle cell disease, or thalassemia, please refer to the clinical guidance document for those conditions on the [BCCDC website](#).

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

There are no known studies regarding the timing of COVID-19 vaccine in patients with a splenectomy or who have functional asplenia.

Based on the 2013 Infectious Diseases Society of America [guidelines](#), immunization timing is recommended as follows for asplenic patients:⁹

- Elective splenectomy patients should start immunizations approximately 10-12 weeks prior to surgery, so series can be completed at least 14 days prior to splenectomy
- If vaccine series cannot be completed prior to splenectomy, series can be resumed 14 days after surgery for most patients.
- It is not clear how COVID-19 and other immunizations for encapsulated organisms should be sequenced or timed. COVID-19 vaccines can be administered concomitantly with, or any time before after, any other live or inactivated vaccine. The risk of other causes of sepsis are high in patients with asplenia and in the case of emergency surgery, other vaccines should probably be prioritized.

References

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