

COVID-19 and Vaccines

A Report for Patients Addressing Important Questions

Lymphoma Canada, with the help of our Scientific Advisory Board comprised of leading hematologists/oncologists from across Canada, created a report addressing important questions from patients related to COVID-19 and the vaccine, to provide guidance from the clinician and policy levels.

Is there research showing how lymphoma patients are impacted when diagnosed with COVID-19?

Patients undergoing treatment for cancer may have a weakened immune system that could increase the risk for getting symptomatic or severe COVID-19. Patients with hematological malignancies such as lymphoma may be particularly vulnerable. However, many patients with a history of cancer and/or lymphoma that have tested positive for COVID-19 have also recovered without significant health consequences. There are specific risk factors that increase a patient's chances of having a more severe illness with COVID-19. Risk factors include gender (males more susceptible), advancing age (average age of severe COVID-19 is over 60 years), obesity and diseases such as congestive heart failure, coronary heart disease, diabetes, hypertension, hyperlipidemia and cancer¹. Certain cancer treatments may result in a higher chance of severe illness after contracting COVID-19. Two studies reported that immunotherapy within the month before the first symptoms of COVID-19 developed was associated with increased severity of the virus²⁻³. Age and recent receipt of treatment were important factors to predict severity of COVID-19 in patients with cancer²⁻⁴. There is extensive research being undertaken that will help us understand the impacts of COVID-19 on lymphoma patients.

Are there certain treatments that predispose a risk to getting COVID-19, or its severity when contracted?

As mentioned, there are certain cancer treatments that may increase the susceptibility of patients having a more severe reaction to COVID-19 or increased side effects. Research is currently ongoing to look at different treatments and their impacts to cancer patient's clinical course with COVID-19⁴. It is important that you speak with your healthcare provider about your concerns with COVID-19. We do not recommend stopping your treatment or not attending your required clinic appointments, as this can interfere with your cancer treatment and outcome.

On December 9th and 23rd, 2020, Health Canada issued approval for two COVID-19 vaccines, Pfizer-BioNTech and Moderna, through an interim order for emergency use authorization. Lymphoma Canada, with review by their Scientific Advisory Board, has provided answers to common questions including how COVID-19 is impacting lymphoma patients, how the COVID-19 vaccines work, and what lymphoma patients should know before receiving the vaccine.

The Moderna vaccine is approved for people who are 18 years of age and older and the Pfizer-BioNTech is approved for patients who are 16 years of age and older. The safety and effectiveness of these vaccines in people younger than 18 and 16 years of age, have not yet been established. It is important to note that you cannot get COVID-19 from the vaccine.



How does the Moderna vaccine work and are there any risks?

The Moderna COVID-19 vaccine is an mRNA vaccine. It works by creating antibodies in our body, without using a live virus, that will then recognize the COVID-19 virus and attack it. The vaccine is given by an injection into the muscle of the arm. For the vaccine to work best, you need to get 2 doses: a single dose and then a second dose 1 month apart. Based on studies in about 30,000 participants, the Moderna COVID-19 vaccine was 94.1% effective in preventing COVID-19 beginning 2 weeks after the second dose⁵. This means that people may not be fully protected against COVID-19 until at least 14 days after the second dose.

How does the Pfizer-BioNTech vaccine work?

The Pfizer-BioNTech COVID-19 vaccine is an mRNA vaccine. It works by creating antibodies in our body, without using a live virus, that will then recognize the live COVID-19 virus and attack it. The vaccine is given by an injection into the muscle of the arm. For the vaccine to work best, you need to get 2 doses: a single dose and then a second dose 21 days later. Based on studies in about 44,000 participants, the Pfizer-BioNTech COVID-19 vaccine was 95% effective in preventing COVID-19 beginning 1 week after the second dose⁵. This means that people may not be fully protected against COVID-19 until at least 7 days after the second dose.

These vaccines were created so quickly, how can I be sure that they will work as well as other vaccines?

Right now, there are more than 150 potential COVID-19 vaccines at different stages of development around the world. Though vaccine development and implementation has previously taken longer than what it took to develop the two Health Canada approved COVID-19 vaccines, this does not mean that important steps were skipped. mRNA has successfully been used in cancer treatments and research into its value for vaccinations has been ongoing for over 10 years⁶. The rapid research and success in creating the COVID-19 vaccines is in large part due to the advances in science and technology, international collaboration among scientists, health professionals, researchers, industry and government, and increased funding. Health Canada has made it a priority to thoroughly and rapidly review COVID-19 vaccines to bring safe and efficient vaccines to the Canada population. To learn about ongoing COVID-19 research and clinical trials, you can visit the World Health Organization database: https://clinicaltrials.gov/ct2/who_table

Possible Side effects of taking the vaccine:

In general, the side effects observed during the COVID-19 vaccine clinical trials are similar to what you might have with other vaccines. The side effects that followed vaccine administration in clinical trials were mild or moderate. They included things like pain at the site of injection, body chills, feeling tired and feeling feverish. For the Pfizer-BioNTech vaccine, very common side effects (1 in 10 people) include pain at injection site, fatigue, headache, muscle pain, chills, joint pain, fever and diarrhea⁶. Uncommon side effects (1 in 100 people) include axillary swelling and tenderness (enlarged lymph nodes)⁶. For the Moderna vaccine, very common side effects include pain at injection site, fatigue, headache, myalgia (muscle pain/ache), chills, nausea/vomiting, and enlarged lymph nodes⁶. Uncommon side effects include fever⁶. These reactions should be temporary and are a sign that your body is building immunity. As with all vaccines, there is a chance that there will be a serious side effect, but these are rare. A serious side effect might be something like an allergic reaction. Speak with your health professional about any serious allergies or other health conditions you may have prior to receiving the vaccine. You will need to get the

second dose of the vaccine even if you experience mild side effects from the first dose. Even for those who have received the vaccination, it is still recommended to follow social distancing protocols, handwashing, and use of masks to maximize safety and avoid the spread of infection.

It has been reported that the COVID-19 vaccine will be distributed first to healthcare professionals, followed by high-risk groups. Do cancer patients and survivors fall into that high-risk group?

The Federal government has developed an immunization plan to enable as many Canadians as possible to be immunized as quickly as possible against COVID-19⁷. Through the federal government is involved in procurement of the vaccine for the provinces and territories, the provincial and territorial governments will be involved in deciding the policy and process for distribution. Therefore, decisions in the prioritization of patients may differ per location. Vaccine sequencing in the provinces will likely consider high-risk populations before expanding vaccination access to the general population as vaccine supply increases. There are different phases that have been established across the provinces to roll-out the vaccines. For example, Ontario’s immunization plan is a 3-phase process⁷, which states phase II will involve vaccine distribution to patients with “high-risk chronic conditions”. However, there is no specification at this time as to whether cancer patients will be in this group and if there is a hierarchy of vaccine delivery to different types of chronic medical conditions. In British Columbia on the other hand, details of their immunization plan were just recently released specifying that “clinically extremely vulnerable” populations including patients with lymphoma at any stage of their treatment, will be able to access the vaccine in Phase III⁸. It is important to continue to follow your provincial health guidelines for vaccine immunization plan updates and to learn when and how you can access the vaccine.

How will the COVID-19 vaccines be distributed to lymphoma patients?

The COVID-19 vaccines will be available to everyone in Canada according to the federal, provincial and territorial public health bodies and their immunization plans. The vaccines will be distributed to all those for whom the drug is approved for use according to Health Canada (i.e individuals over 16 and 18 years of age for the Pfizer-BioNTech and Moderna vaccine respectively). Doses of the vaccines will be distributed in Canada in phases, which began in December 2020. Assuming the continued supply of safe and effective vaccines, it is expected there will be enough vaccines to immunize everyone for whom vaccines are approved and recommended. We anticipate this will be accomplished by December of 2021. Please continue to listen to local announcements via the news and other media on the availability of the vaccine in your community. Be sure to speak with your doctor ahead of time about whether the COVID-19 vaccine is appropriate for you. At this time, provincial immunization plans have not provided information on how lymphoma patients not part of long-term care homes can gain access to the vaccine. For updates to the immunization plan and news releases in your provinces on how to access the vaccine, please visit the appropriate links below:

Province/Territory	Immunization Plan, Information and Resources (weblink)
British Columbia	https://www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery/covid-19-provincial-support/vaccines
Alberta	https://www.alberta.ca/covid19-vaccine.aspx
Saskatchewan	https://www.saskatchewan.ca/government/health-care-administration-and-provider-resources/treatment-procedures-and-guidelines/emerging-public-health-issues/2019-novel-coronavirus/covid-19-vaccine



Manitoba	https://www.gov.mb.ca/covid19/vaccine/index.html
Ontario	https://covid-19.ontario.ca/getting-covid-19-vaccine-ontario#when-vaccines-will-be-available
Quebec	https://www.quebec.ca/en/health/health-issues/a-z/2019-coronavirus/progress-of-the-covid-19-vaccination/
Newfoundland and Labrador	https://www.gov.nl.ca/covid-19/vaccine/
Nova Scotia	http://www.nshealth.ca/coronavirusvaccine
Prince Edward Island	https://www.princeedwardisland.ca/en/information/health-and-wellness/covid-19-vaccines-and-immunization-program
New Brunswick	https://www2.gnb.ca/content/gnb/en/corporate/promo/covid-19/vaccine.html#rollout
Northwest Territories	https://www.gov.nt.ca/covid-19/services/covid-19-vaccine
Yukon	https://yukon.ca/en/health-and-wellness/covid-19-information/your-health-covid-19/covid-19-vaccine-strategy
Nunavut	https://www.gov.nu.ca/health/information/covid-19-vaccination

To keep informed on the status of COVID-19 vaccines and administration across Canada, you can visit the tracker: <https://covid19tracker.ca/vaccinationtracker.html>

Are there any restrictions that would prohibit lymphoma patients from receiving the vaccine?

Lymphoma and its treatments can be associated with a diminished immune system and response. As a functioning immune response is required for the vaccine to work (i.e. create antibodies to fight the virus), certain treatments may impact the efficacy of the virus. Unfortunately, cancer patients, including lymphoma patients, were generally not included in the COVID-19 vaccine Phase III clinical trials, and therefore we currently do not know how much lymphoma treatments would affect how protective the vaccine is. It is expected that certain lymphoma treatments that suppress the immune system may diminish the immune response to vaccines, however this has not been proven at this time. Other therapies and treatments including bone marrow or stem-cell transplants, chemotherapy and targeted therapies, may also have the potential to affect the immune response to viruses. The timing of your treatment, whether you are currently in treatment or have had treatment recently (i.e. within the last 6-12 months), may also impact vaccine response. The issues of cancer treatments and timing of therapies in relation to receiving the vaccine are currently under extensive research to provide guidance to healthcare professionals and the cancer and lymphoma community. The Canadian Society of Transplantation has provided guidance for when transplant patients (pre and post) can receive the vaccine⁹. At this point, studies and guidelines suggest that the COVID-19 vaccines are safe for those with underlying health conditions, with the exception of a history of severe allergic reactions and will have at least some protection against the virus. However, you will need to have an informed discussion with your treating provider and receive consent to receive the vaccine.



Can the vaccine have negative effects on treatments for lymphoma?

With the current information available, there is no evidence that the COVID-19 vaccine will impact lymphoma patient's treatment efficacy, nor increase their risk of side effects. As the COVID-19 vaccines approved in Canada are not live virus vaccines, which should not be given to patient's with weakened immune systems, there is no anticipated problem or impact on treatment for patient's receiving the mRNA vaccine.

References:

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5. Government of Canada – COVID-19 Vaccines
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10. COVID-19 Vaccines for Ontario. <https://covid-19.ontario.ca/covid-19-vaccines-ontario>
11. Government of Canada – Vaccines and Treatment for COVID-19: Vaccine Rollout
<https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/prevention-risks/covid-19-vaccine-treatment/vaccine-rollout.html#a3>