

COVID VACCINE

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What is COVID-19?

- ▶ Coronaviruses are a large family of viruses.
- ▶ Some coronaviruses cause respiratory illness in people, ranging from a mild common cold to severe pneumonia. Other coronaviruses cause illness in animals only. Rarely animal coronaviruses can infect people and these can spread from person to person through close contact.
- ▶ COVID-19 is what is called a novel coronavirus. Novel coronaviruses are new strains of the virus that have not been previously identified in humans.

What is COVID-19?

- ▶ Due to it being a novel virus there is no herd immunity and there are no specific treatments.
- ▶ Different treatments are being trialed and more information about this virus and how it affects people everyday, including long term effects following infection are being investigated.
- ▶ Dozens of vaccines are being developed and are at various stages of approval around the world.
- ▶ COVID-19 continues to spread throughout the province, posing a serious risk to public health and the healthcare system.

How serious is COVID-19?

- ▶ New cases are reported daily across Canada, increasing hospitalizations and ICU admissions.
- ▶ Some individuals are at higher risk of developing complications from COVID-19, including:
 - ▶ Seniors - mortality rates increase with age, approximately 30% risk of death in those 80 +
 - ▶ Adults with existing chronic health conditions such as diabetes, obesity (BMI 30+), pregnancy, Chronic kidney disease, cancer, heart conditions, COPD

How is COVID-19 spread?

- ▶ The virus is spread mainly from person-to-person through respiratory droplets when coughing or sneezing (usual way a cold spreads) but also by singing, talking, shouting.
- ▶ People may also become infected by touching an object or a surface that has the COVID-19 virus on it and then touching their mouth, eyes or nose.

COVID-19 Incubation

- ▶ One Study showed Median incubation period is estimated at 4-5 days from exposure to onset, another study has suggested a 7 day average incubation period.
- ▶ Most people who become symptomatic (97.5%) develop their symptoms within 11.5 days.

COVID-19 Infectivity

- ▶ People infected with COVID-19 can spread the disease to others while they have symptoms and often before they know they are ill. A person may be infectious for many days before showing symptoms.
- ▶ Some people can be infected but have no symptoms.
- ▶ These individuals can spread the virus to others

What is the typical vaccine approval process in Canada?

- ▶ A vaccine developer generates data from studies that have been done in the lab, in animals and humans and on the manufacturing process.
- ▶ Developer then provides all this data to Health Canada in a large package.
- ▶ Health Canada experts review the data to ensure the vaccine:

Is safe

Works to prevent disease and/or infection

Is manufactured correctly

What adaptations have been made to the vaccine approval process to respond to COVID 19?

- ▶ To respond to the COVID 19 pandemic, Health Canada introduced temporary regulatory tools known as Interim Orders
- ▶ This flexible process permits for example the filing of study data as soon as available (rolling submission) for Health Canada to advance rapidly the review and approve as soon as possible.
- ▶ Although expedited, this process maintains the same standards for the reviews of the vaccine (safety, efficacy, quality)

COVID-19 Vaccine Products Approved in Canada - currently TWO

- ▶ We have developed vaccines quickly as the entire world has invested time and research money
- ▶ Pfizer and Moderna vaccines are Messenger RNA (mRNA) vaccines.
- ▶ This is a new type of vaccine, and is quicker to develop than traditional vaccines where you need bits of the virus that are weakened or killed.
- ▶ 'RNA' stands for ribonucleic acid, which is a molecule that provides cells with instructions for making proteins. mRNA vaccines contain the genetic instructions for making the SARS-CoV-2 spike protein. This protein is found on the surface of the virus that causes COVID-19.

COVID-19 Vaccine Products Approved in Canada (cont)

- ▶ When a person is given the vaccine, their cells will read the genetic instructions like a recipe and produce the spike protein. After the protein piece is made, the cell breaks down the instructions and gets rid of them.
- ▶ The cell then displays the protein piece on its surface. Our immune system recognizes that the protein doesn't belong there and begins building an immune response and making antibodies.

COVID-19 Vaccine - Effectiveness

▶ Pfizer

- ▶ Vaccine trial in 43,000 people demonstrated a vaccine efficacy of 95%, with consistent efficacy across age, gender, and ethnicity. The observed efficacy in adults over 65 years old (4000 people) was 94%. (1 week after 2nd dose)

▶ Moderna

- ▶ Vaccine trial in 30,000 people showed a vaccine efficacy of 94.1%, with consistent efficacy across age, gender, and ethnicity. The observed efficacy in adults over 65 years old (6000 people) was 86.4%. (2 weeks after 2nd dose)
- ▶ Both trials included thousands of people with health conditions such as COPD, cardiac problems, Diabetes and HIV.

Pfizer COVID-19 Vaccine Product Dosing

- ▶ 2 doses
- ▶ Dose 1 - day 0
- ▶ Dose 2 - day 21

Moderna COVID-19 Vaccine Product Dosing

- ▶ 2 doses
- ▶ Dose 1 - day 0
- ▶ Dose 2 - day 28

Vaccine side effects

Vaccine	COVID-19 Ultra Frozen (Pfizer)	COVID-19 Frozen (Moderna)
Common reactions	<ul style="list-style-type: none">• Pain, redness or swelling at injection site• Chills, fever• Fatigue• Headache, myalgia, arthralgia• Vomiting• Diarrhea	<ul style="list-style-type: none">• Pain, redness or swelling at injection site• Chills, fever• Fatigue• Headache, myalgia, arthralgia• Nausea, vomiting• Lymphadenopathy
Rare reactions	<ul style="list-style-type: none">• Lymphadenopathy• Anaphylaxis	<ul style="list-style-type: none">• Facial swelling• Anaphylaxis

As with any immunization, unexpected or unusual side effects can occur.
Refer to product monograph for more detailed information.

Vaccine side effects

- ▶ The older patients had less vaccine side effects than the younger patients.
- ▶ The second dose of vaccine is more likely to give you side effects than the first.
- ▶ The product monograph for the vaccines are available on the Health Canada Website

Contraindications to COVID-19 mRNA Vaccines

mRNA COVID-19 vaccine should not be administered to individuals who:

- 1) Have had an anaphylactic reaction to a previous dose of COVID-19 vaccine
 - 2) Have a known hypersensitivity to any component of the vaccine
- ▶ One non-medicinal ingredient in both vaccines known to cause type 1 hypersensitivity reactions is polyethylene glycol (PEG/Lax-a-Day). This potential allergen may be found in bowel preparation products for colonoscopy, laxatives, cough syrup, cosmetics, skin products and some food and drinks.

Precautions to COVID-19 Vaccine

- ▶ Individuals who have had a anaphylactic allergic reaction to another vaccine or injectable drug or food/drug should talk to their health care provider before receiving the vaccine. ***Consider longer observation time***
- ▶ Administration should be postponed in individuals suffering from acute severe febrile illness. ***Same as Flu vaccine.***
- ▶ Individuals receiving anticoagulant therapy or those with a bleeding disorder that would contraindicate intramuscular injection should not be given the vaccine unless the potential benefit clearly outweighs the risk of administration. ***Same as Flu vaccine.*** Thrombosis Canada released a position paper December 22nd encouraging risk at risk patients who are receiving blood thinners to receive vaccination.
- ▶ Caution in patients who prone to fainting. ***Same as Flu vaccine***

Precautions to COVID-19 Vaccine

- ▶ COVID-19 vaccine should not be *routinely offered* to populations who are immunosuppressed due to disease or treatment or those with an auto-immune disorder as there is a lack of evidence on efficacy and safety in this group. ***However discussion needs to take place to see if benefit outweighs risks.*** Medical consultation with primary care physician is advised.

The Canadian Rheumatology Association provides the following recommendations regarding the COVID-19 vaccine for patients under the care of a rheumatologist:

- ▶ 1. Patients above 70 years old are considered high risk for severe illness with COVID-19 and therefore vaccination should be considered regardless of underlying diagnosis or treatment.
- ▶ 2. In those below 70 years of age, vaccination should be assessed on an individual basis, taking into consideration all potential risk factors including occupation. To date, patients on disease modifying anti-rheumatic drugs (DMARDs) (synthetic, biologic or small molecules) do not appear to be at higher risk for more severe illness with COVID-19.
- ▶ 3. In patients at higher risk for more severe illness with COVID-19, including those on corticosteroids, vaccination should be considered.

Vaccine Deferral

- ▶ COVID-19 vaccines should not be given simultaneously with other live or inactivated vaccines, or within 14 days of another vaccine (In the absence of evidence). After the second dose of COVID vaccine, no other vaccine should be given for 28 days.
- ▶ The safety and efficacy of mRNA COVID-19 vaccine in pregnant women and breastfeeding women has not yet been established ***Same as Flu vaccine*** and should not be usually offered to individuals until after completion of pregnancy.

However, a complete series of COVID-19 vaccine may be offered in consultation with the individual's physician to pregnant individuals in the eligible group if a risk assessment deems that the benefits outweigh the potential risks for the individual and the fetus/infant, and if informed consent includes discussion about the absence of evidence on the use of COVID-19 vaccine in this population.

Also no studies in breastfeeding (***Same as Flu vaccine***)

It may be prudent to delay pregnancy by 28 days or more after the administration of the complete two-dose vaccine series of an mRNA COVID-19 Vaccine

- ▶ This vaccine should not to be routinely offered to youth
- ▶ Pfizer COVID-19 Vaccine: less than 16 years of age
- ▶ Moderna COVID-19 Vaccine: less than 18 years of age

Common Concerns

- ▶ Can the vaccine change my DNA? *NO*
- ▶ Can the vaccine give me COVID? *NO*
- ▶ Will the vaccine work with new mutations? *Hopefully, time will tell*
- ▶ Should I get the vaccine if I've already had Covid 19? *Yes, but maybe wait 90 days*
- ▶ Will the vaccine give me Bell's palsy? *NO*
- ▶ Once I get the vaccine, can I stop wearing a mask and physical distancing? *Sorry, NO. Although you will be protected from getting sick from the virus, it's possible you could still carry the virus and be contagious.*

Questions?

