



## South Georgian Bay Ontario Health Team COVID-19 Vaccine Patient and Client Information

As the South Georgian Bay Ontario Health Team, we are committed to ensure the health and safety of our community, especially during the COVID-19 pandemic. The authorization of COVID-19 vaccines by Health Canada is a very exciting turning point in the fight against COVID-19.

As the COVID-19 vaccine begins to be rolled out, we know you have questions. Below is information gathered from local physicians, public health, our provincial and federal governments and credible scientific sources to answer some common questions.

### **Have there been enough steps and safeguards taken in the development of the vaccine?**

**Yes.** We know that the global population is suffering under the strain of COVID-19 which means pharmaceutical companies, researchers, medical experts the world over have poured unprecedented resources into this vaccine.

Creating a new vaccine typically takes years. However, the development of COVID-19 vaccines has happened quickly for many reasons, including:

- being informed by decades of research on other strains of coronavirus prior to COVID-19
- advances in science and technology
- international collaboration among scientists, health professionals, researchers, industry and governments
- increased dedicated funding

Before any vaccines are available in Ontario, they:

- undergo rigorous clinical trials to ensure they are safe and effective
- are evaluated and authorized for use by Health Canada, using rigorous standards

Ontario's plan to make sure vaccines remain safe for Ontarians includes:

- securely and safely transporting and storing vaccines at required conditions and temperatures
- establishing safe clinic spaces to give people immunizations, including providing the required training to those administering vaccines
- monitoring for any [adverse reactions or side effects](#) that may occur after vaccination and taking appropriate measures, including working with the federal government and other provinces and territories

### **How are the vaccines made?**

**This vaccines are made using mRNA technology** – mRNA has been studied and used for cancer treatments for upwards of 30 years, but this is the first vaccine using the technology. There are two vaccines made this way (Pfizer and Moderna). mRNA vaccines cannot give someone COVID-19 as they do *not* use the live virus that causes COVID-19. They also do not affect or interact with our DNA in any way. There will be other vaccines coming later which are made with older technology. More information is available [here](#).

**If the vaccines are 94-95% effective, does that mean I cannot get COVID-19?**

**No.** Vaccinated individuals can still be infected, but vaccination greatly reduces the risk of infection, and reduces the risk of an infection progressing to the more severe form of the disease.

**What are the possible side effects from taking the vaccines?**

Serious adverse reactions to vaccines are extremely rare. They happen less than one time in a million. Once a vaccine is in use, Canada has a strong vaccine safety monitoring system to alert public health authorities of changing trends or unusual adverse events that were not previously reported. The side effects observed during the clinical trials for the approved vaccines are very similar to other vaccines. They were all mild or moderate and included things like pain at the site of injection, body chills, feeling tired and feeling feverish. For more information on potential side effects, click [here](#).

Read Health Canada's [recommendations for people with serious allergies](#).

**Can you get the vaccine if you are pregnant, breastfeeding or under 16 years of age?**

# WHAT ARE RNA VACCINES AND HOW DO THEY WORK?

### WHAT ARE RNA VACCINES?

**SARS-CoV-2**

**Viral RNA**  
The virus's genetic material. Contains instructions for making proteins.

**Spike protein**  
Protein which helps the virus penetrate cells and initiates an infection.

The genetic code of the SARS-CoV-2 virus is made up of RNA. Scientists isolated the part of this genetic code that contains the instructions for making the virus's spike protein.

**RNA INSTRUCTIONS** → **LIPID NANOPARTICLES** → **VACCINE SHOT**

Synthetic RNA which codes for the virus spike protein is packed in lipid nanoparticles (very small fat droplets). This stops our bodies' enzymes breaking it down and helps our cells take it in.

**Human cell** → **Synthetic RNA** → **Viral protein** → **Immune response**

Once the synthetic RNA is inside one of our cells, the cell follows the RNA instructions to produce the virus spike protein. Its production then triggers an immune response in our bodies.

### RNA VACCINES FOR COVID-19

Several proposed vaccines for COVID-19 are RNA vaccines. They can be based on two different types of RNA.

mRNA vaccines	saRNA vaccine
Moderna Pfizer & BioNTech CureVac	Imperial College Arecturus

### mRNA AND saRNA: WHAT'S THE DIFFERENCE?

The structures of mRNA and saRNA are similar but have a key difference, as the diagrams below show.

**mRNA** mRNA stands for messenger ribonucleic acid

**RNA cap**  
Stops RNA breaking down; helps start protein synthesis in human cells.

**SPIKE PROTEIN CODING REGION**

**Untranslated regions**  
Regions which don't contain code for proteins.

**Poly-A tail**  
Long chain of adenine (A) bases which help stabilise the RNA.

**saRNA** saRNA stands for self-amplifying ribonucleic acid

**SPIKE PROTEIN CODING REGION**

**Code for viral replicase enzyme**  
Once in human cells, the creation of the viral replicase enzyme helps make multiple copies of the viral RNA.

As saRNA produces more copies of itself once it's in a cell, it can be given in smaller doses than mRNA vaccines. This makes the cost per dose lower and means higher numbers of doses can be produced from the same volume of vaccine.

### RNA VACCINES: BENEFITS AND CHALLENGES

**VACCINE PRODUCTION**

RNA is easy to make in a lab, so RNA vaccines can be developed quicker than other vaccines.

**SAFETY OF THE VACCINES**

RNA can't cause infection and is broken down by normal processes in our cells. An RNA vaccine hasn't been licensed for use in humans before but they've been under development for several years for other viruses, including influenza, HIV, and Zika.

**STORAGE AND TRANSPORT**

Some RNA vaccines must be stored at low temperatures to remain stable, which makes storage and transport more challenging.

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Children under the age of 16, pregnant and breastfeeding women were not included in trials for the vaccines that are currently available. However, the Society of Obstetricians and Gynaecologists of Canada has [stated](#) that “the documented risk of not getting the COVID-19 vaccine outweighs the theorized and undescribed risk of being vaccinated during pregnancy or while breastfeeding and vaccination should be offered.” The Ontario Ministry of Health guidance states that pregnant women should discuss risks and benefits with their family physician or primary healthcare provider.

Currently, the vaccine is not recommended for children under the age of 16.

**When I get vaccinated, do I need to continue to follow public health guidelines and wear a mask and socially distance?**

**Yes.** At this time, there is not enough evidence on the effectiveness of COVID-19 vaccines in preventing asymptomatic infection and reducing transmission of COVID-19.

Everyone must continue practicing:

**the 3 W's**

- Wear a mask
- Watch your distance
- Wash your hands

**and the 3 C's**

Avoid...

- Closed spaces, especially with poor ventilation
- Crowded places
- Close contact settings

Implementation of these vaccines has been done cautiously and safely. We will continue to update our community as we receive more information.

**Credible resources for further information:**

Collingwood General Marine Hospital COVID-Vaccine [Update](#)

[COVID-19 Vaccines for Ontario](#)

Simcoe Muskoka District Health Unit [COVID-19 Vaccine Information](#)

[Ontario's COVID-19 Vaccination Program](#)