

# We all want to know more about COVID-19 vaccination



There are many reasons to get vaccinated, including protecting ourselves from the complications and dangers caused by infectious diseases, but also to stop the return of infectious diseases that are avoidable through vaccination.

The COVID-19 vaccination campaign now underway is aimed at preventing serious complications and death from COVID-19. We also use vaccination as a way of protecting our healthcare system and getting back to a more normal life.

## When did the vaccination campaign start?

COVID-19 vaccination in Québec began in December 2020 with the delivery of the first vaccine doses. Because the availability of vaccine is limited, categories of people deemed at higher risk of developing COVID-19 complications have been given priority. As more vaccine becomes available in Canada, the categories of recipients will be extended.

## Order of priority of recipients of COVID-19 vaccines

- 1 Vulnerable people and people with a significant loss of autonomy who live in residential and long-term care centres (CHSLDs) or in intermediate and family-type resources (RI-RTFs)
- 2 Workers in the health and social services network who have contact with users
- 3 Autonomous or semi-autonomous people who live in private seniors' homes (RPAs) or in certain closed residential facilities for older adults
- 4 Isolated and remote communities
- 5 People 80 years of age or older
- 6 People 70 to 79 years of age
- 7 People 60 to 69 years of age
- 8 Adults under 60 years of age who have a chronic disease or health problem that increases the risk of complications of COVID-19
- 9 Adults under 60 years of age who do not have a chronic disease or health problem that increases the risk of complications, but who provide essential services and have contact with users
- 10 Everyone else in the general population at least 16 years of age

## What supply strategy was used to acquire the vaccines?

The Government of Canada signed advance purchase agreements for seven promising COVID-19 vaccines with the following companies: AstraZeneca, Johnson & Johnson, Medicago, Moderna, Novavax, Pfizer and Sanofi Pasteur/GlaxoSmithKline. The purchases are conditional upon approval of these vaccines by Health Canada.

To date, the Pfizer and Moderna vaccines have been approved for distribution in Canada. Soon, other vaccines from these companies will be used to speed up COVID-19 vaccination.

## What types of COVID-19 vaccines are being studied?

There are three types of vaccine currently being studied.

- 1 **mRNA vaccines:** These vaccines contain part of the RNA of the virus which has the ability to make the S protein located on the surface of the virus. Once the RNA messenger is inside our cells, they make proteins similar to those on the surface of the virus using the instructions provided by the RNA messenger. Our immune system recognizes that this protein is foreign and produces antibodies to defend itself against it. The RNA fragment is quickly destroyed by cells. There is no risk that this RNA will alter our genes.
- 2 **Viral vector vaccines:** These contain a weakened version of a virus that is harmless to humans. Once in the body, the vaccine enters our cells and gives them instructions to make protein S. Our immune system recognizes that this protein is foreign and produces antibodies to defend itself against it. Once in the body, the vaccine enters our cells and gives them instructions to make protein S. Our immune system recognizes that this protein is foreign and produces antibodies to defend itself against it.
- 3 **Protein subunit vaccines:** These contain non-infectious fragments of proteins that mimic the envelope of the virus. Our immune system recognizes that this protein is foreign and produces antibodies to defend itself against it.

## Will an mRNA vaccine alter our genetic code?

**No.** Messenger RNA does not enter the cell's nucleus or come into contact with the nucleic DNA. As such, it cannot alter our DNA in any way.

## How do COVID-19 vaccines work?

When someone receives the vaccine against the virus that causes COVID-19, their body starts to defend itself against the virus. An immune reaction occurs which neutralizes the virus producing antibodies and activating defense cells.

Most COVID-19 vaccines in development prompt the production of antibodies to block protein S; the protein that allows the virus to infect the human body. This prevents the virus from entering and infecting human cells.

The virus that causes COVID-19 is composed of strands of ribonucleic acid (RNA) genetic material surrounded by a crown-like envelope with proteins that include the S (spike) protein, hence the name "coronavirus."



## What side effects can be expected from injection with the COVID-19 vaccine?

Some minor side effects may occur, such as redness or pain at the injection site and fatigue, fever or chills. These symptoms are less common among vaccine recipients over the age of 55, are usually benign and do not last long.

As of now there are no known serious side effects from mRNA vaccines. While other random problems may arise, such as a cold or gastroenteritis, they are not related to the vaccine per se.

Because the vaccine does not contain the SARS-CoV-2 virus, it is not capable of causing COVID-19. However, people who come into contact with the virus in the days leading up to their vaccination or within 14 days of receiving the vaccination could still develop symptoms and get the COVID-19 disease.

As such, following health measures remains important until such time as a majority of the population has been vaccinated.

## Why did it take 40 years to develop a flu vaccine but only nine months for one against COVID-19?

Past efforts, particularly during the SARS epidemic in 2003, advanced coronavirus vaccine research and accelerated the fight against COVID-19.

There are currently over 50 COVID-19 vaccines undergoing clinical trials around the world, the result of unprecedented scientific cooperation. Considerable financial and human resources have been invested in the development of vaccines that meet regulatory requirements in such a short span of time.

Public health and regulatory authorities in many countries, including Canada, are working hard to ensure that as many safe and effective COVID-19 vaccines as possible become quickly available to their populations.

## Why are two vaccine doses required?

The second dose "reminds" the immune system to continue producing antibodies and ensures long-term protection. In current circumstances, where COVID-19 is spreading very fast, administration of the second dose may be delayed somewhat to be able to vaccinate more people with the first dose.

Québec.ca/COVIDvaccine

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