

Health Care Worker Q & A

The following Q&A was developed for health care workers by the following health organizations:

- Saskatchewan Health Authority
- Saskatchewan Medical Association
- College of Physicians and Surgeons of Saskatchewan
- Saskatchewan Association of Nurse Practitioners
- Saskatchewan Registered Nurses Association
- U of S College of Pharmacy and Nutrition: MedSask
- U of S College of Medicine: Division of Continuing Medical Education
- Pharmacy Association of Sask
- Saskatchewan College of Family Physicians
- Saskatchewan College of Pharmacy Professionals

For general COVID-19 vaccine information and the province's vaccine roll-out visit the Government of Saskatchewan website: <http://www.saskatchewan.ca/COVID19-vaccine>

What is herd immunity and how do we get there? Once we have herd immunity, what does it mean for us?

Herd or community immunity is when widespread immunity to an infectious disease develops within a population. At this time the herd immunity for COVID-19 vaccine has not been determined by the Center for Disease Control but we know that it will need to be high, due to the increased risk of transmission of COVID-19 variants of concern. We encourage staff uptake to help strengthen herd immunity. Not getting vaccinated can increase risks to those who are vulnerable.

COVID viruses in general have been around a long time. We have likely all had them in the form of an upper respiratory tract illness (a cold). COVID-19 is running rampant throughout the world because it is a "unique" virus. This means that it is unlike the prior COVID viruses humans have previously been exposed to and the body therefore has no immunity and is susceptible to it. Vaccines allow the body to recognize COVID-19 as soon as the body comes into contact with it. This supports the body to mount a full immune response to COVID-19, killing the virus, preventing infection in some cases and preventing severe illness in the vast majority of the rest of the cases.

It is projected that we need a higher percentage of the population to be immunized so the virus will have a hard time surviving in humans and the rate of transmission and cases will drop dramatically. The "herd" is immune to the virus.

Can mRNA vaccines alter a person's DNA?

No. mRNA vaccines do not affect your DNA. Instead, mRNA vaccines create proteins (which resemble the proteins found on the COVID virus) which your body creates antibodies to and thus provide immunity and protection against the actual COVID-19 virus.

Location – mRNA is active in the cytoplasm of a cell, whereas DNA is protected in the cell's nucleus. The mRNA can NOT enter the nucleus, so the two nucleic acids are never in the same place in the cell.

Process – mRNA is not DNA. So, if a person's DNA was going to be altered, the RNA would have to be made into DNA. This would require a special enzyme which only exists in some viruses. Coronaviruses are not one of them as they have only single-stranded RNA which means that when they enter into a cell's cytoplasm they don't need to be translated. Proteins (like the spike protein) can be made directly from the RNA.

Stability – mRNA is not very stable and can only stay alive in human cells for hours (Alberta Health Services, 2021).

I don't know which of the vaccines I should take; are they different? Should I wait to receive a different vaccine?

All vaccines approved by Health Canada are effective and safe. According to Dr. Samir Gupta, a Canadian respirologist, the best vaccine you should take is the first one offered to you. The studies for each vaccine were done at different times and in different parts of the world. Pfizer and Moderna trials were done when we did not have the variants of concern; whereas the Astra Zeneca and Johnson & Johnson trials were done more recently when the variants were already circulating. The numbers that are most important is that Pfizer, Moderna, and Astra Zeneca are 100% effective in protecting us from severe COVID-19 disease resulting in hospitalization or death. Johnson & Johnson is 85% effective.

Pfizer and Moderna are mRNA vaccines that hold the code for the spike protein of the coronavirus. When the mRNA goes into our cells, our cells read the code and produce a spike protein which then triggers the immune system to make antibodies.

Astra Zeneca and the Johnson & Johnson (Janssen) vaccines use a viral vector. Instead of using mRNA to get our bodies to make spike protein, they use a virus called adenovirus, which is harmless to us but designed to contain the same coronavirus spike protein. When our immune system is exposed to that spike protein, it creates antibodies that protect us from COVID-19.

Why do the Pfizer, Moderna & Astra Zeneca vaccine require two doses?

A second dose of this vaccine will increase its efficacy, similar to the way we give booster doses for many other vaccines. The first dose of the Pfizer, Moderna, and Astra Zeneca vaccine primes the immune system while the second dose boosts it to give high-level protection. The first dose begins the body's training process and the second dose solidifies it.

What is the efficacy of the one dose strategy?

NACI has recommended that if second doses are stretched to four months close to 80% of Canadians over 16 could get one vaccine by the end of June. This second dose delay would have a positive impact on serious disease and create herd immunity.

Why does the Johnson & Johnson vaccine only require one dose?

Vaccines work in different ways. Some need two doses and others need only one because of the way that they stimulate your immune system. The J&J vaccine uses a modified cold virus to stimulate the required response (neutralizing antibodies, binding antibodies and T-cells) to generate a protective immune response.

Viral vector-based vaccines use a harmless virus, such as an adenovirus, as a delivery system. This "vector" virus is not the virus that causes COVID-19. Adenoviruses are among the viruses that can cause the common cold. There are many different types of adenoviruses, and many have been used as delivery systems for other vector-based vaccines for decades.

When a person is given the vaccine, the vector virus contained within the vaccine produces the SARS-CoV-2 spike protein. This protein is found on the surface of the virus that causes COVID-19. This protein will not make you sick. It does its job and goes away.

Through this process, the body is able to build a strong immune response against the spike protein without exposing you to the virus that causes COVID-19.

COVID vaccines are equally effective it's just that some need two steps, J & J needs only one and both approaches are safe.

I've heard people are getting sick after their vaccine. That makes me not trust this vaccine.

Some people do have side effects including fatigue, fever, or achiness. This is your body mounting an immune response to the vaccine, which is how you develop protective antibodies. Typically, there is a greater reaction to the second dose because your immune system was primed by the first dose.

Should I be worried about AstraZeneca vaccine side effects related to blood clots if you are under 55 years of age?

The expected rate of Vaccine-Induced Prothrombotic Immune Thrombocytopenia (VIPIT) following receipt of AstraZeneca vaccine is not yet known, due to ongoing investigations and monitoring. However, based on cases identified to date in Europe, VIPIT seems to be very rare, and has been reported to occur in anywhere from 1 in 100,000 to 1 in 1,000,000 cases per persons vaccinated.

Blood clots as a result of receiving the AZ vaccine are so rare that there is an at least 50 times higher chance of catching COVID-19 in this country. Those risks may be different for people under 55 and more research is underway.

For More Information please reference the AstraZeneca FAQ document under Resource links.

Why is NACI recommending that older adults over the age of 55 may still be offered the AstraZeneca vaccine?

Adults 55 years of age and older may still be offered the AstraZeneca vaccine, given the increased risk of hospitalization and death due to COVID-19 disease in this population and since VIPIT appears to be a rarer event in this age group based on reported cases to date.

Anyone receiving the AstraZeneca COVID-19 vaccine should be informed of this potential adverse event and advised to seek immediate medical attention if they develop symptoms of thromboembolism, and especially signs of thrombocytopenia and cerebral blood clots, such as easy bruising or bleeding, and persistent or severe headache between days 4 to 20 after receipt of vaccine.

Do I need the vaccine if I've had COVID?

Yes. Unfortunately when humans get COVID-19 as an illness they have a wide range of immune response and their lasting immunity also varies. Vaccination produces a much more reliable immunity to COVID-19. We are now seeing some parts of the world where the majority of people who lived there had caught COVID-19 in the first wave and are now experiencing large second waves of COVID-19 infection in the un-vaccinated population.

It seems like this whole thing is a conspiracy from 'big pharma' to make more money.

While there have been many issues raised around the interaction between pharmaceutical corporations and the health system, the coronavirus pandemic is real and has had significant impacts across the world. Scientists and pharmaceutical companies have worked as quickly as possible to produce safe and effective vaccines.

It seems far-fetched to me but how can I be sure this vaccine isn't part of an agenda to reduce the world's population?

You are right, that is far-fetched. What is not far-fetched is that these vaccines are part of an agenda to reduce and eradicate COVID-19 and preserve the world's population! At the time of this document writing COVID-19 has reduced the world population by 2.86 million people.

I've heard there is shark protein in this vaccine and I hear this is bad for me.

The approved COVID vaccines in Canada don't contain squalene which is the shark product of concern.

It seems far-fetched to me but how can I be sure there isn't a micro-chip or some other form of tracking mechanism in this vaccine?

There is no vaccine microchip, and the vaccine will not track people or gather personal information into a database.

This myth started after comments made by Bill Gates from The Gates Foundation about a digital certificate of vaccine records. The technology he was referencing is not a microchip, has not been implemented in any manner, and is not tied to the development, testing, or distribution of COVID-19 vaccines.

I've heard that this strain of vaccine is connected to vaccines produced from cell lines derived from aborted fetus tissue.

The Johnson & Johnson vaccine is believed to be created using PER.C6-a cell line derived from a fetus aborted in 1985. The J&J Company confirmed there is no fetal tissue in the vaccine. The vaccine is an inactivated/non-infective adenovirus vector (similar to cold virus) which codes for coronavirus "spike" protein.

I'm concerned about how the vaccine may impact breastfeeding.

Women who are pregnant or breastfeeding should be offered vaccination at any time during pregnancy if they are eligible and no contraindications exist. This decision is based on the women's personal values and an understanding that the risk of infection and/or morbidity from COVID-19 outweighs the theorized and undescribed risk of being vaccinated during pregnancy or while breastfeeding. Women should not be precluded from vaccination based on pregnancy status or breastfeeding.

I'm concerned that this vaccine was not tested during pregnancies.

NACI recommends that a complete vaccine series with a COVID-19 vaccine may be offered to pregnant individuals in the authorized age group if a risk assessment deems that the benefits outweigh the potential risks for the individual and the fetus, and if informed consent includes discussion about the absence of evidence on the use of COVID-19 vaccine in this population. (Discretionary NACI Recommendation) [Click here](#) for more information.

People who are pregnant and part of a [group recommended](#) to receive the COVID-19 vaccine may choose to be vaccinated. If you have questions about getting vaccinated, talking with a healthcare provider may help you make an informed decision.

Document References

[John Hopkins: Bloomberg School of Public Health](#)

[SMA FAQ](#)

[Debunking COVID-19 \(Coronavirus\) Myths](#)