



COVID 19 Vaccine: What's it all about?

Crossroads Clinic, Women's College Hospital



IMPACT of COVID 19 on Newcomers and Refugees



What questions do you have about the vaccines?



Overview

- How do the vaccines work?
- How effective are the COVID-19 vaccines?
- What are vaccine side effects?
- Are the vaccines safe for use in special populations?
- How were the vaccines produced so quickly?
- Were the vaccines tested in diverse populations?
- What is in the vaccines? Can you have allergic reactions?
- Do distancing precautions/masks still need to be used after vaccination?
- What is the current roll-out and eligibility for the vaccine?



How do the vaccines work?



COVID mRNA vaccines

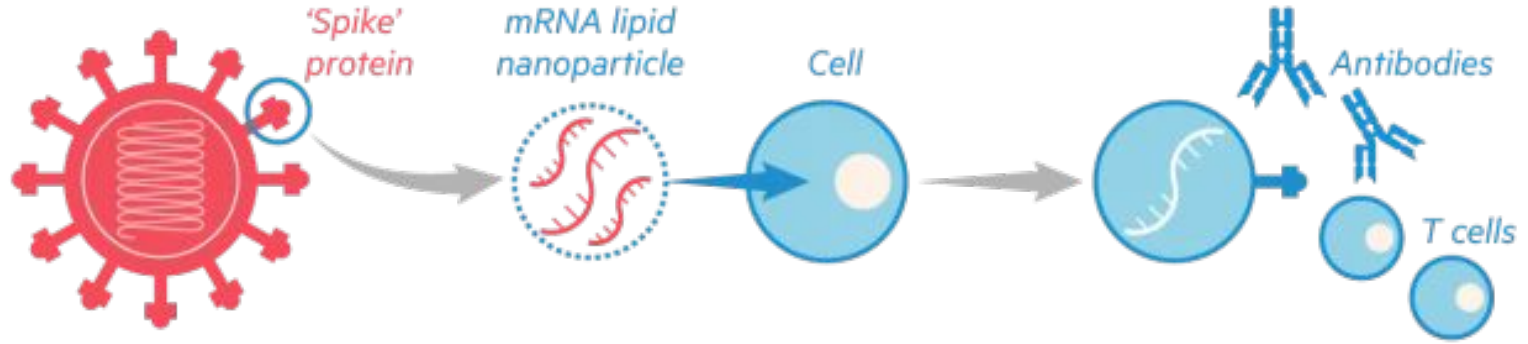
**Pfizer-
BioNTech**



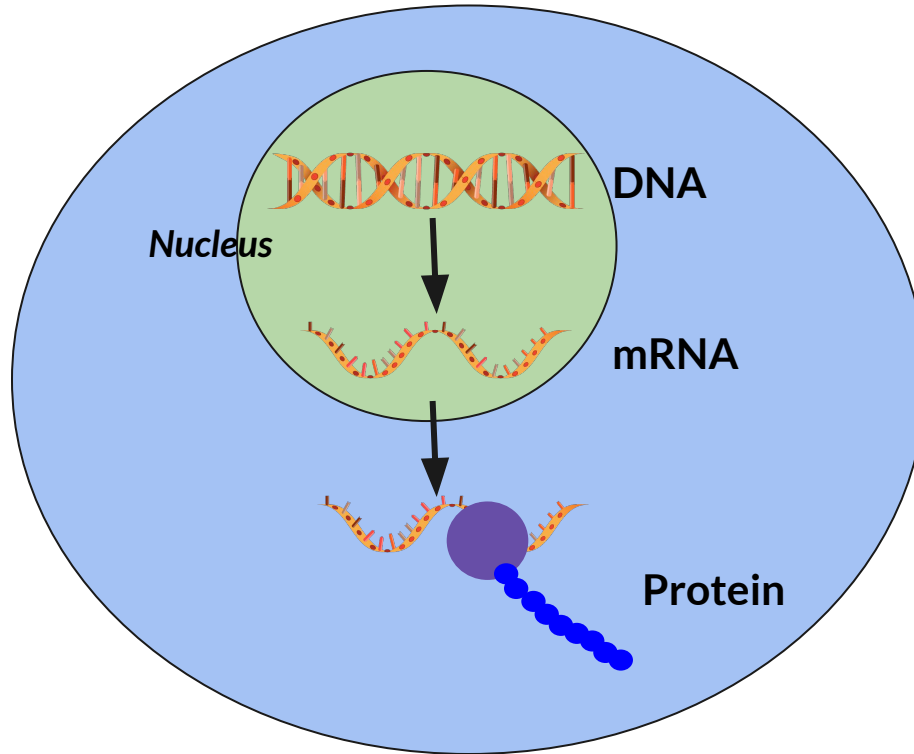
Moderna

How do mRNA vaccines work?

The vaccine teaches your body what the COVID-19 virus looks like so you can fight the virus if you come into contact with it.

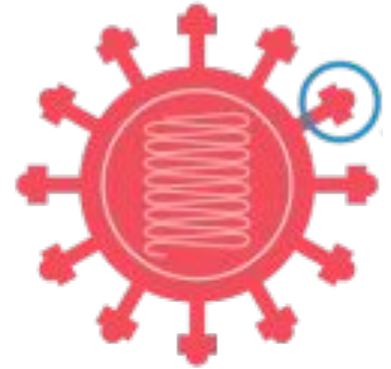


Vaccine mRNA does not affect our DNA



Can we get COVID-19 from the vaccine?

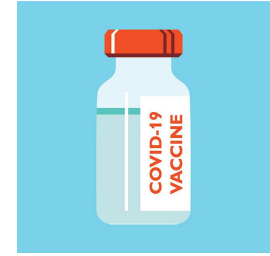
- No!
- The COVID vaccines do not contain live virus
- They cause your body to make a copy of the spike protein **not** the virus itself
- Possible short-term vaccine side effects may be similar to symptoms of infection but one cannot get COVID-19 from the vaccine


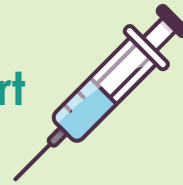

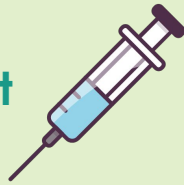


How effective are the COVID vaccines?



Pfizer-BioNTech and Moderna Vaccine Clinical Trials (studies)



Pfizer-BioNTech	Moderna
>40,000 participants	>30,000 participants
≥ 16 years	≥ 18 years
 21 days apart 	 28 days apart 

How effective are the vaccines in protecting against COVID-19 illness?

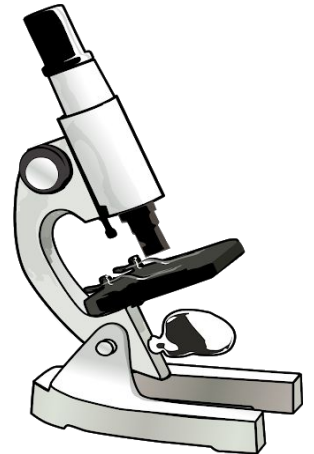
Pfizer-BioNTech	Moderna
95% (7 days after 2 nd dose)	94.1% (14 days after 2 nd dose)

Efficacy consistent across age, gender, race and ethnicity demographics



What we are learning

- How effective are the vaccines against the new variants?
- How long does the vaccine provide immune protection?
Will we need booster shots?
- Do the vaccines prevent spread of COVID-19?



What are the side effects of the COVID-19 vaccines?



What are common side effects?



Similar to types of side effects from other vaccines
Generally resolve in 1-3 days

Very common $\geq 10\%$ (more than 1 in 10 doses)

- pain at the injection site
- headache, feeling tired
- muscle or joint pain
- fever or chills
- swelling or tenderness under the armpit (Moderna)

Common 1%-10% (1 in 100 to 1 in 10 doses)

- redness & swelling at the injection site
- nausea & vomiting

Uncommon 1% (1 in 100 doses)

- enlarged lymph nodes

Very rare

- serious allergic reactions such as anaphylaxis

Do we really know enough about the side effects of the vaccine?

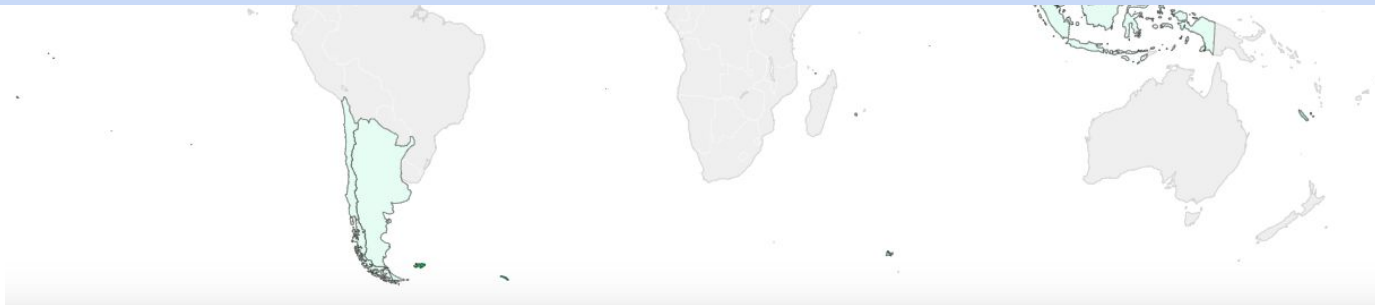
World Map of Vaccinations

More than 39.7 million doses have been administered in 51 countries

no data 0.5 1 2 3 per 100 people



As of Feb. 17th,
**186 MILLION DOSES OF VACCINES HAVE BEEN
PROVIDED WORLDWIDE**



**Are vaccines safe for
people with certain
medical conditions?**



Special considerations

- Immunocompromise (conditions/meds)
- Autoimmune disorders

Talk to your health care provider



Can I get the vaccine if I am pregnant or breastfeeding?

- Recommended by WHO and other expert groups
- Based on how mRNA vaccines work → unlikely to pose a specific risk
- Risks of severe illness from **COVID-19 infection** during pregnancy
- Further studies underway

Talk to your health care provider



Should I get the vaccine if I already had COVID-19?

- Yes!
- Even if you had COVID-19 in the past, it is uncertain how long the antibodies (immune protection) will last



How were the vaccines produced so quickly?



Vaccine development and approval in Canada

Vaccine development

- genetic sequence developed very quickly
- funding not an issue
- mRNA technology already existed

- no shortage of volunteers
- no shortage of illness

"Rolling review process"



Scientists develop a potential vaccine



Scientists conduct lab and animal studies before testing on humans



10s of volunteers

Phase I

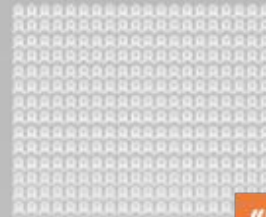
- Is the vaccine safe?
- What is a safe dose?
- Are there any side effects?



100s of volunteers

Phase II

- How well does the vaccine work?
- Is it safe on a larger number of people?
- Safest and most effective dose?



1000s of volunteers

Phase III

- Does the vaccine prevent disease?
- What are the side effects?



Manufacturer submits application to Health Canada for review

Exploratory →

Preclinical →

Clinical Trials →

Application →

Review and approval of vaccines

"Rolling review process"



Teams of Health Canada experts conduct a thorough and independent review of all vaccine data *



Health Canada approves a vaccine if it is safe, it works, it meets manufacturing standards, and the benefits outweigh the risks



Governments coordinate the purchase, logistics and distribution of vaccines across Canada



All Canadians have access to the vaccine



Continuous monitoring and review to confirm the safety of the vaccine, and that benefits outweigh risks

Scientific Review

Approval

Distribution

Vaccination

Ongoing Monitoring and Review

* For **COVID-19 vaccines**, Health Canada is using a fast-tracked process that allows manufacturers to submit data as it becomes available, and for Health Canada experts to start the review process right away. **Vaccines will only be authorized once we have all necessary evidence.**



Health
Canada

Santé
Canada

Canada



- ✓ Funding
- ✓ Existing mRNA technology
- ✓ Virus genetic sequence
- ✓ International collaboration
- ✓ Efficient review processes

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**Were the vaccines tested
in diverse populations?**





Studied in diverse populations

Self-identified racial or ethnic background*	Moderna Vaccine Study	Pfizer-BioNTech Vaccine Study
White	79%	83%
Black or African American	10%	9%
Asian	5%	4%
Indigenous ("American Indian" or "Alaska Native")	0.8%	0.5%
Native Hawaiian or Pacific Islander	0.2%	0.2%
Multiracial	2%	2%
Hispanic/Latinx	21%	28%

The vaccines were equally effective in people of different racial and ethnic backgrounds.

What's in the COVID-19 vaccines?





What's in the Pfizer vaccine?

- Medicinal ingredient: mRNA
- Non-medicinal ingredients:

- Fats
- Salts
- Sugar
- Water

Fats: ALC-0315 = ((4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate); **ALC-0159** = 2-[(polyethylene glycol)-2000]-N,N-ditetradecylacetamide; 1,2-Distearoyl-sn-glycero-3-phosphocholine; Cholesterol

Salts: (Dibasic sodium phosphate dihydrate; Monobasic potassium phosphate; Potassium chloride; Sodium chloride)

Sugar: sucrose



What's in the Moderna vaccine?

- Medicinal ingredient: mRNA
- Non-medicinal ingredients:

- Fats
- Salts
- Sugar
- Acid stabilizers
- Water

Fats: Lipid SM-102 PEG2000 DMG
(1,2-dimyristoyl-rac-glycerol, methoxy-**polyethyleneglycol**);
1,2-distearoyl-sn-glycero-3-phosphocholine (DSPC);
Cholesterol

Salts: Sodium acetate

Acid stabilizers: Tromethamine; Tromethamine
hydrochloride

Sugar: sucrose

What is polyethylene glycol (PEG)?

Common substance found in:

- Laxatives and bowel preparations
- Certain cosmetic products
- ES Tylenol, Tylenol EZ tabs, Tylenol gel caps, Benadryl 25mg or 50mg pink caplets, Laxaday, Go-lytely, Reactine 5-10mg tablets, Advil liquid gels, Enteric coated ASA 81mg





What is NOT in the vaccines?

- Food products
- Nuts
- Antibiotics
- Thimerosal
- Formaldehyde
- Fetal cells
- Microchips

What to do if people have pre-existing allergies?

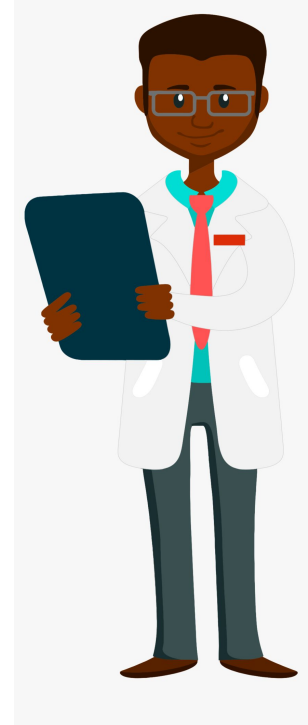
- Medical staff are available at all sites to deal with allergic reactions
- If history of severe allergies, wait 30 min after vaccination



Caution with COVID-19 vaccines

- Severe allergy to vaccine ingredients (e.g. PEG)
- Severe allergy to prior COVID mRNA vaccine

Talk to your health care provider



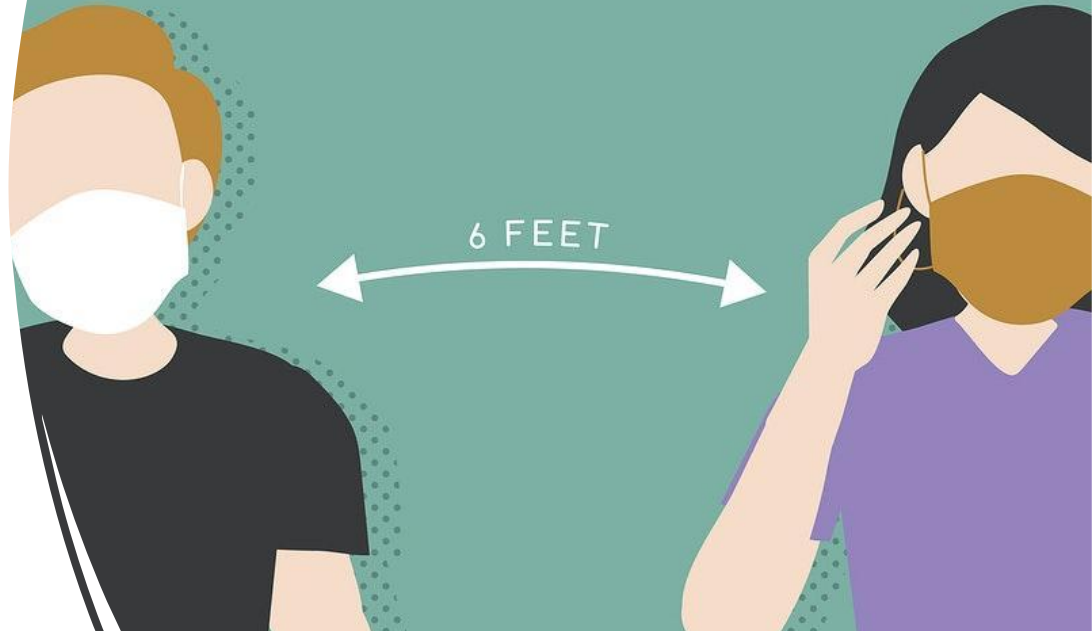
What happens after receiving the vaccine?



What happens after receiving the vaccination?

- Unclear if can still carry virus
- Some people will still get symptomatic illness
- If fever after vaccine, must still rule out COVID-19 infection

SOCIAL DISTANCING

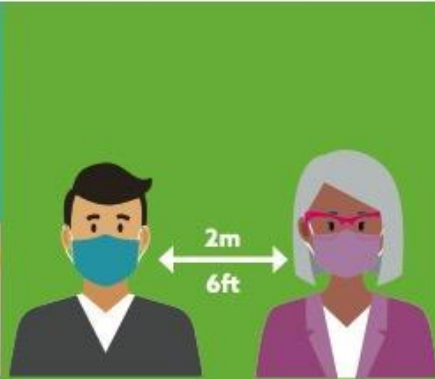


4 STEPS FOR SELF-PROTECTION

We all have a role to play to help reduce COVID-19 spread & keep our city safe:



**Stay home as much
as possible**



Watch your distance



Wear your mask



**Wash your hands
often**

[TORONTO.CA/COVID19](https://toronto.ca/covid19)

 **Toronto** Public Health

**What is the plan for the
vaccine roll-out and who
is eligible?**



1. Provincial Roll Out Plan

Phase 1

Limited doses of the vaccine available for health care workers in hospitals, long-term care homes and retirement homes, other congregate care settings and remote Indigenous communities

Starting: December 15, 2020

[Learn more about phase 1](#)

Phase 2

Increasing stock of vaccines, available to all health care workers, residents in long-term care homes, retirement homes, home care patients with chronic conditions and additional Indigenous communities

Starting: This winter

[Learn more about phase 2](#)

Phase 3

Vaccines available widely across Ontario for anyone who wants to be immunized

Starting: **When vaccines and doses are available**

[Learn more about phase 3](#)

Who can be vaccinated

Vaccines are available to health care workers and essential caregivers **who work in:**

- hospitals
- long-term care homes
- retirement homes
- other congregate settings caring for seniors**

Phase 2

Phase 2 will begin when more doses become available to Ontario. This is expected to begin later this winter.



Ontario Health
Toronto



UNITY HEALTH
TORONTO





COVID-19 vaccines are free OHIP card not required



Crossroads Clinic nurses and doctors receiving the COVID-19 vaccine





Summary

- Vaccines are well studied, safe, effective
- Many people are at high risk of COVID exposure in work, transit, housing
- Vaccines protect you

Contact us with any questions!



Thank you!
Questions?



More info on COVID-19 vaccines:

- **Multilingual handouts:**
 - <https://www.womenscollegethospitals.ca/patients-and-caregivers/covid-19-vaccine-multi-language-information-sheets>
- **Health Canada:**
 - <https://www.canada.ca/en/health-canada/services/drugs-health-products/covid19-industry/drugs-vaccines-treatments/vaccines.html>
- **Toronto Public Health:**
 - <https://www.toronto.ca/home/covid-19/covid-19-protect-yourself-others/covid-19-vaccines/covid-19-about-the-vaccines/>
- **Hamilton Public Health:**
 - <https://www.hamilton.ca/coronavirus/covid-19-vaccine-frequently-asked-questions>