COVID-19 Vaccination Town Hall

Tuesday, March 16, 2021

Alliance for Healthier Communities
Alliance pour des communautés en santé

Acknowledgement of Indigenous Territory

The work of the Association of Family Health Teams of Ontario, the Alliance for Healthier Communities, and the Nurse Practitioner-Led Clinic Association, and that of our members, take place on traditional territories of the Indigenous nations who have lived on these lands since time immemorial.

The land we call Ontario is covered by 46 treaties, agreements, and land purchases, as well as unceded territories. It continues to be home to many Indigenous people who live alongside settlers, newcomers, and people whose ancestors were enslaved across the Americas and the Caribbean. We are grateful to live and work on this land, and to work in allyship with the Indigenous Primary Health Care Council.

Recognizing this in a meaningful way means making commitments to sharing and upholding responsibilities to all who now live on these lands and the land itself. In our work, let us be mindful of these commitments.

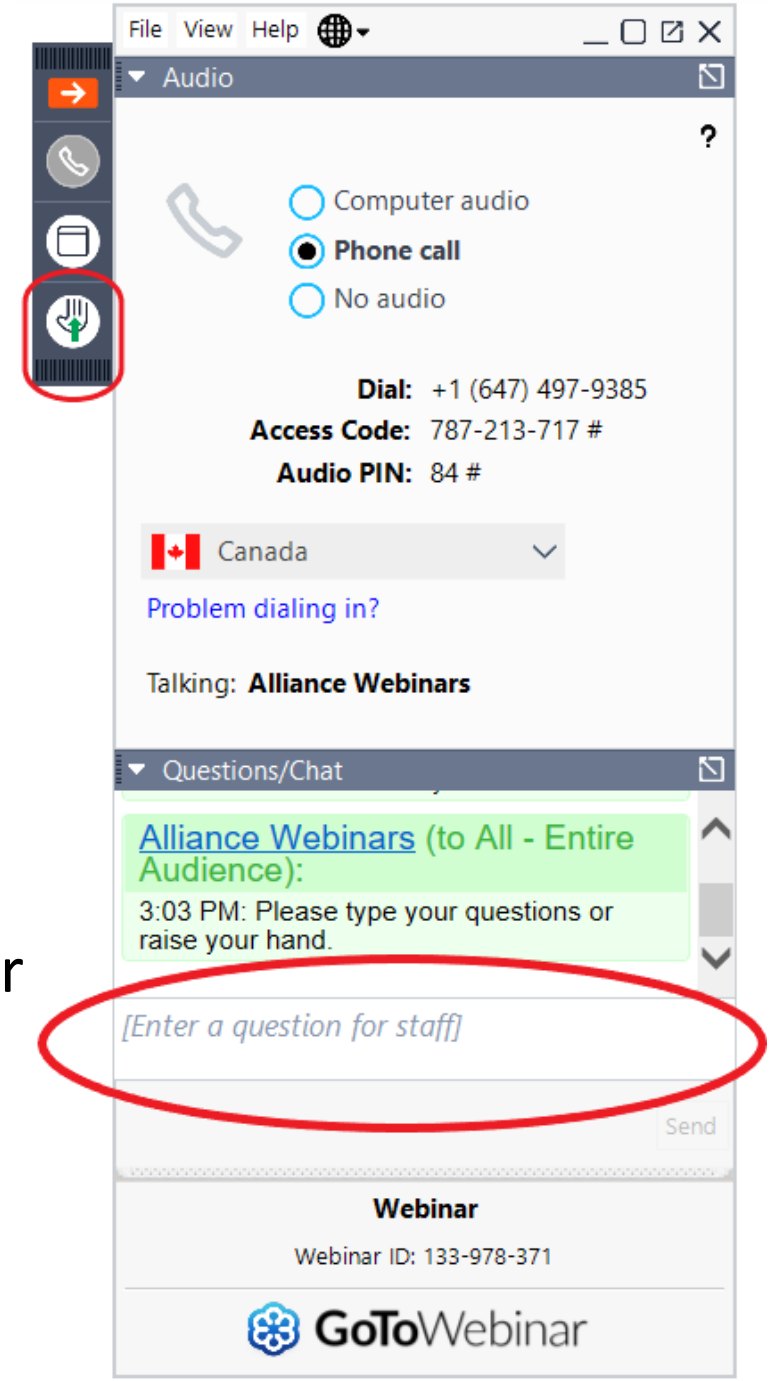
Housekeeping

Click the orange arrow to open up your panel

Questions and Comments
Please type in the chat window circled in red throughout the meeting. A Q&A period will be available after the presentations to address questions raised in the chat.

If you require individual support, please raise your hand using the hand icon with a green arrow.

Recording and slides will be shared



COVID-19 VACCINE UPDATE

Dr. Noah Ivers, Family Physician and Scientist, Women's College Hospital

Sabina Vohra-Miller, MSc Pharmacology, Unambiguous Science

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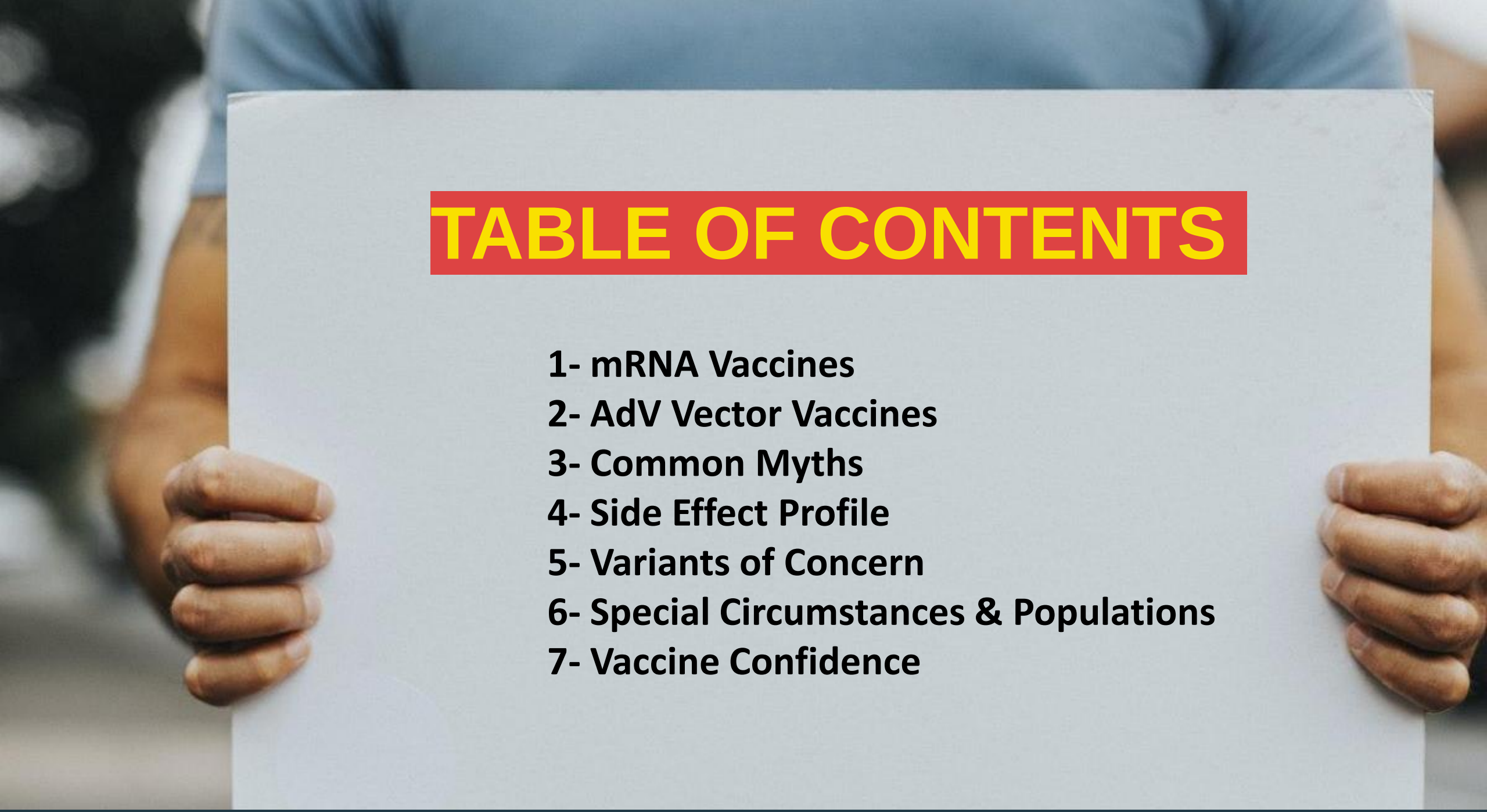
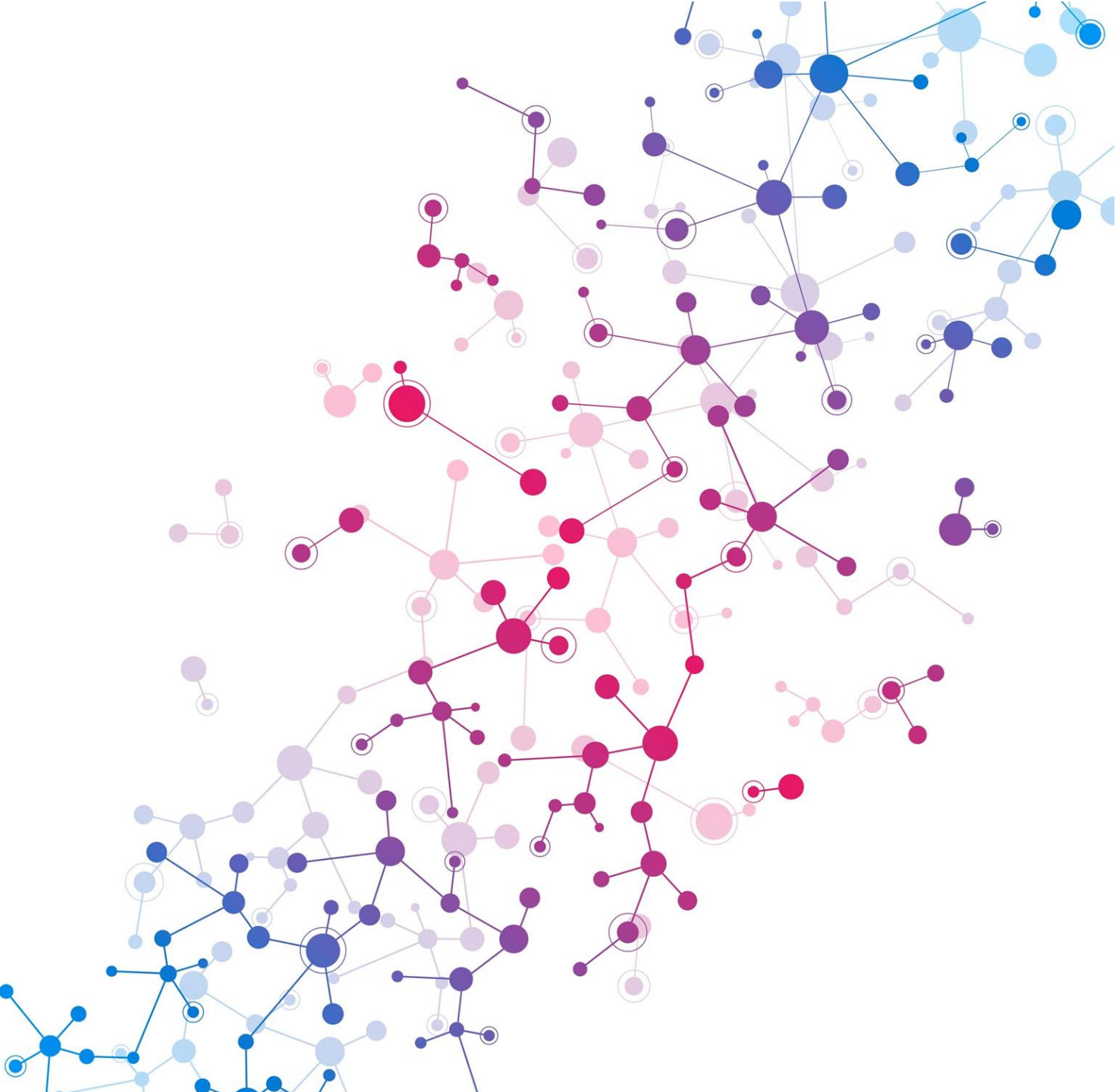
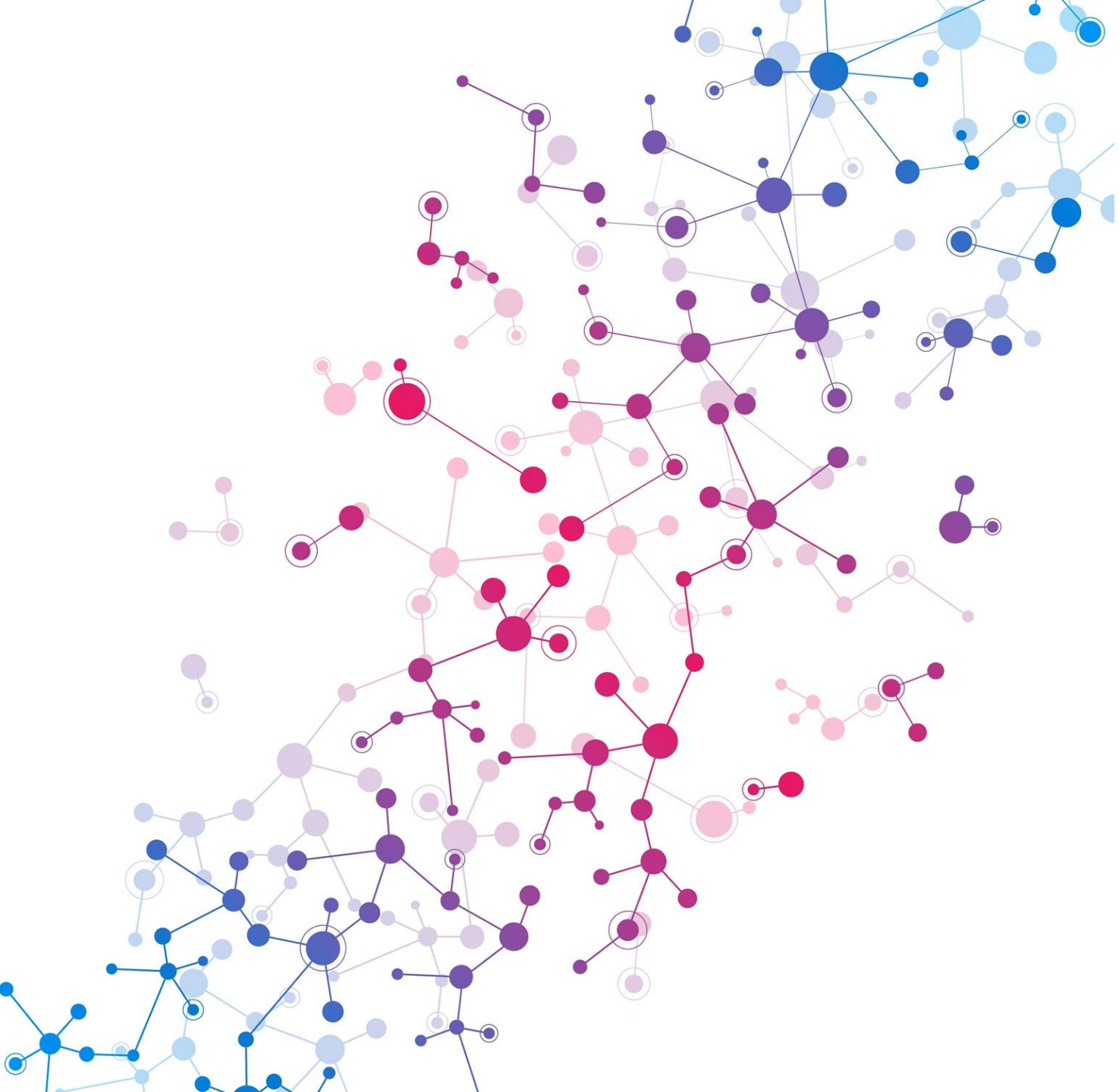


TABLE OF CONTENTS



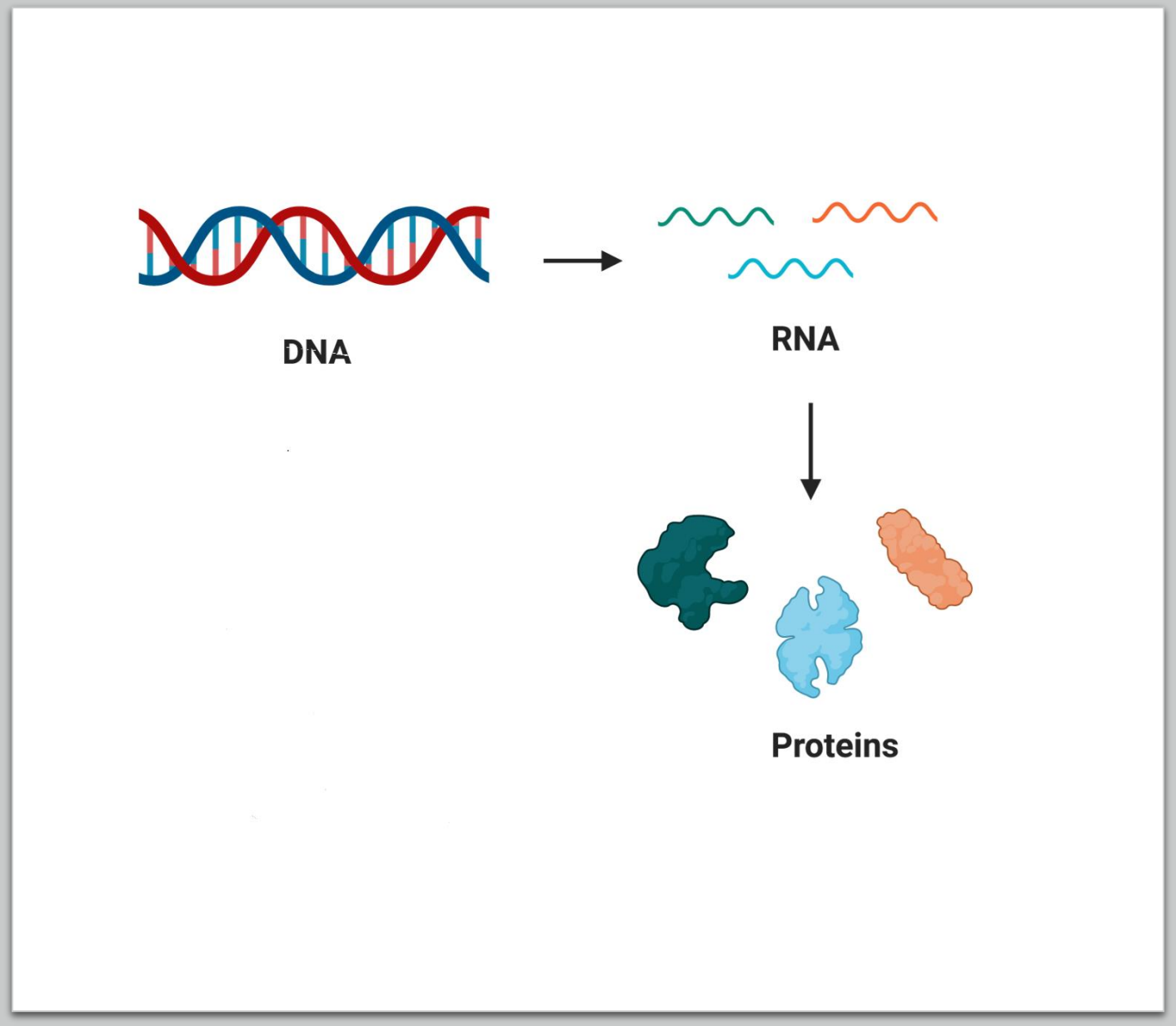
Four Covid-19 vaccines are currently approved in Canada



mRNA
Covid-19 Vaccines

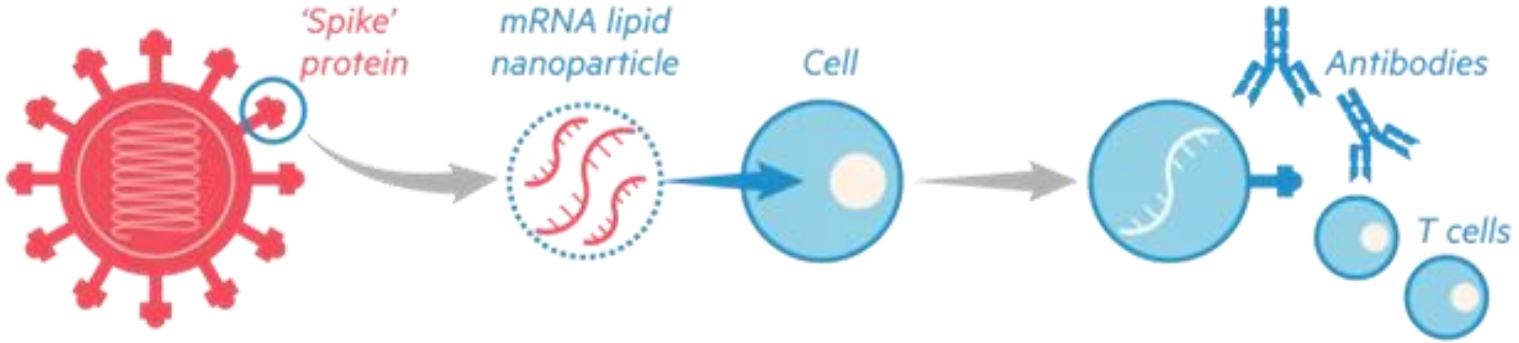
What is mRNA?

- mRNA stands for messenger RNA.
- mRNA gives instructions to our body to make things such as proteins.



How do mRNA vaccines work?

- In these vaccines, synthetic mRNA is used to tell the body to make a harmless piece of the ‘spike protein’ that is found on the surface of the actual COVID-19 virus.
- These vaccines work by delivering mRNA instructions or a ‘recipe card’ that direct the body to produce a small amount of the spike protein.
- Our body recognizes that this protein doesn’t belong here and ramps up an immune response by producing protective antibodies against the COVID-19 against the ‘spike protein’ so if later our body comes in contact with the actual COVID-19 causing virus, it knows how to fight it off.



mRNA does not impact your DNA

- mRNA does not change or impact your DNA in any way
- mRNA simply gives instructions to our body to make things such as proteins.
- mRNA also degrades very quickly after.

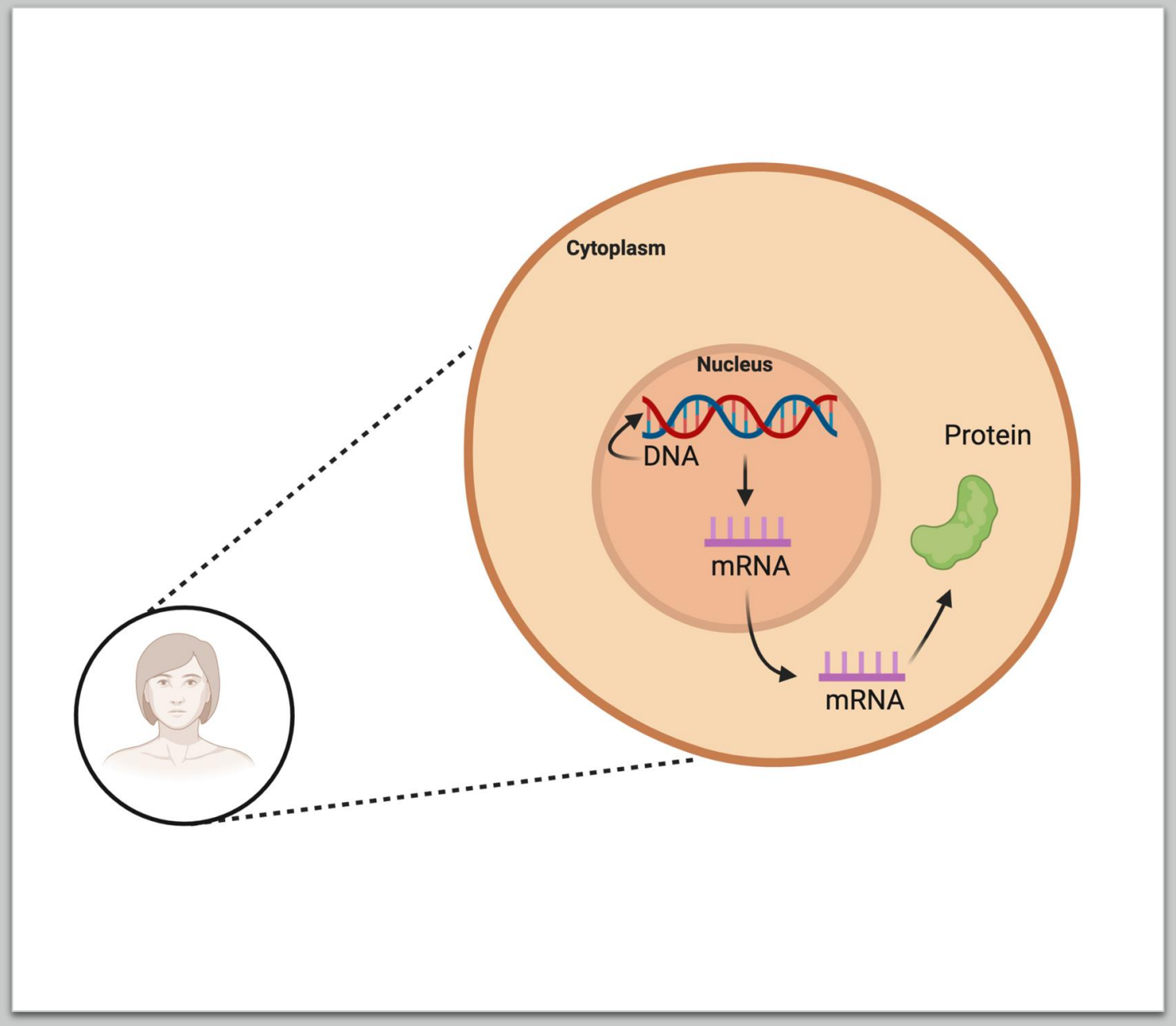


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Image made by E. Marnik using Biorender

Pfizer-BioNTech and Moderna Clinical Trial Data

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

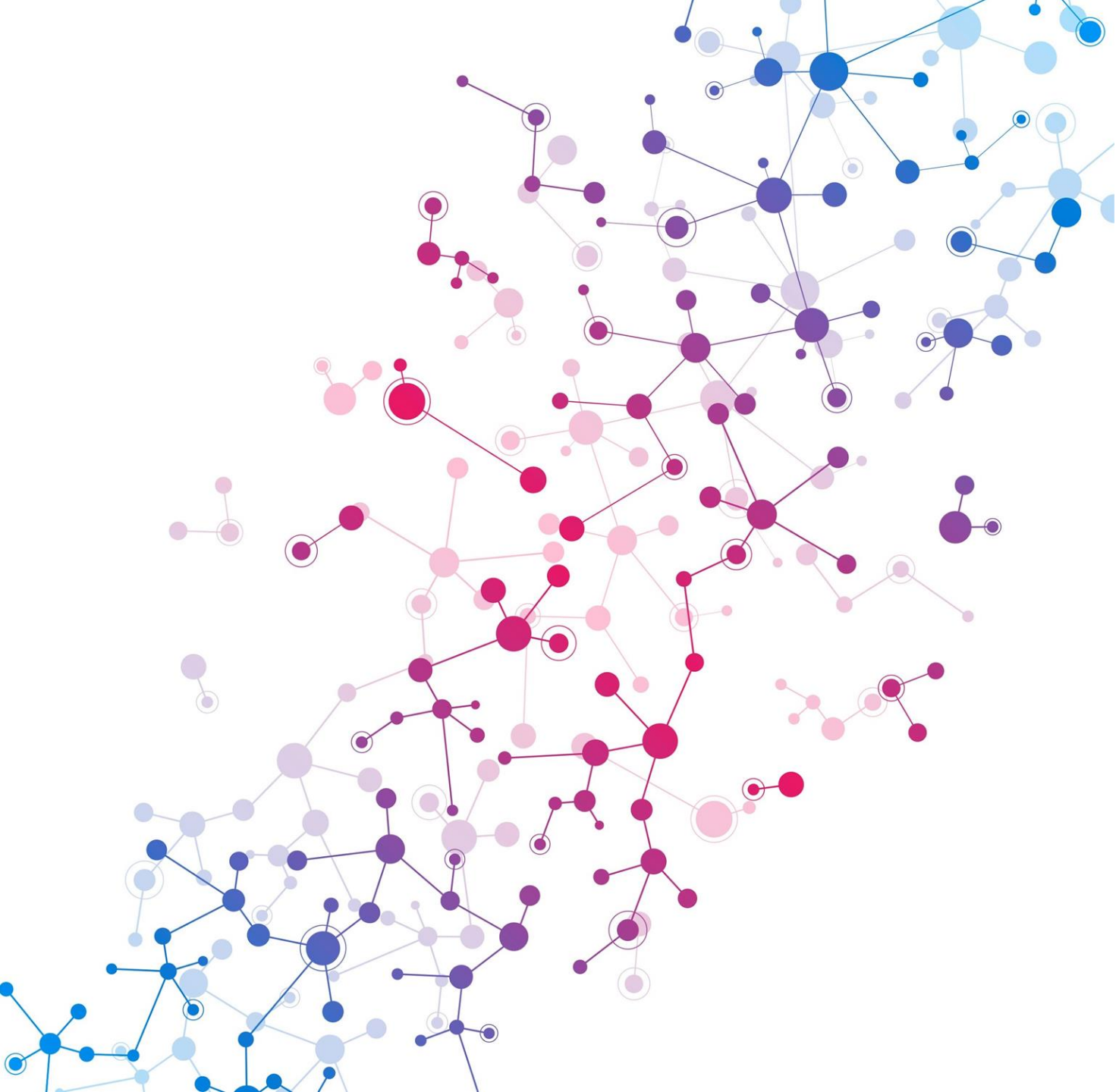
- Hundreds of thousands of participants, including older adults, through extensive clinical trials
- Have met all the requirements for approval, including safety requirements, and no requirements were overlooked in order to approve them

What is the efficacy in protecting against COVID-19 illness?

Pfizer-BioNTech	Moderna
95%	**94.1%**

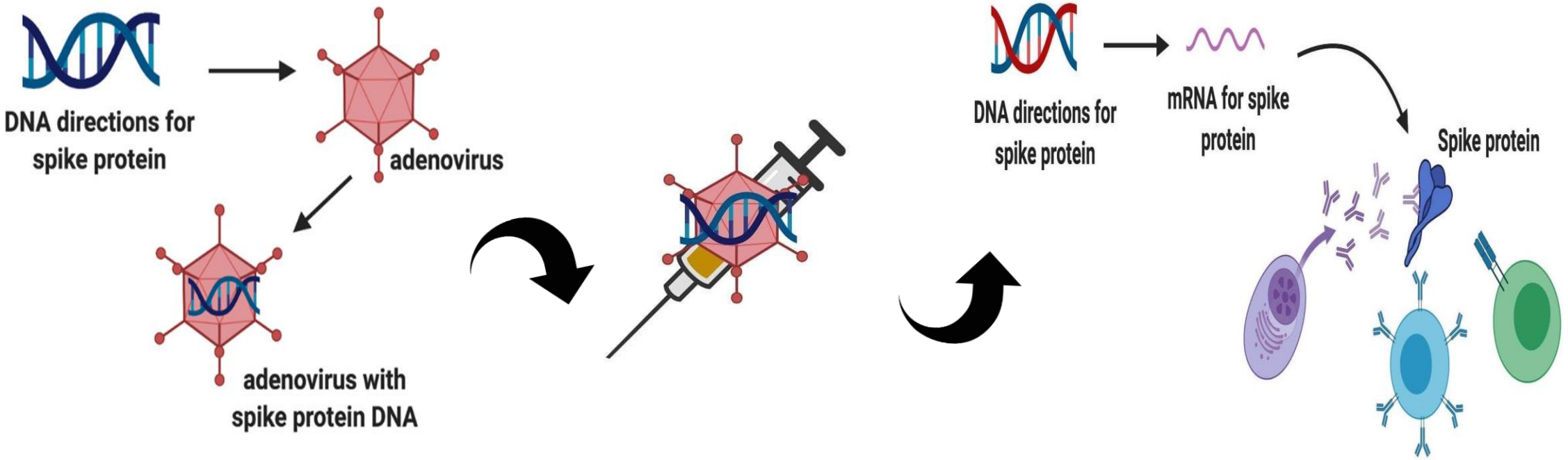
- **Efficacy consistent across age, gender, race and ethnicity demographics**

- **The 5-6% who did get Covid-19 did not have severe disease**



Adenovirus Vector-based Covid-19 Vaccine Types

AstraZeneca/J & J: How it works



The directions to make the spike protein that is found on the surface of SARS-CoV-2 is made into a DNA sequence inserted into another virus called an adenovirus.

The adenovirus containing the DNA that codes for the spike protein is injected into the person. DNA is then made into mRNA, which then instructs the cell how to make the spike protein.

Image made by E. Marnik using Biorender

Adenovirus Vector-Based Vaccines

The adenovirus a modified, weakened, non-replicating version of a common cold virus. AstraZeneca and J&J use different types of adenovirus.

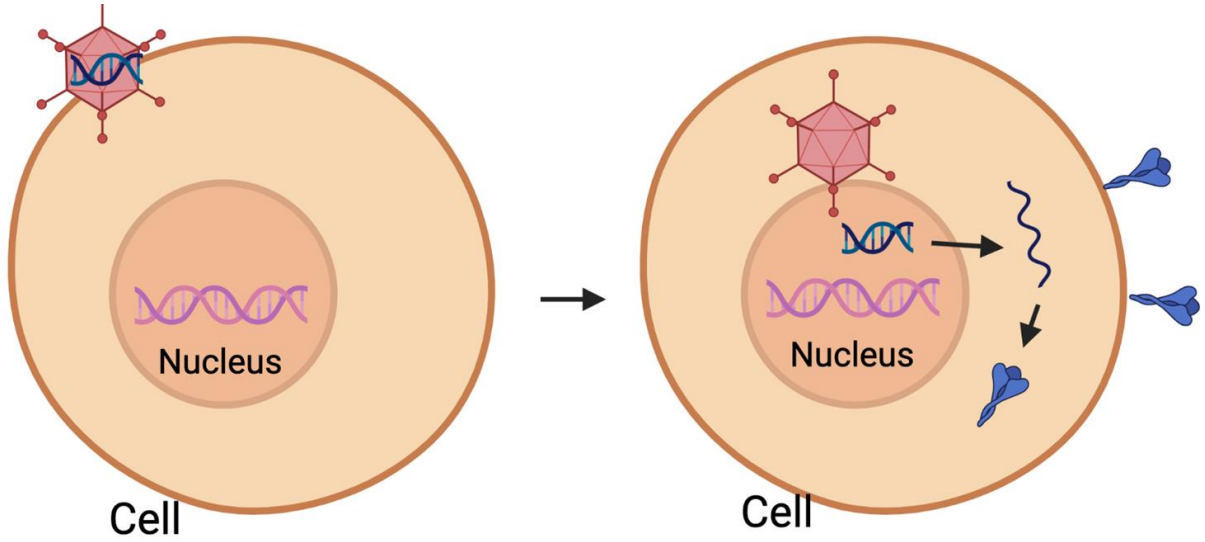
It does not cause any permanent changes to your DNA.

Adenoviruses are often used because they can induce a robust immune response.

The adenovirus genome has been well studied by scientists, we know how they work and how to modify to make sure it is safe.

Adenovirus vector vaccines are easy to design and produce on a mass scale.

However, our bodies can potentially have pre-existing immunity to vector viruses (therefore, chimpanzee versions are used ex in the AstraZeneca vaccine)



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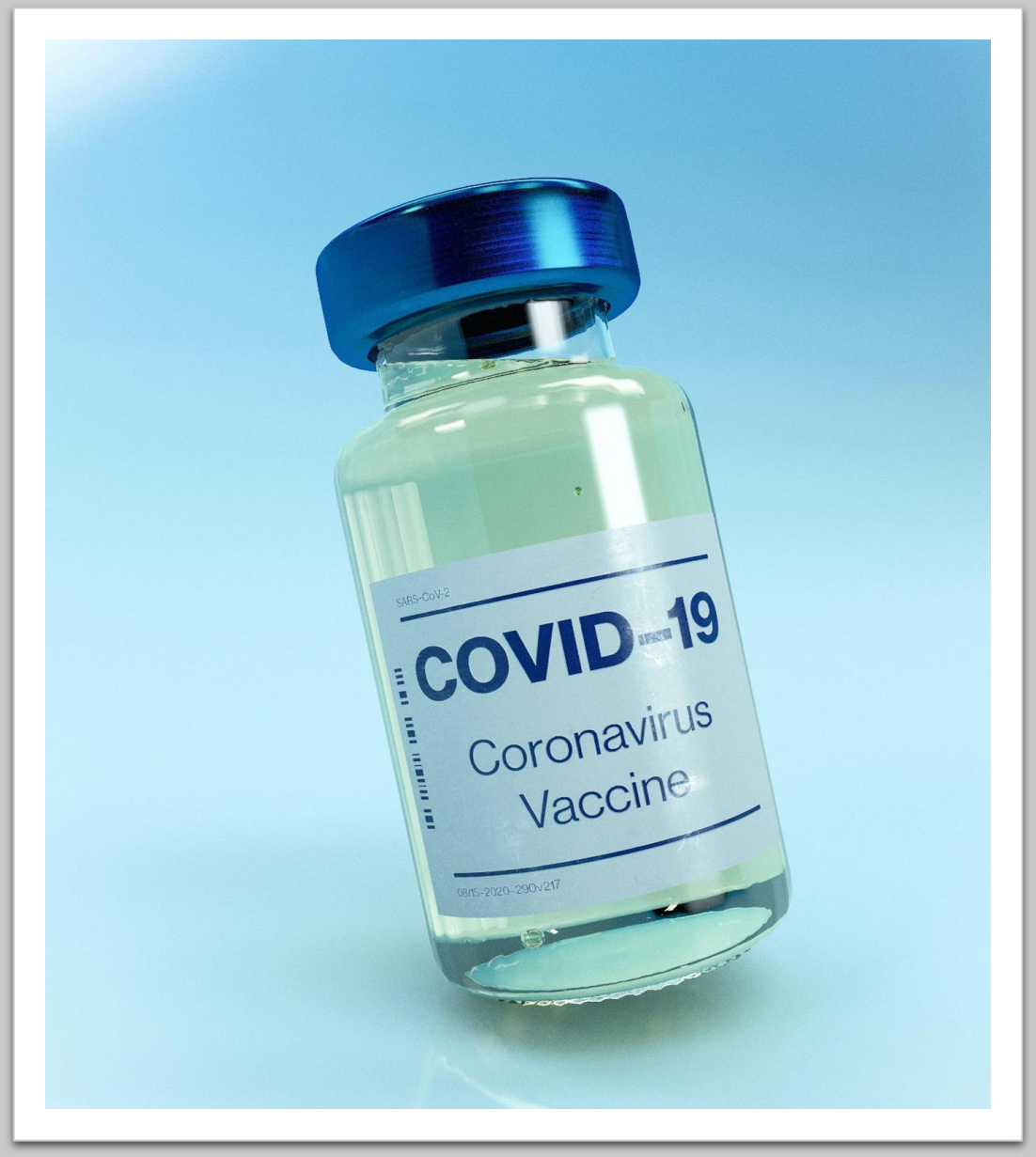
AstraZeneca, J&J Clinical Trial Data

AstraZeneca	J&J
>11,000 participants	**>43,000 participants**
≥ 18 years	**≥ 18 years**
2 doses, 4-12 weeks apart	**Single dose**

What is the efficacy of the AstraZeneca vaccine?

Endpoint	%
Overall efficacy*	59%
Efficacy against severe disease	100%
Efficacy against related death	100%

*Overall efficacy based on updated analysis (Dec 7, 2020) in participants who received two standard doses with the second dose administered 4 to 12 weeks after the first dose.



NACI 65+ Guidance?

Some countries, including Canada, had initially recommended that this vaccine be used in adults 64 and younger.

This is because the study results were too limited to allow a reliable estimate of vaccine efficacy in individuals 65+.

However, efficacy in 65+ years of age is supported by immunogenicity data and emerging real-world evidence.

There are no additional safety concerns in the 65+ age group.

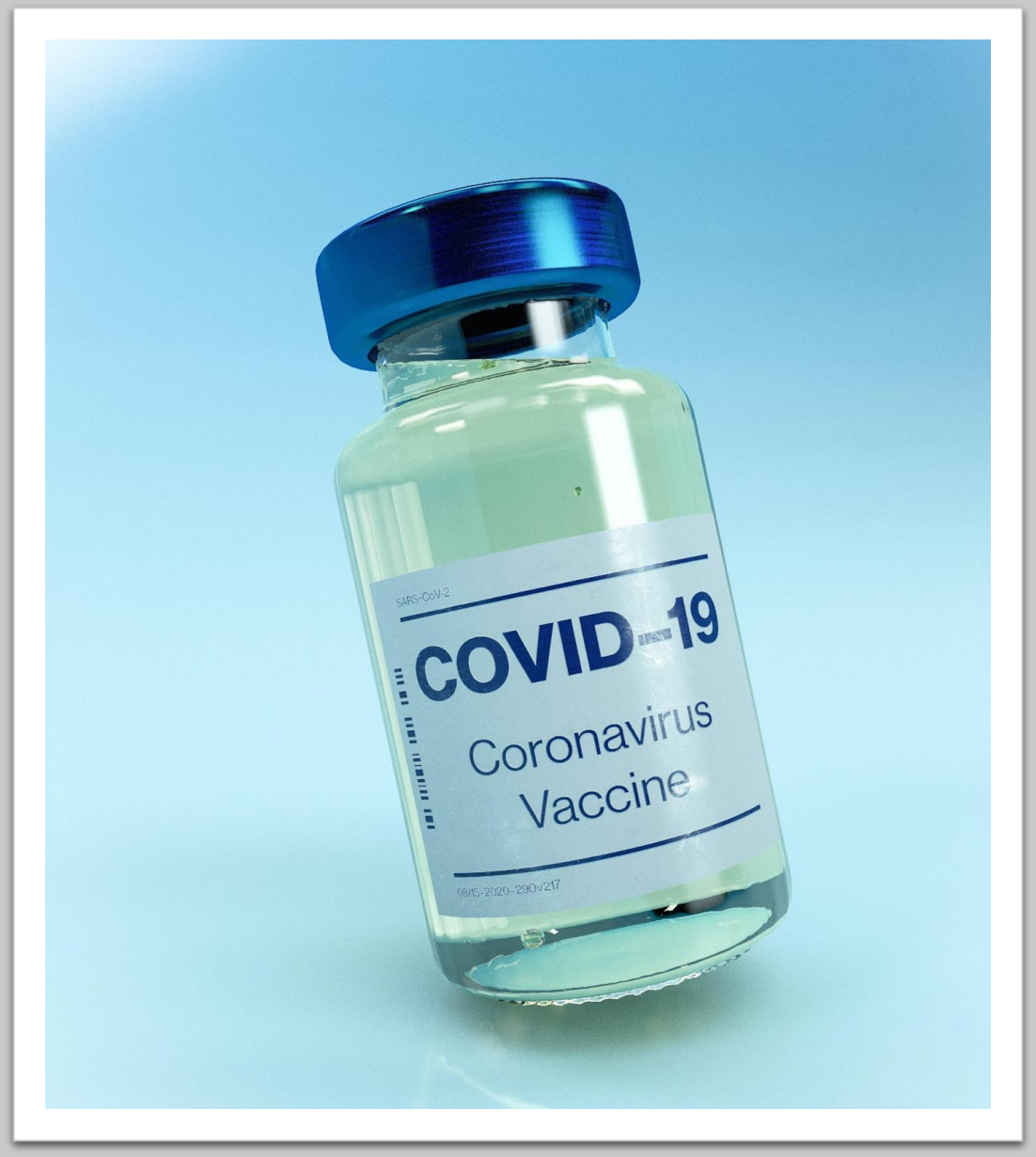
Efficacy in this age group will be updated as more data becomes available from currently ongoing trials.

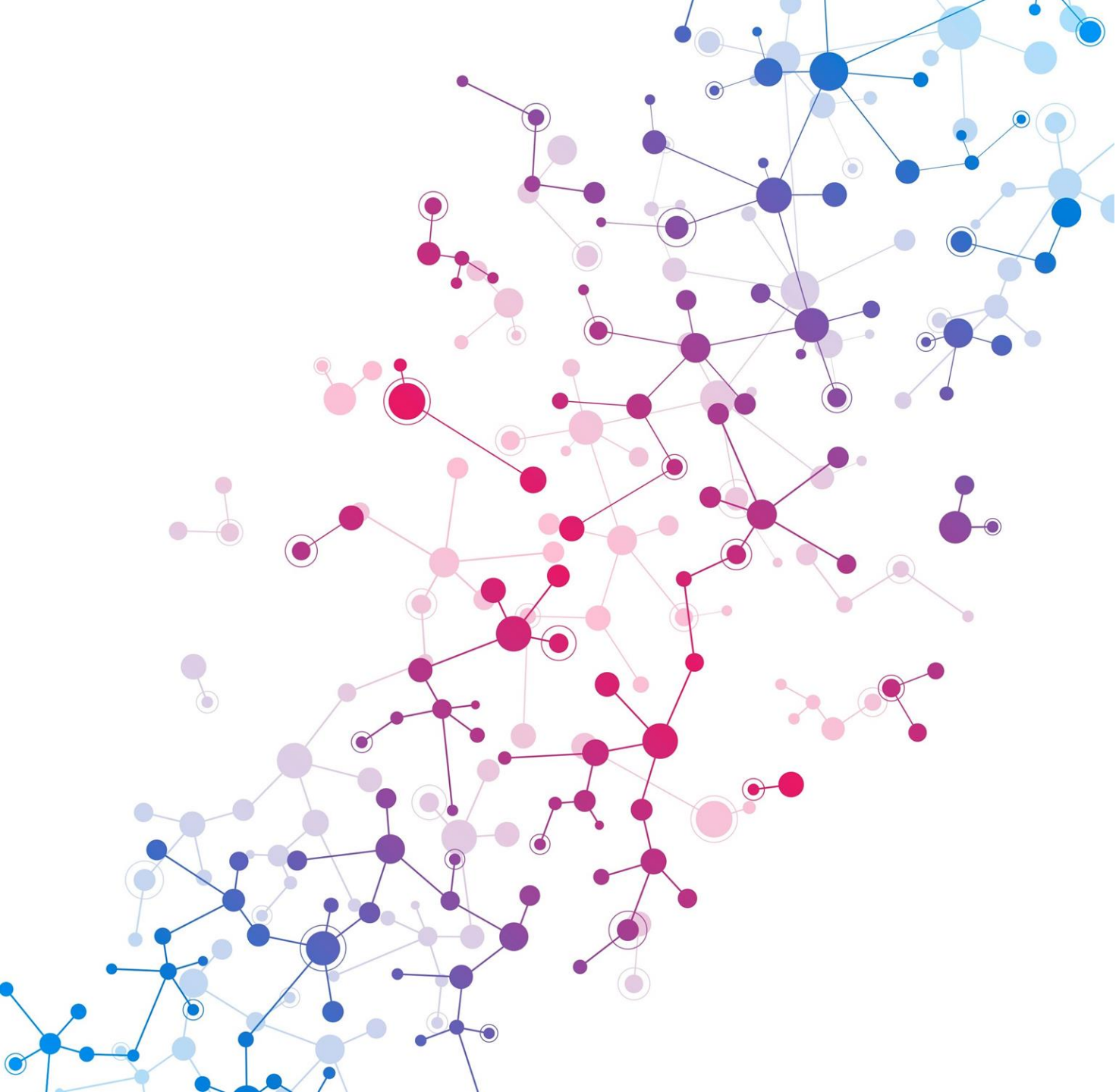
NACI released a statement yesterday that this vaccine can now be used in adults 65+ as well - this is due to the mounting real-world evidence available!

What is the efficacy of the J&J Vaccine?

Efficacy against moderate to severe disease	%
Overall efficacy	66%
Efficacy in the US	72%
Efficacy in South Africa	64%
Efficacy against related death	61%

Other Endpoints	%
Efficacy against severe disease	85%
Efficacy against hospitalization	100%
Efficacy against related death	100%
Efficacy against asymptomatic disease	74% after 29 days





Common Questions

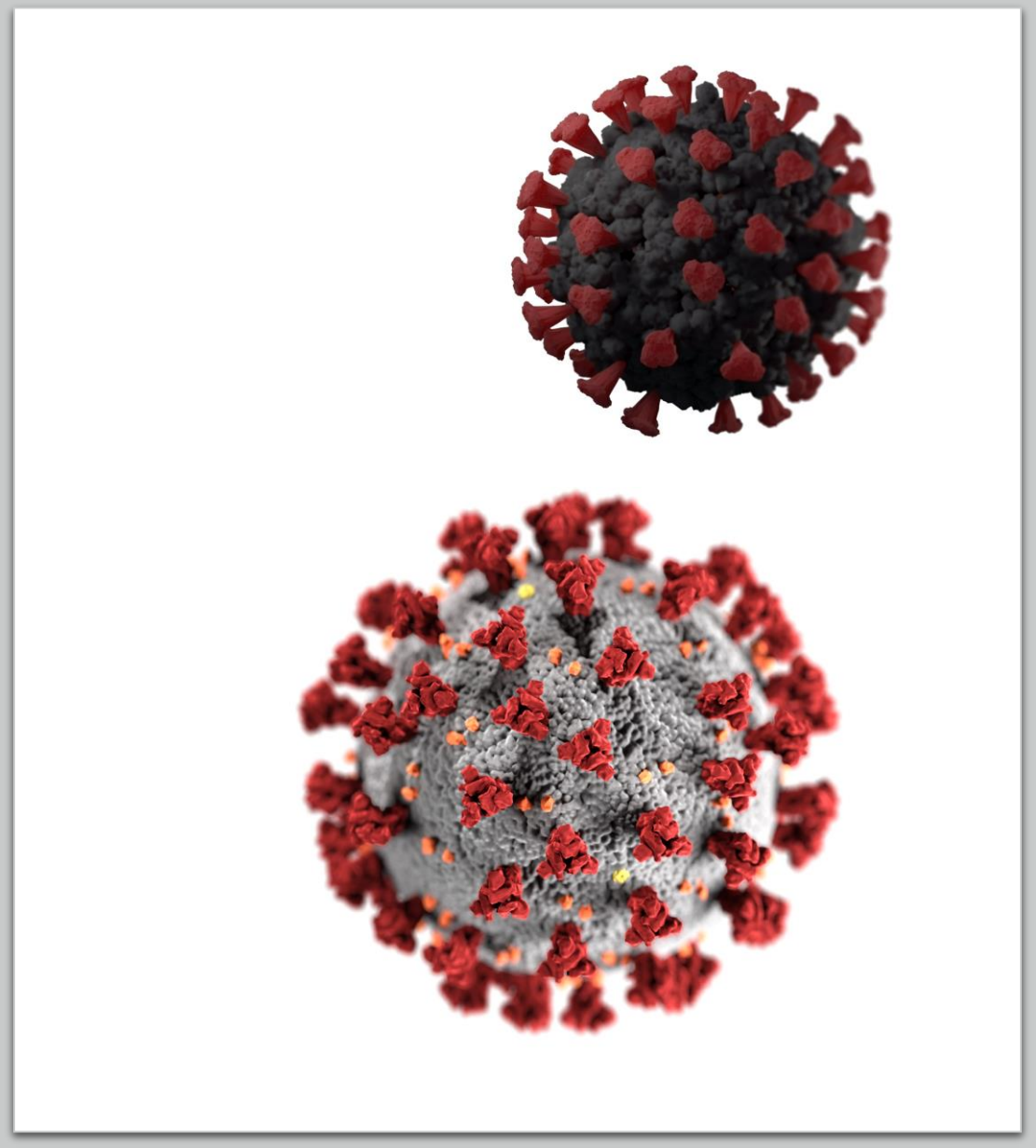
Were the studies diverse and include racialized groups?

	Racial/Ethnic
Moderna	36.2%
Pfizer	17%
AstraZeneca	7.5-33.5%
J&J Janssen	37.8%

No difference in the efficacy or safety of the vaccine in different populations

Can you get Covid-19 from the vaccine?

- The vaccines do not contain live virus
- mRNA is used to tell the body to make a harmless piece of the ‘spike protein’ that is found on the surface of the actual COVID-19 virus
- Although the possible side effects of the vaccine may overlap with symptoms of COVID-19, you cannot get COVID-19 from the vaccine
    - Side effects mean the body’s immune system is gearing up!



What's in the mRNA vaccines?

Component	Pfizer	Moderna
mRNA	mRNA for spike protein	mRNA for spike protein
Lipids (Fat bubble)	((4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2- hexyldecanoate)	SM-102
	2-[(polyethylene glycol)-2000]-N,N-ditetradecylacetamide	1,2-dimyristoyl-rac-glycero3-methoxypolyethylene glycol-2000 [PEG2000-DMG],
	1,2-distearoyl-snglycero-3-phosphocholine	1,2-distearoyl-snglycero-3-phosphocholine [DSPC])
	cholesterol	cholesterol
Salts, sugars and buffers	potassium chloride	tromethamine
	monobasic potassium phosphate	tromethamine hydrochloride
	sodium chloride	acetic acid
	dibasic sodium phosphate dihydrate	sodium acetate
	sucrose	sucrose

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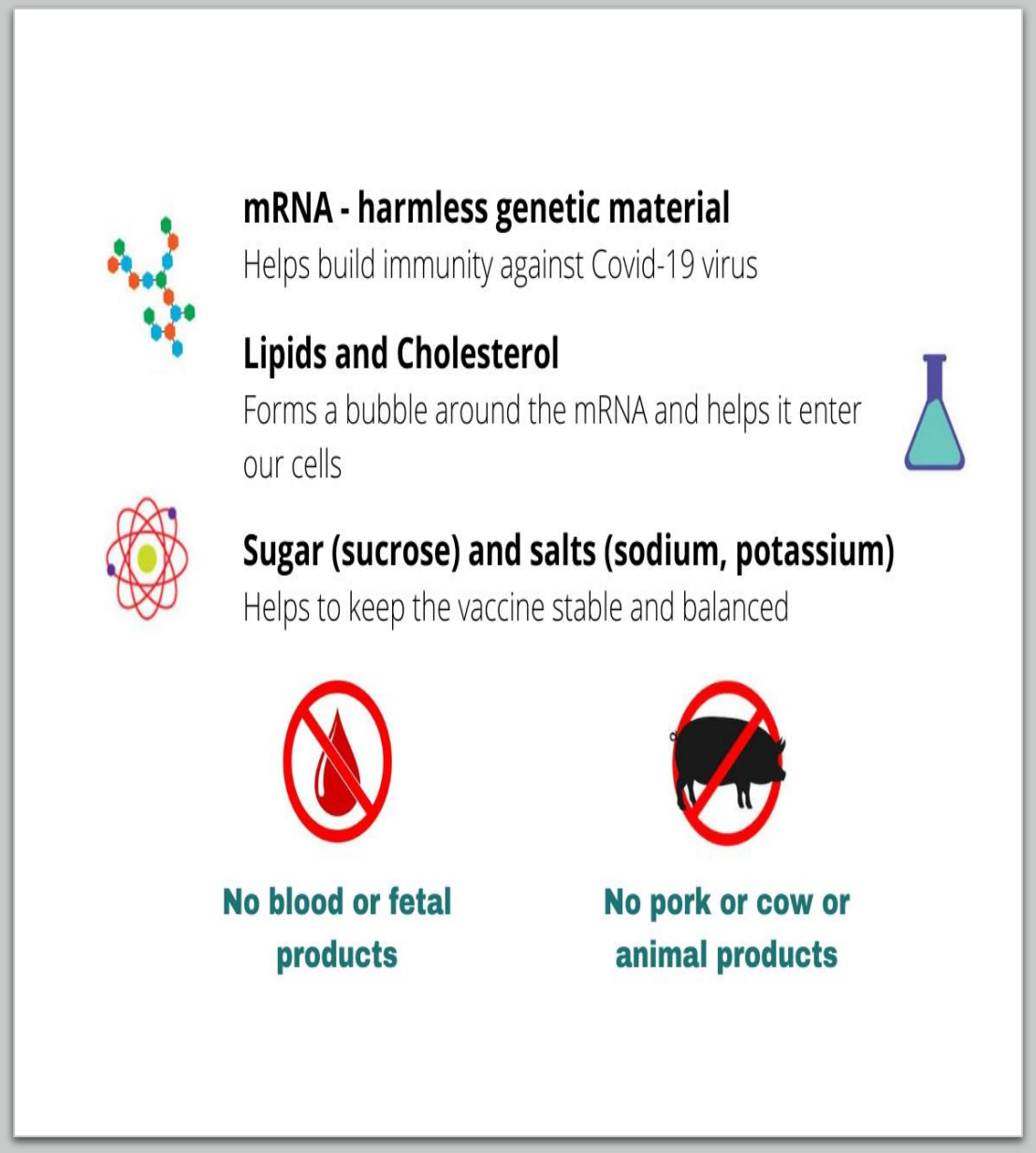


Image via South Asian Health Network and Unambiguous Science

What's in the AdV Vector vaccines?

Component	AstraZeneca	J&J
DNA in a lipid bubble	Genetic code for the mRNA of spike protein	Genetic code for the mRNA of spike protein
Salts, sugars and buffers	polysorbate 80	polysorbate 80
	L-histidine hydrochloride monohydrate	citric acid monohydrate
	sodium chloride	sodium chloride
	disodium edetate dihydrate (EDTA)	2-hydroxypropyl-β-cyclodextrin (HBCD)
	magnesium chloride hexahydrate	sodium hydroxide
		Hydrochloric acid
		trisodium citrate dehydrate
	sucrose	sucrose
Alcohol	Ethanol (0.002mg per dose)	Ethanol

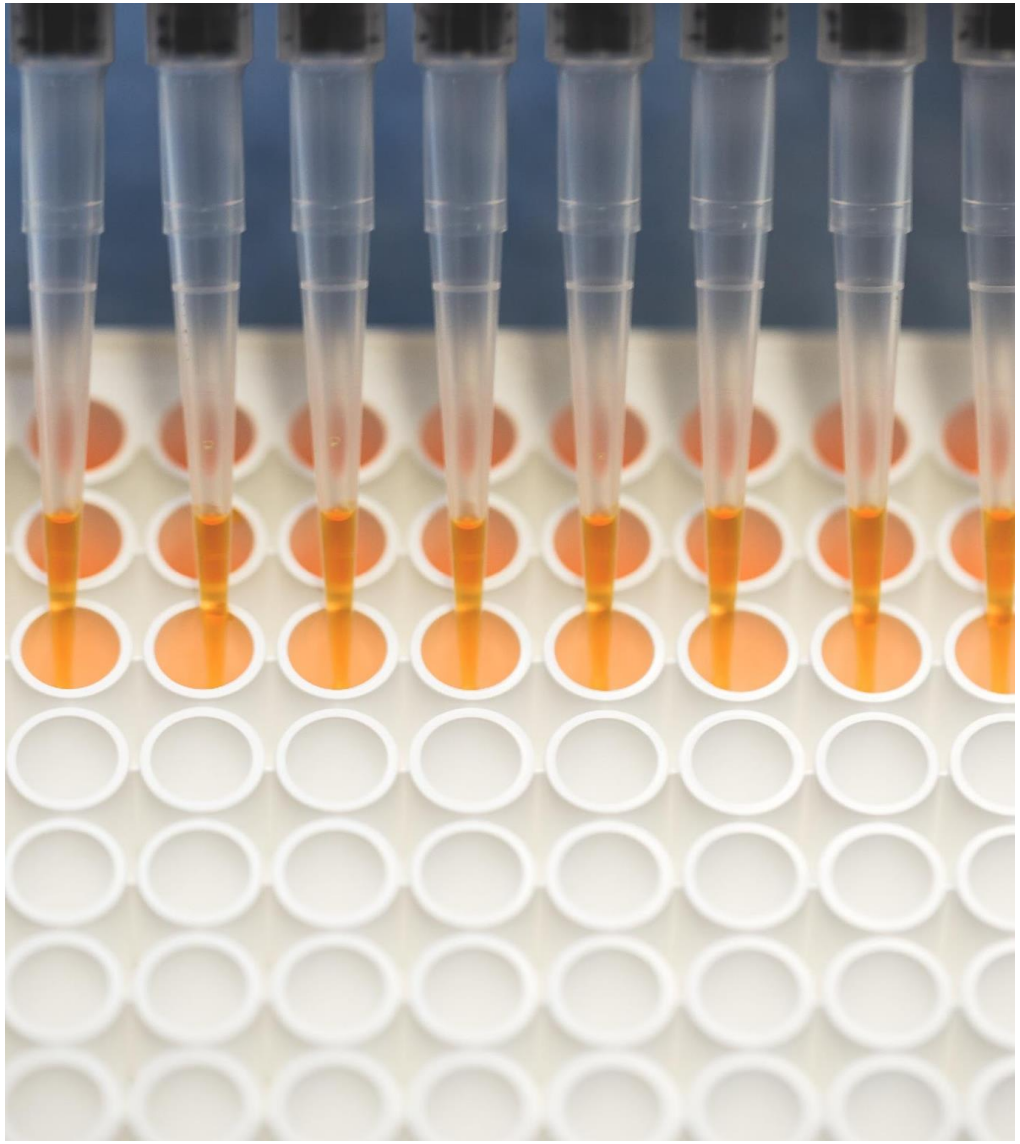
No blood or fetal products

No pork or cow or animal products

Two different immortalized cell lines were used for production; however, end vaccine fully purified

Is there an impact on fertility?

- Misinformation is being spread that antibodies against the spike protein in the vaccine will also target a protein in the placenta of pregnant mothers called syncytin-1.
- There is no data suggesting that these antibodies will affect syncytin-1.
- If this was true, you would expect COVID-19 infection to be associated with increased rates of miscarriage, but we in fact do not see an increase in miscarriages with Covid-19 infections.



Were the Covid-19 vaccines fast-tracked?

- Strong international collaboration among scientists, health professionals, researchers, industry and governments including ample funding to implement the large clinical trials needed to test the effectiveness of vaccines being developed
- Health agencies allowed for rolling submissions, so this allowed data to be reviewed as it was made available.
- None of this occurred at the expense of safety, and due diligence was absolutely done in the trials.
- mRNA technology has been studied for over a decade, once the virus was genetically sequenced, scientists could get to work to create a variety of vaccines and start clinical trials

Were the Covid-19 vaccines fast-tracked?

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

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Our aims for healthcare workers education on COVID-19 vaccines:

Get Educated

Get Vaccinated

Get Skilled


Side Effect Profile

What are the side effects of the Pfizer-BioNTech Vaccine?

Most people can expect to feel a sore arm, a bit of tiredness and a mild headache as the vaccine starts to work. Some people will feel muscle aches, chills, or a mild fever. Reactions at the injection site will improve by 48-72 hours. Around 1 in 10 people will want to take acetaminophen or ibuprofen.

Less often, people may experience enlarged lymph nodes (1 in 100). Other rare side effects include anaphylaxis, especially if someone has a history of a severe allergy.

Very common side effects (may affect more than 1 in 10 people)	Uncommon side effects (may affect up to 1 in 100 people)
• Pain at injection site (84.1%*) • Fatigue (62.9%*) • Headache (55.1%*) • Muscle pain (38.3%*) • Chills (31.9%*) • Joint pain (23.6%*) • Fever (14.2%*)	• Enlarged lymph nodes (0.008%**)

*subset (n=8183)

**subset (n=7960)

What are the side effects of the Moderna Vaccine?

Very common side effects
(may affect more than 1 in 10 people)

- Pain at injection site (88.4%*)
- Fatigue (68.5%*)
- Headache (63.0%*)
- Muscle pain (Myalgia) (59.6%*)
- Joint pain (arthralgia) (44.8%*)
- Chills (43.4%*)
- Fever (14.8%*)
- Enlarged lymph nodes (14.0%**)

*subset (n=)

What should I remember from the side effects of this vaccine?

- 8 in 10 people complain of sore arm
  - **BUT** only 1 in 100 call that soreness severe
- 5 in 10 people complain of fatigue and headache
  - **BUT** only 1 in 10 need Advil or Tylenol
- Some reaction to the vaccine is to be expected, but the majority are mild and easily manageable at home

Astra Zeneca Side Effects

- injection site tenderness (75.3%)
- injection site pain (54.2%)
- fatigue (62.3%)
- headache (57.5%)
- body aches (48.6%)
- malaise (44.2%)
- fever (33.6%)
- chills (31.9%)
- joint pain (27.0%)
- nausea (21.9%)


Variants of Concern

Variants

- **Current variants**
- Variants are caused by accumulation of multiple changes in the spike protein
    - These changes allow the virus to attach more tightly to the ACE2 receptor and enter human cells more efficiently
- B.1.1.7. first described in UK , seems to bind more tightly to the protein receptor called ACE2, so can enter human cells more readily
    - Now found that it has a new mutations E484K,
- B.1.351 first described in S. Africa: multiple mutations within spike protein, so may evade antibody response:
    - Carries the E484K mutation
- P1 first described in Brazil
    - Similar to B 1.351 variant
- B.1.526 first described in New York
    - One with E484K and one with S447N mutations
- B.1.427 first described in California
- **So far, it seems mRNA vaccines and others in Phase 3 trials may show preserved efficacy for UK variant but decreased efficacy to S. African variant**

COMMON MISCONCEPTIONS AND QUESTIONS

Do the vaccines work against the new COVID-19 mutants/variants?

The authorized mRNA vaccines have been predicted to work well against COVID-19 variants.

Novovax vaccine:

- Efficacy maintained with UK variant
- Efficacy reduced with S. African variant

Johnson and Johnson vaccine:

- Efficacy reduced for UK, S. African and Brazilian variant

AstraZeneca

- Efficacy against UK variant
- Poor efficacy against S. African variant

These data are evolving and better information continues to surface.

Special Circumstances & Populations

Allergies

- mRNA vaccines seem more reactogenic than previous vaccines.
- Allergy rates seem to be higher but in all cases, outcomes have been good (important to have the vaccine in a setting where the staff can manage severe allergies).
- History of anaphylaxis to other allergens is NOT a contraindication to the mRNA vaccine but it is recommended that such people wait 30 mins post vaccine administration (vs 15 mins).
- 90% of anaphylaxis happened within 30 mins of the vaccine administration.
- Based on VAERS reports from USA, estimated anaphylaxis rates are 5 per million doses administered for Pfizer-BioNTech and 2.8 per million doses administered for Moderna vaccine.

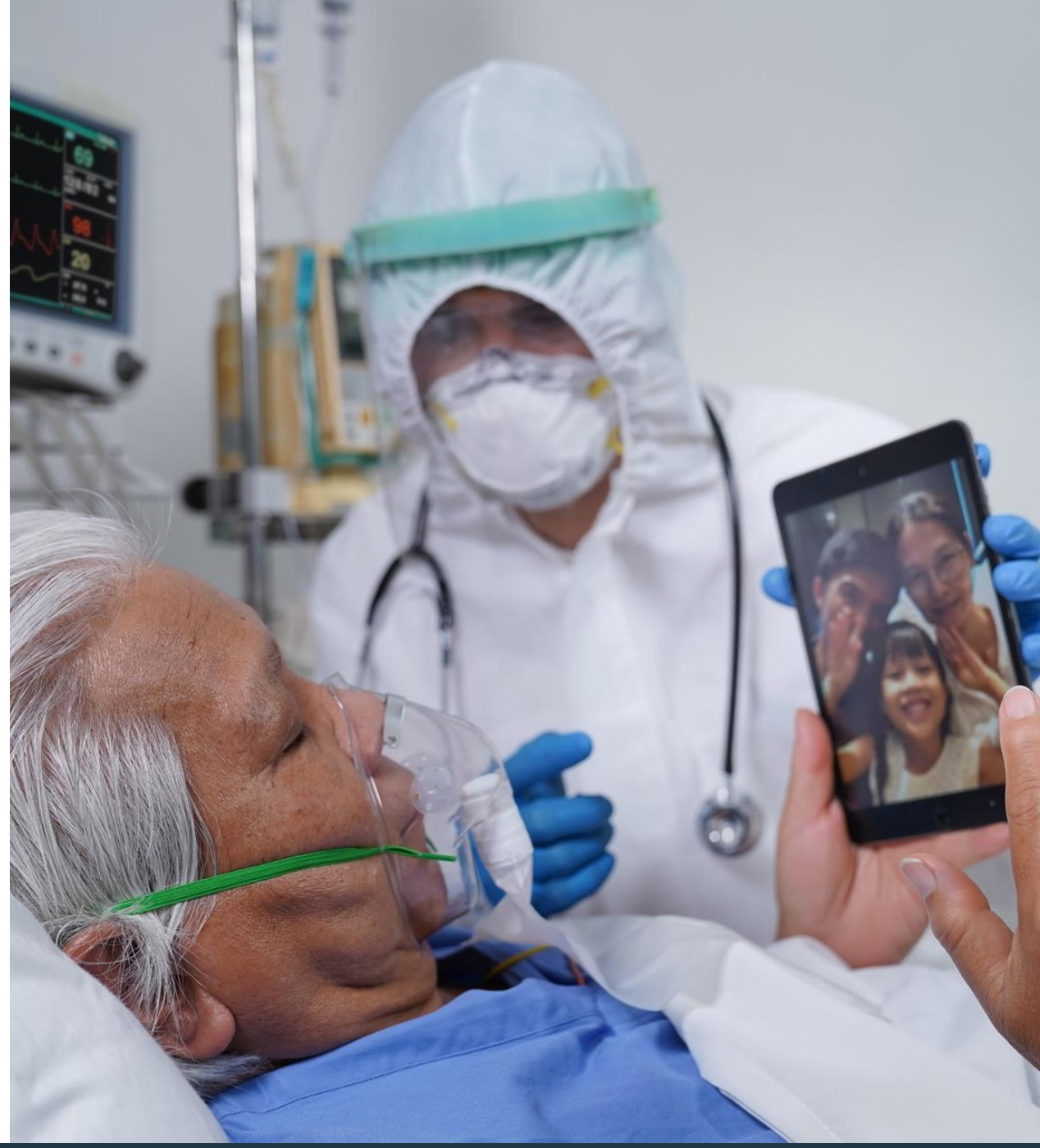
Immune status

Immunocompromised:

- Concern is not about risk of harm - it's about adequacy of immune response/protection!
  - Discuss timing for those receiving stem cell therapy, CAR-T therapy, chemotherapy, immune checkpoint inhibitors, monoclonal antibodies (e.g., rituximab) and other targeted agents (e.g., CD4/6 inhibitors, PARP inhibitors etc)

Prior exposure:

- Safe for those with previous COVID-19 infection
  - Likely only one dose needed!



Long-term protection

Vaccine side effects occur within 6 weeks.

We need longer-term follow up to understand how long you are protected. Protection occurs after each dose and is the best **after the second dose.**

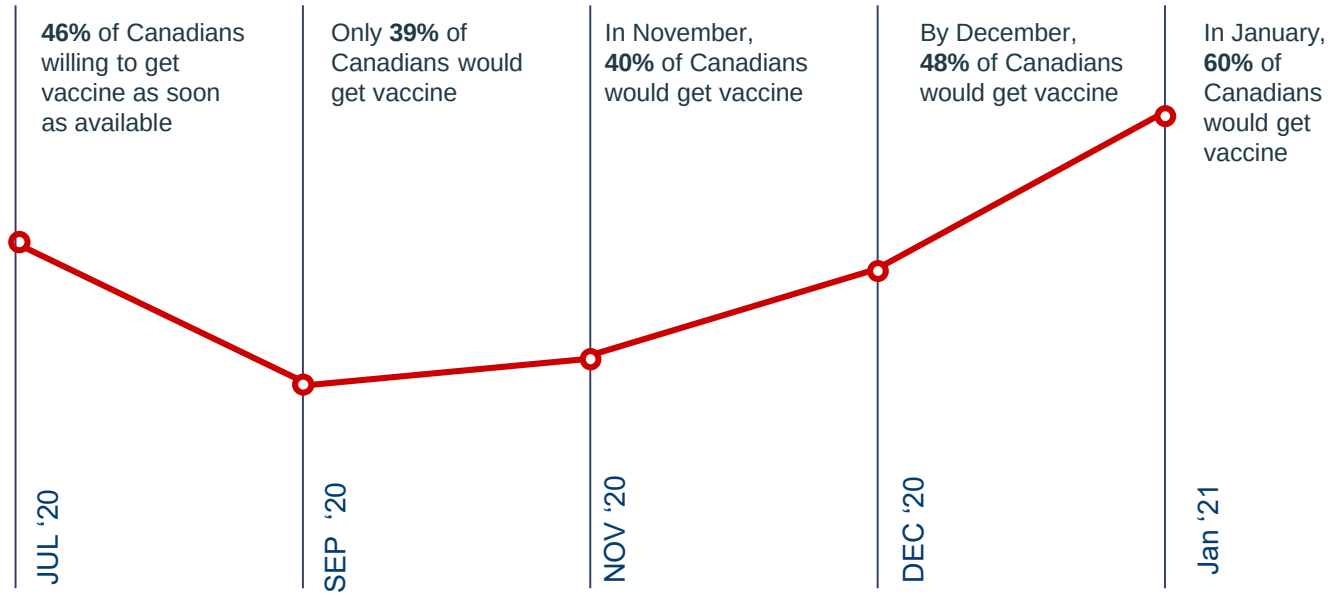
- If you have already been infected with COVID-19, the vaccine will help you stay immune longer.


Vaccine Confidence

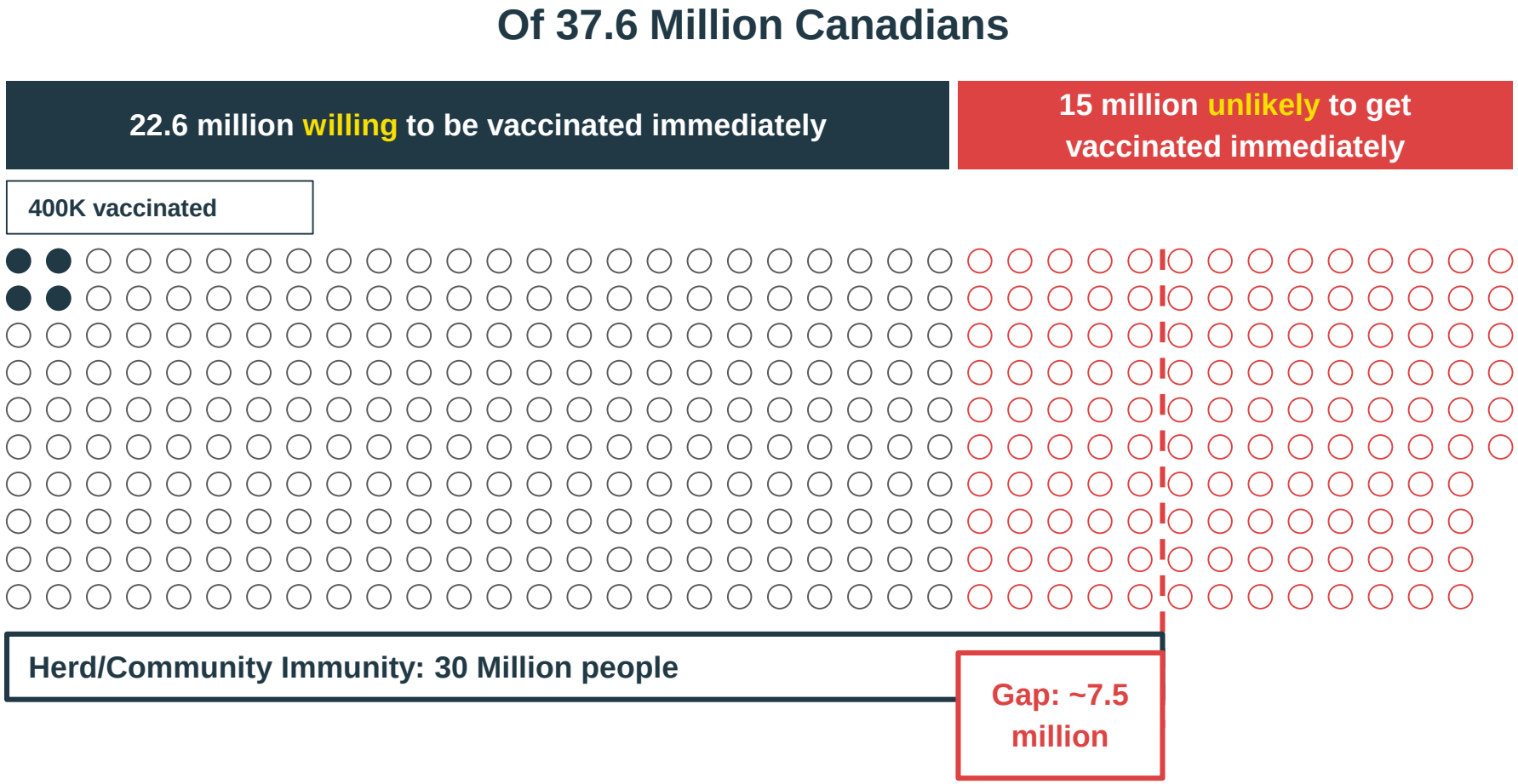
WILLINGNESS TO BE VACCINATED

Just over half of Canadians currently willing to get the vaccine right away

Angus Reid, 2020 | Base: Total (n=1,580)



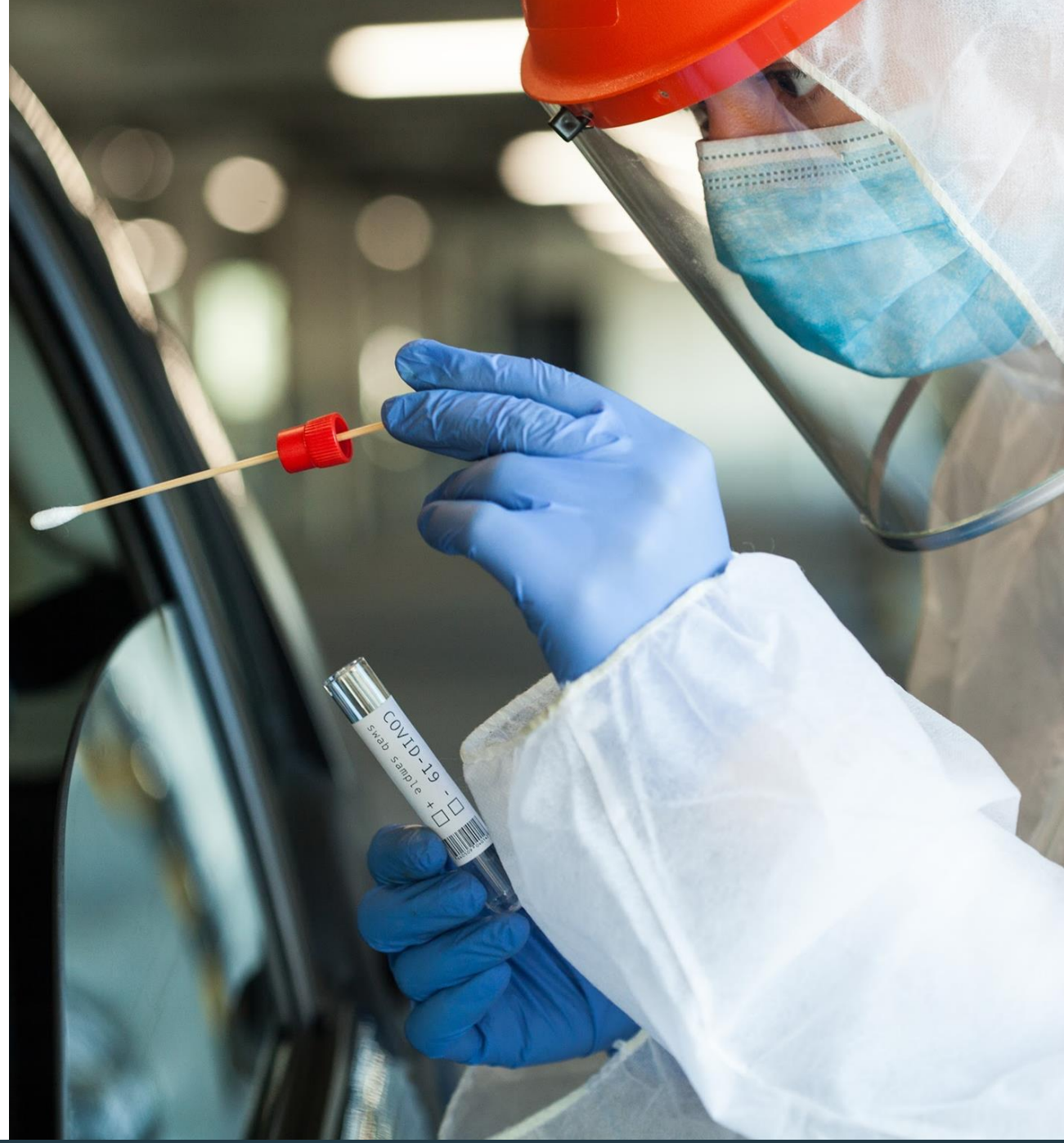
VACCINATION GAP:
~7.5 MILLION PERSON GAP TO REACH COMMUNITY IMMUNITY



Angus Reid, 2021

Vaccine Hesitancy in Ethnic Communities

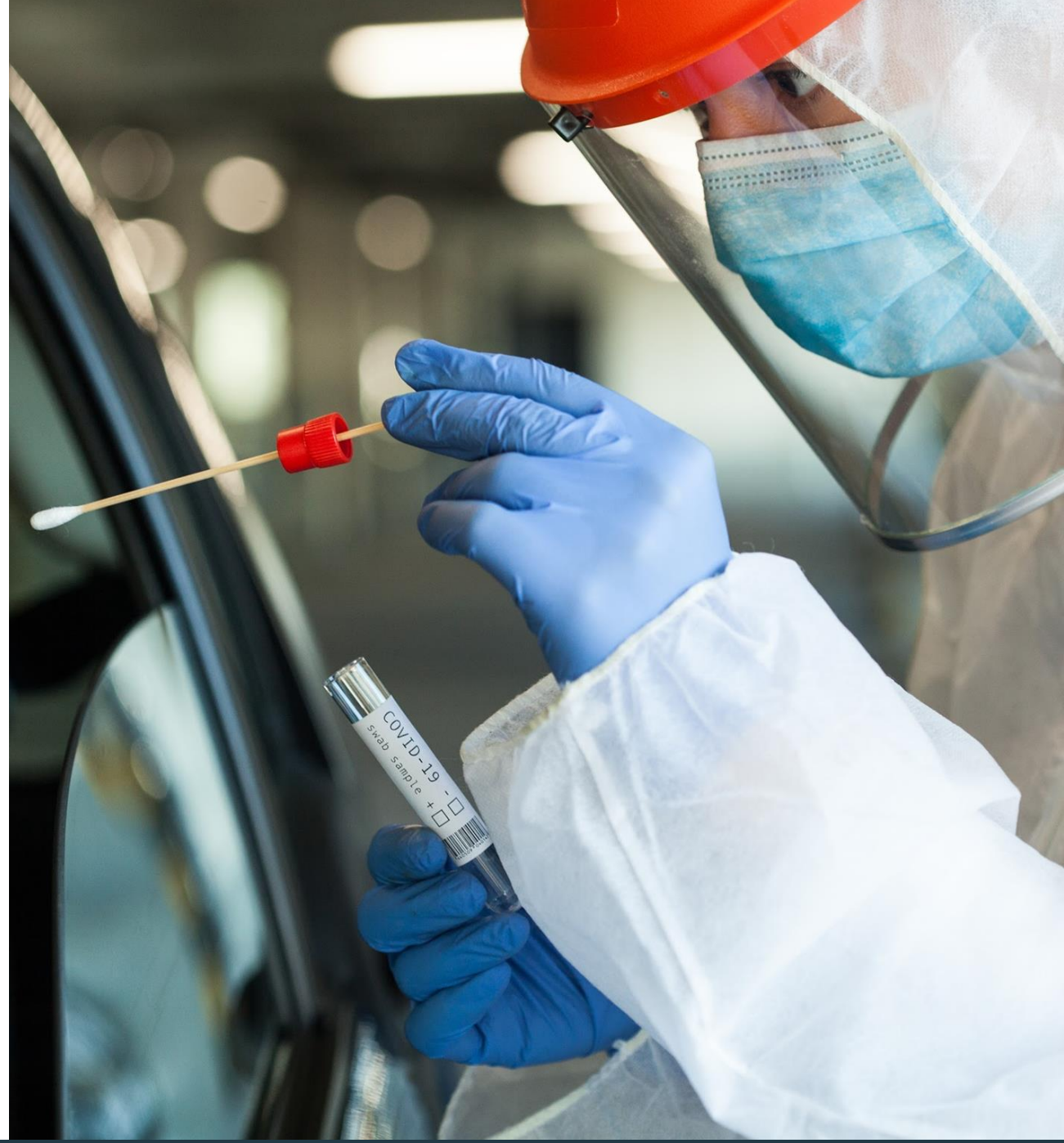
- Black people comprise 9% of Toronto's population, but comprise 26% of COVID-19 cases in the region
- Histories of trauma related to medical experimentation and discrimination has earned the government and biomedical institutions distrust from minority communities
- Vaccine hesitancy rates are as follows: Black 47%, Indigenous 38%, Middle Eastern 35%, Latinx 32%, South Asian 30% East Asian 28%, White 25%



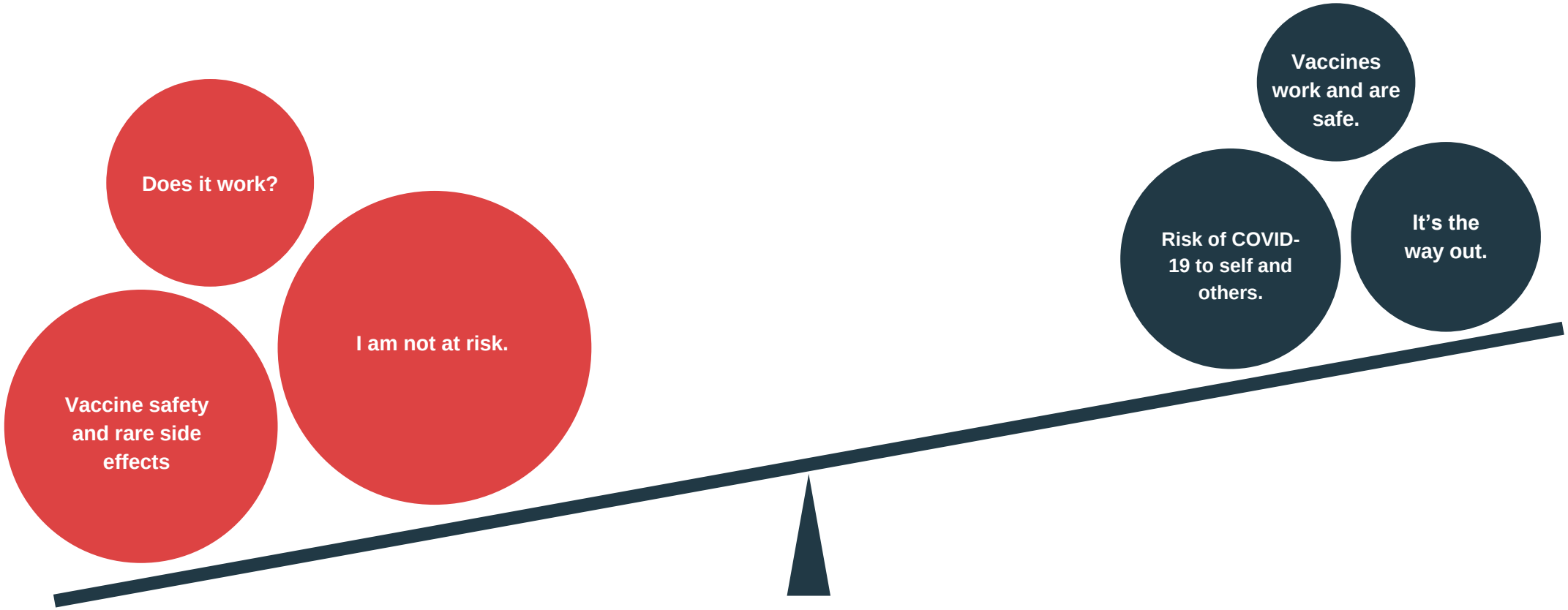
Vaccine Hesitancy Among Health Care Workers

Rates of vaccine hesitancy in healthcare workers mirrors that of the rest of the population

- 76% are strong supporters, 17% are ambivalent, and 7% oppose the vaccine
- 49% of personal support workers were hesitant about the COVID-19 vaccine
- Healthcare workers who are lower wage, racialized, female and part time workers were more likely to be vaccine hesitant.



The Gist of Vaccine Information



Pr	Proactively starting the conversation with a Presumptive statement.	**I am here to support you as you make the decision to take the vaccine. I had the chance to take the vaccine myself and am happy to help you get protected too.**
O	Offer to share your knowledge about the facts and your experience with having had the vaccine.	**I have been thinking a lot about this vaccine for my patients and educating myself on the science around it. Can I share some of what I know with you?**
T	Tailor the recommendations to their specific health concerns.	**Here is why you are the right person for this vaccine: you have high blood pressure and diabetes but good quality of life. Because of your conditions, you at high risk of being hospitalized with COVID, so we need to maintain the good quality of life you have right now.**
C	Address specific concerns (should not be the bulk of the conversation).	**I had the chance to take the vaccine myself and am happy to help you make the decision too, so you can be protected.**
T	Talk through a specific plan for where and when to get the vaccine.	**You can do the following the get the vaccine. Provide schedule (2 doses).**

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A few pointers on tailoring the message:

- **Keep it around their identity:**
  - Single parent, medical issues, culture
- **For vaccine hesitant people identifying with an ethnic group:**
  - Acknowledge historical harms of vaccines and medical experimentation
  - Acknowledge lack of trust in health care
  - Point them to local champions/support groups
- **Highlight community benefits**
  - Call out adverse effects of COVID on their specific community
  - Speak about strengthening their community with vaccine protection
  - Examples: COVID-19 differentially kills people in Indigenous communities. Not only does it mean losing the elders, but also impacts culture and language: these elders would teach and keep alive as centuries-old traditions

Online Resources

https://tools.cep.health/tool/covid-19-vaccines/

Developed by:

CEP | Centre for Effective Practice

With support from:

Ontario College of Family Physicians — Leaders for a healthy Ontario

Nurse Practitioners' Association of Ontario

afhto — association of family health teams of ontario

OMA — Ontario Medical Association

RNAO

Ontario College of Pharmacists — Putting patients first since 1871

SGFP — General & Family Practice

McMaster University — Family Medicine

University of Waterloo — School of Pharmacy

This resource is revised often and new content is added regularly to guarantee that the latest evidence and regulatory recommendations are included. The CEP is committed to ensuring this information is accurate and up to date.

Last reviewed: March 8, 2021

Last updated: March 12, 2021

What's new!

- Does the AstraZeneca vaccine cause blood clots?
- What % of the population needs to be vaccinated to generate herd immunity or to eliminate COVID-19 from a community?
- Are the approved vaccines considered halal?
- Can Catholics receive the vaccine?

CEP Centre for Effective Practice

Vaccines at a glance

Turn the page for more in-depth information on each topic

		Pfizer	Moderna	AstraZeneca	Janssen (J&J)
Trial efficacy	Overall efficacy rate (clinical trial data)	95.0%	94.1%	59.9%	66.9%
	Efficacy rate against severe disease	>7 days after dose 2: **75%**	14 days after dose 2: **100%**	After dose 2: **100%**	28 days after dose: **85.4%**
	Number of trial participants who developed severe disease	1 vaccine/9 placebo	0 vaccine/30 placebo	0 vaccine/8 placebo	4 weeks after: 5 vaccine/34 placebo
Variants	Against variants **without** E484K mutation (higher transmission)	*Likely similar to overall*	*Likely similar to overall*	*Likely similar to overall*	*Unknown*
	Against variants **with** E484K mutation (higher transmission, increased severity)	*Likely reduced*	*Likely reduced*	*Likely reduced*	*Likely reduced*
	Variant-specific vaccine development underway	Y	Y	Y	Y
Type	Type	mRNA	mRNA	Viral vector	Viral vector
	Contain live virus?	N	N	N	N
Ethics	Tested in diverse racial/ethnic populations?	Y	Y	Y	Y
Admin	Number of shots	2	2	2	1
	Minimum interval between shots	21 days	28 days	12 weeks	-
Specific pops	Children	12-15*	16-18	N	N
	Adults > 65	Y	Y	N	Y
	Pregnant/breastfeeding	Y	Y	Y	Y
	Immunocompromised	Y	Y	Y	Y
AEFI	Rate of serious adverse events in Canada	0.012%	0.012 %	*Pending*	*Pending*
Common side effects	Pain at injection site	Y	Y	Y	Y
	Fatigue	Y	Y	Y	Y
	Headache	Y	Y	Y	Y
	Muscle pain	Y	Y	Y	Y
	Chills	Y	Y	Y	Y
	Joint pain	Y	Y	Y	Y
	Fever	Y	Y	Y	Y
	Nausea, vomiting or diarrhea	N	N	Y	Y (nausea)

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Vaccines in depth

Trial efficacy	Due to the difference in efficacy between vaccines, some are asking if it's possible to get the AZ/Janssen vaccine first, and then a 'booster shot' with an mRNA vaccine at a later date. However, we don't know yet what the effect of a "mix and match" approach would be. It's not recommended right now, as the effect on safety and efficacy of immune protection is unknown. It may be possible to get an mRNA vaccine after a full course of AZ or Janssen, but there is little data to inform this decision at this time. We'll keep you updated at Vaccine Emerging Evidence (CEP)
Variants	Research is ongoing into the effect of the vaccines against the variants. Janssen's clinical trial was the only one that included an assessment of efficacy against certain variants, and then only against moderate to severe disease. Other studies are testing antibodies taken from vaccine recipients to determine their ability to neutralize synthetic spike proteins. However, neutralization studies may not be an accurate proxy for vaccine efficacy: it is possible for a person with a reduced neutralizing antibody response to be fully immune. We will not know how effective the other vaccines are against the variants until more research is done. For study details and updates, see Emerging Evidence: Vaccines and variants (CEP)
Type	Some patients may have concern about vaccines causing COVID-19. However, as none of the vaccines contain live virus, you can reassure them that they cannot cause COVID-19. For more information about how the vaccines work, see Types of COVID-19 Vaccines (CEP), and for more answers to patient questions about the vaccines, see Ensuring Patient Confidence in Vaccines (CEP)
Ethics	One contributor to low vaccine confidence in BIPOC communities is the historic exclusion of these communities from medical research – or the inclusion without informed consent. It's important that each vaccine trial included consenting participants of diverse racial and ethnic backgrounds. For more resources on understanding vaccine confidence in BIPOC communities, see Ensuring Patient Confidence in Vaccines (CEP)
Admin	The dosage interval for each vaccine is a minimum interval. In order to vaccinate as many people as possible with a first dose, a recent recommendation from NACI encourages extending the interval to as long as four months between doses. For more information, see Vaccine Administration (CEP)
Specific pops	*To receive the Pfizer vaccine, children 12-15 must meet certain criteria including high risk for severe COVID-19. See "Do the vaccines work in children?" (CEP) Adults > 65: Though the AZ vaccine is approved for those over 65, NACI does not recommend its use in this population due to limited study data. See AstraZeneca and Older Adults (CEP) Pregnant/breastfeeding individuals can receive the vaccine with informed consent. For more information see Emerging Evidence: Pregnant and breastfeeding individuals (CEP) Immunocompromised can receive the vaccine with informed consent. For more information see Emerging Evidence: Immunocompromised populations
AEFI	As millions of doses have been given worldwide, the Canadian Society of Allergy and Clinical Immunology (CSACI) identifies the risk for serious allergic reaction as low. For more information, including who should see an allergist before vaccination, see Emerging evidence: Adverse events (CEP)
Side effects	For more detailed information about side effects for each vaccine, see Pfizer, Moderna, AstraZeneca and Janssen (CEP) For a patient after-care guide including how to treat side effects, see Vaccine Administration (CEP)