The COVID-19 Vaccine: What's it all about?

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Gratitude to Vanessa Redditt and Vanessa Wright for sharing some of their slides

TORONTO STAR

GTA

Uptake for the COVID-19 vaccine has been high among Toronto's long-term-care home residents. For staff, not so much

By May Warren Staff Reporter
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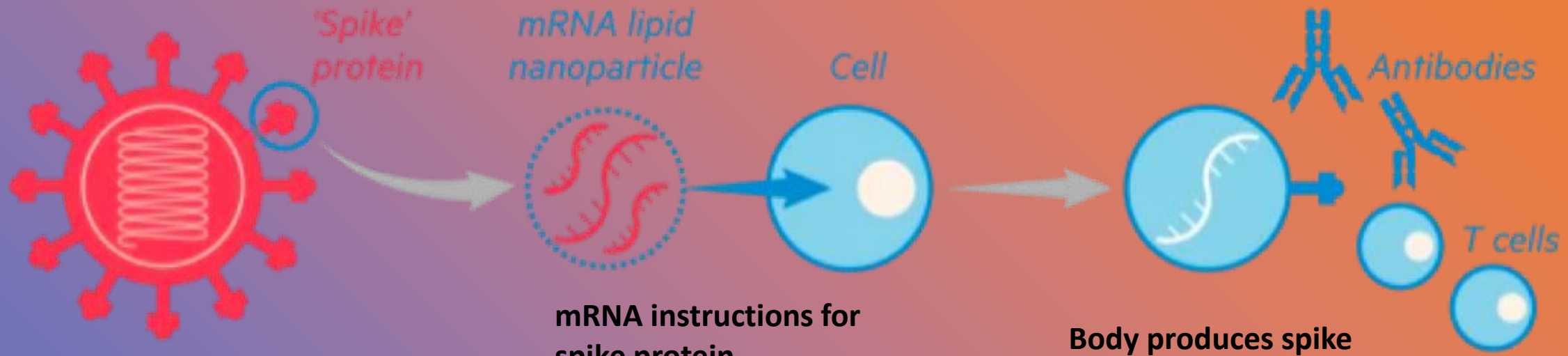
Why the reluctance?

- Important to recognize how individuals and communities have been marginalized by the health care system
- Where are people getting their information?
- Critical to ensure that people have access to accurate information to ensure they can make the correct decisions when they are offered the vaccine

Overview

- How do the vaccines work?
- How effective are the COVID-19 vaccines?
- What are the side effects?
- Use in special populations?
- How were the vaccines produced so quickly?
- Was there testing in diverse populations?
- Can you get allergies to the vaccine?
- Do distancing precautions/masks still need to be used after vaccination?
- What is the current roll-out and eligibility for the vaccine?



How do mRNA vaccines work?

Pfizer-BioNTech and Moderna Vaccine Clinical Trials (studies)

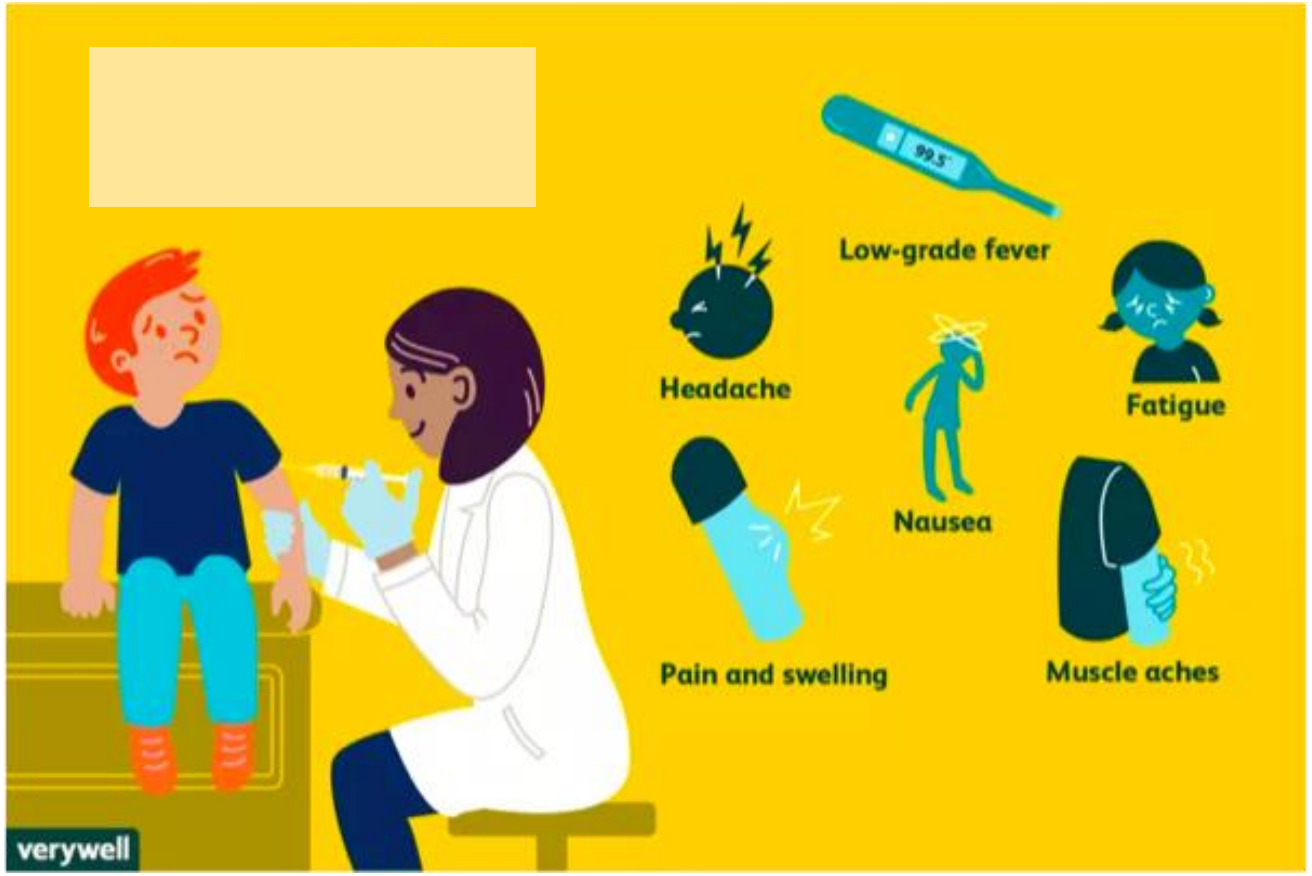
	Pfizer-BioNTech	Moderna
Number of participants	43,538	30,420
Age	≥ 16 years	≥ 18 years
Vaccine schedule	2 doses, 21 days apart	2 doses, 28 days apart
Follow-up period*	8 weeks	8 weeks

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

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

Efficacy consistent across age, gender, race and ethnicity demographics

What are common side effects?



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

Very common ≥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

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

Source: Toronto Public Health

Special considerations

- Immunocompromising disorders (from illness or medications

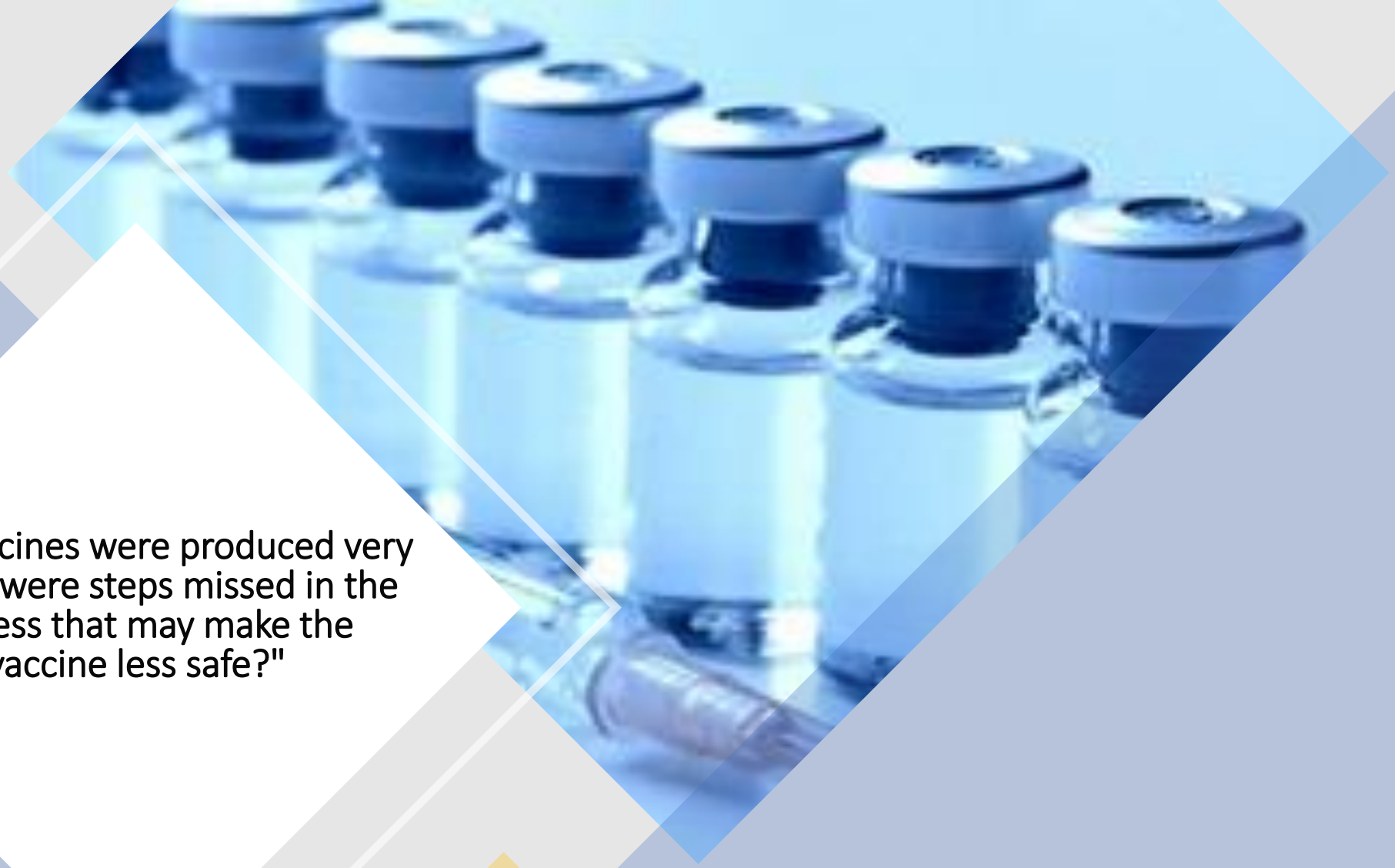
- Autoimmune disorders

- Based on how mRNA vaccines work → unlikely to pose a specific risk
- Increased risks of severe illness from **COVID-19 infection** during pregnancy
- Further studies underway

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

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



"The vaccines were produced very quickly-were steps missed in the process that may make the vaccine less safe?"

Vaccine development and approval in Canada

Vaccine development

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

Scientists develop a potential vaccine

Scientists conduct lab and animal studies before testing on humans

-no shortage of volunteers
-no shortage of illness

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?

"Rolling review process"

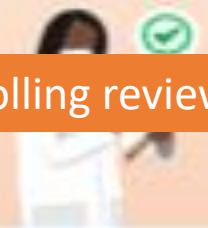
Manufacturer submits application to Health Canada for review

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

- ✓No steps were skipped in the vaccine testing or approval process.
- ✓These trials were 10x larger than other vaccine trials in the past.
- ✓We have it so soon because:
  - ✓ Health Canada received and reviewed data regularly as it was available – not just at the end of the research.
  - ✓ Drug companies skipped the time it takes to ensure a vaccine can sit in a family doctor's fridge for several months.
- ✓They did NOT skip the safety testing

Can we get COVID-19 from the vaccine?

NO

- the vaccines do not contain live virus
- they stimulate production of a protein not the virus itself
- although the possible side effects of the vaccine may overlap with symptoms of COVID-19, one cannot get covid-19 from the vaccine

Was the vaccine tested on diverse populations?

The evidence showed that there was no difference in the effectiveness of the vaccine in different populations

	Moderna	Pfizer
White	79.1%	82.9%
Black or African American	10.1%	9.2%
Asian	4.8%	4.2%
American Indian or Alaska native	0.8%	0.5%
Native Hawaiian or Pacific Islander	0.2%	0.2
Multi-racial	2.1%	2.1%
Other	2.1%	2.1%

What is in the Pfizer vaccine ?

- Medicinal ingredient: mRNA vaccine
- Non Medicinal ingredients:

  Fats

  Salts

  Sugar

  Water

What is in the Pfizer vaccine ?

- Medicinal ingredient: mRNA vaccine
- Non Medicinal ingredients:

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

Water

What is in the Moderna vaccine?

- Medicinal ingredient: mRNA vaccine
- Non Medicinal ingredients:

  Fats

  Salts

  Acid stabilizers

  Sugar

  Water

What is in the Moderna vaccine?

- Medicinal ingredient: mRNA vaccine
- Non Medicinal ingredients:

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

Water

What is polyethylene glycol?

- Found in laxatives and bowel preparations given before procedures
- Also found in certain cosmetics although no cases of allergy to PEG in cosmetics
- Is found in 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-if can take any of above then not likely to have PEG allergy

What is not in the vaccines

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

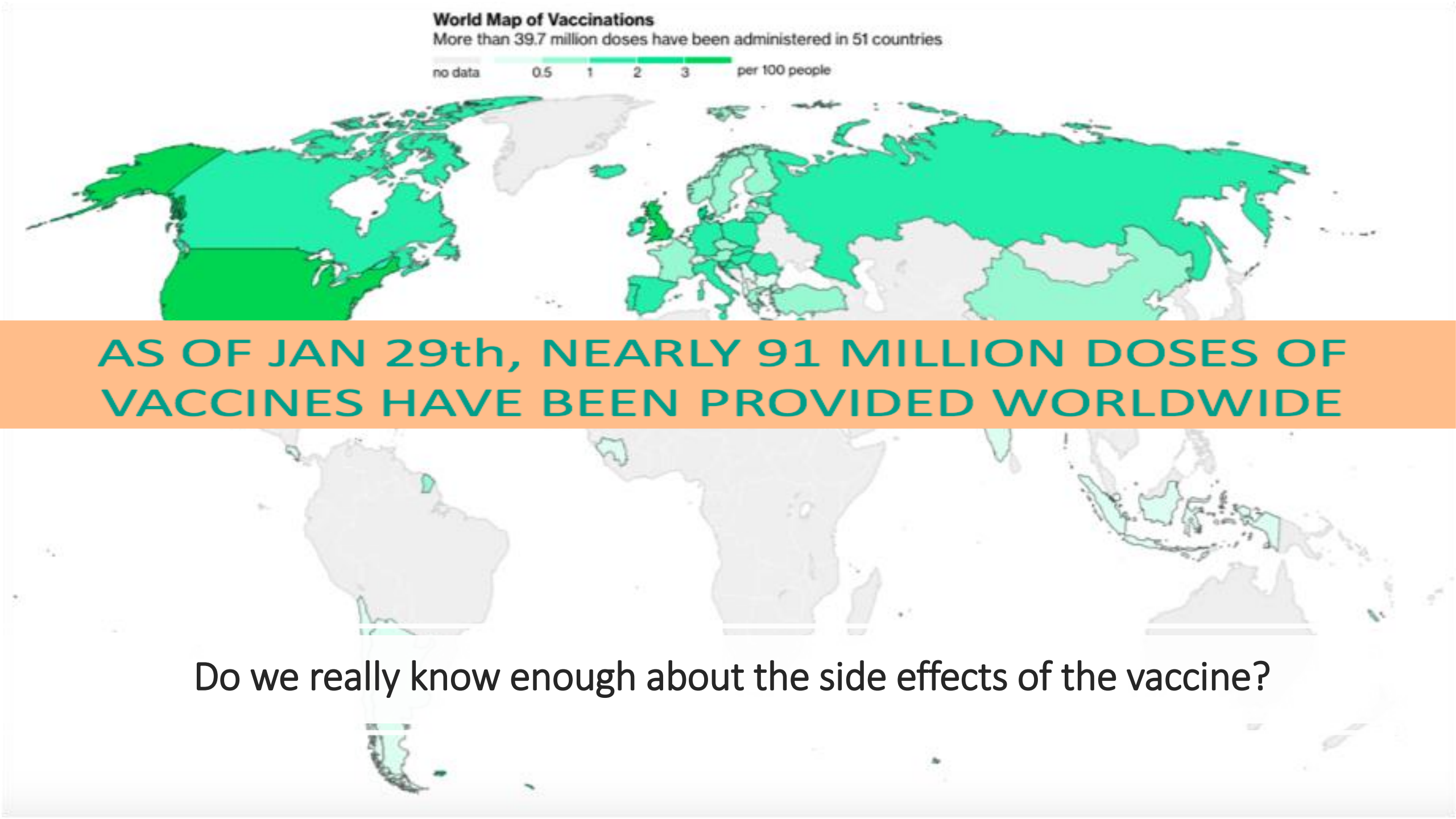
What to do for severe pre-existing allergies?

- At all injection sites, there are staff available to deal with serious allergic reactions
- If history of severe allergies (anaphylaxis) , should stay 30 min after vaccination
- Is a concern if people have an allergy to a constituent of the vaccine

What happens after receiving the vaccination?

Must still take precautions

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



AS OF JAN 29th, NEARLY 91 MILLION DOSES OF VACCINES HAVE BEEN PROVIDED WORLDWIDE

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

1. Provincial Roll Out Plan

Phase 1	Phase 2	Phase 3
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	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	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 | TORONTO Public Health

COVID-19 vaccines for Ontario | COVID-19 (coronavirus) in Ontario

Summary

- Both vaccines available at present have been well studied
- Newcomers are high risk for COVID-19 and deserve to be well informed about the vaccine
- The information is best received from a trusted source: settlement and community workers may be best placed to provide this information