

04/02/2021



# Vaccination Myth Busting Session for Care Staff

The webinar will begin shortly

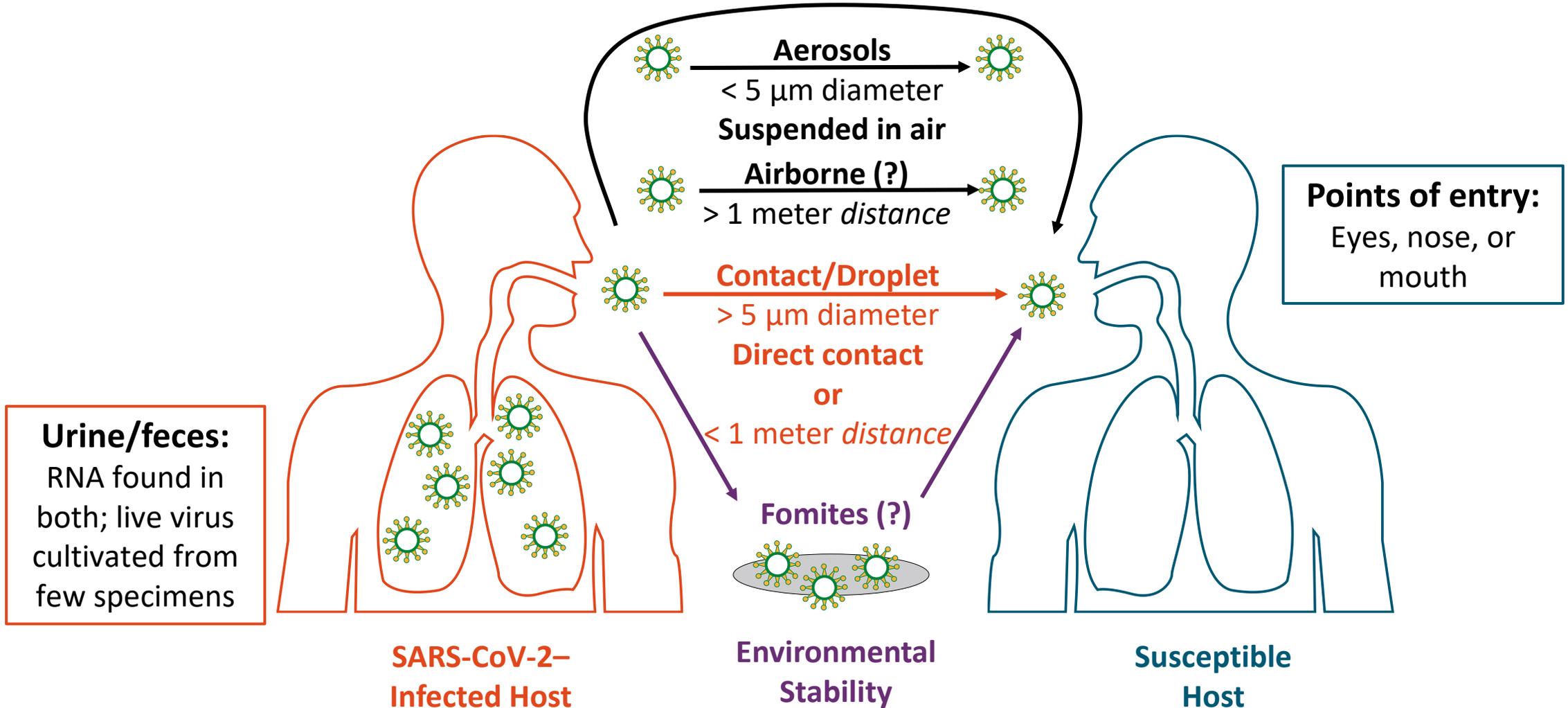


# Agenda

1. How do I get vaccinated?
2. Introduction to the Covid-19 Vaccines
3. FAQs
4. Q&A

# How do I get vaccinated?

# Routes of SARS-CoV-2 Transmission

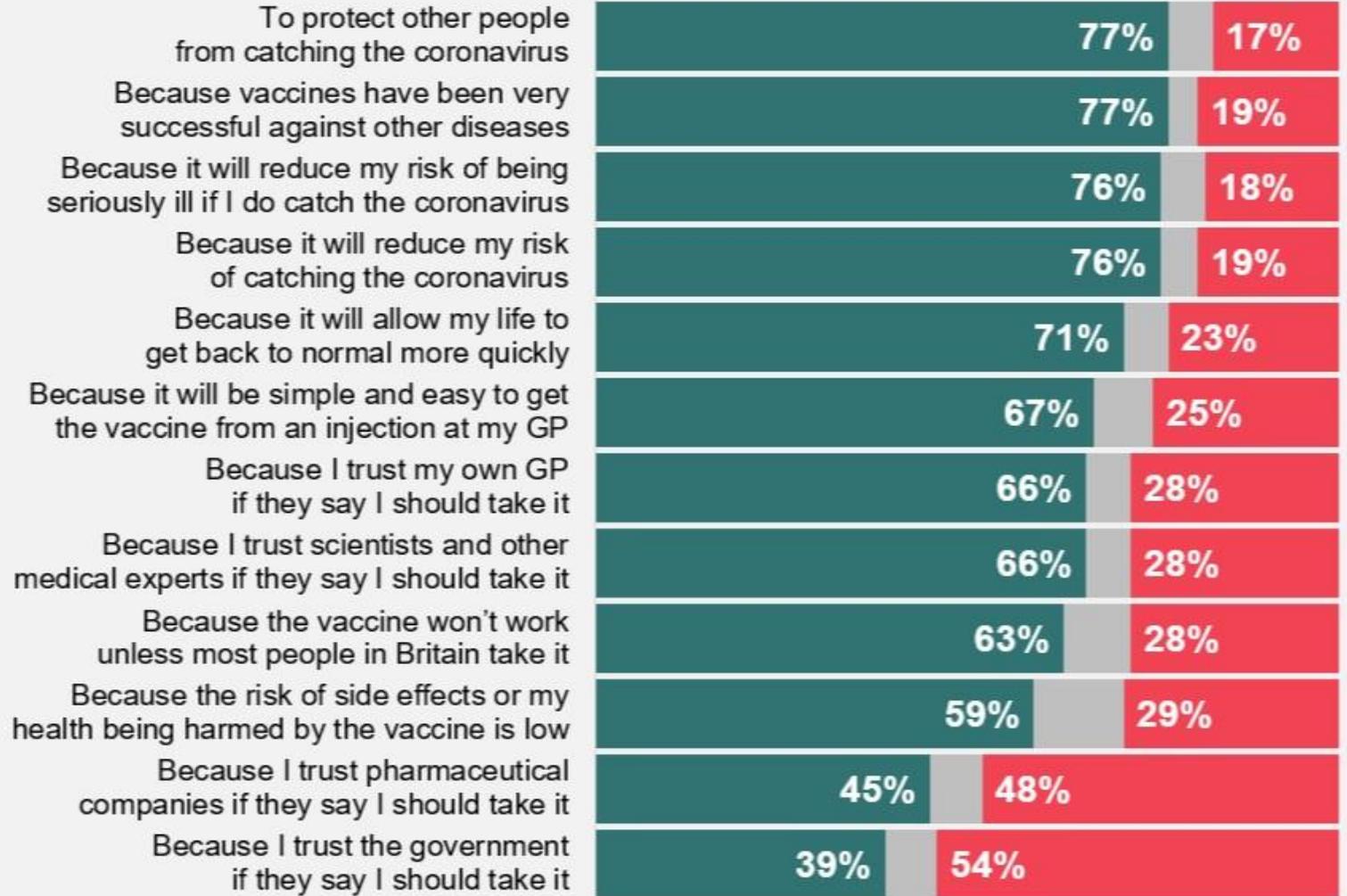


# How convincing are arguments for taking a Coronavirus vaccine?

How convincing, or otherwise, do you find each of the following reasons why you should take a vaccine against coronavirus (when one becomes available)?

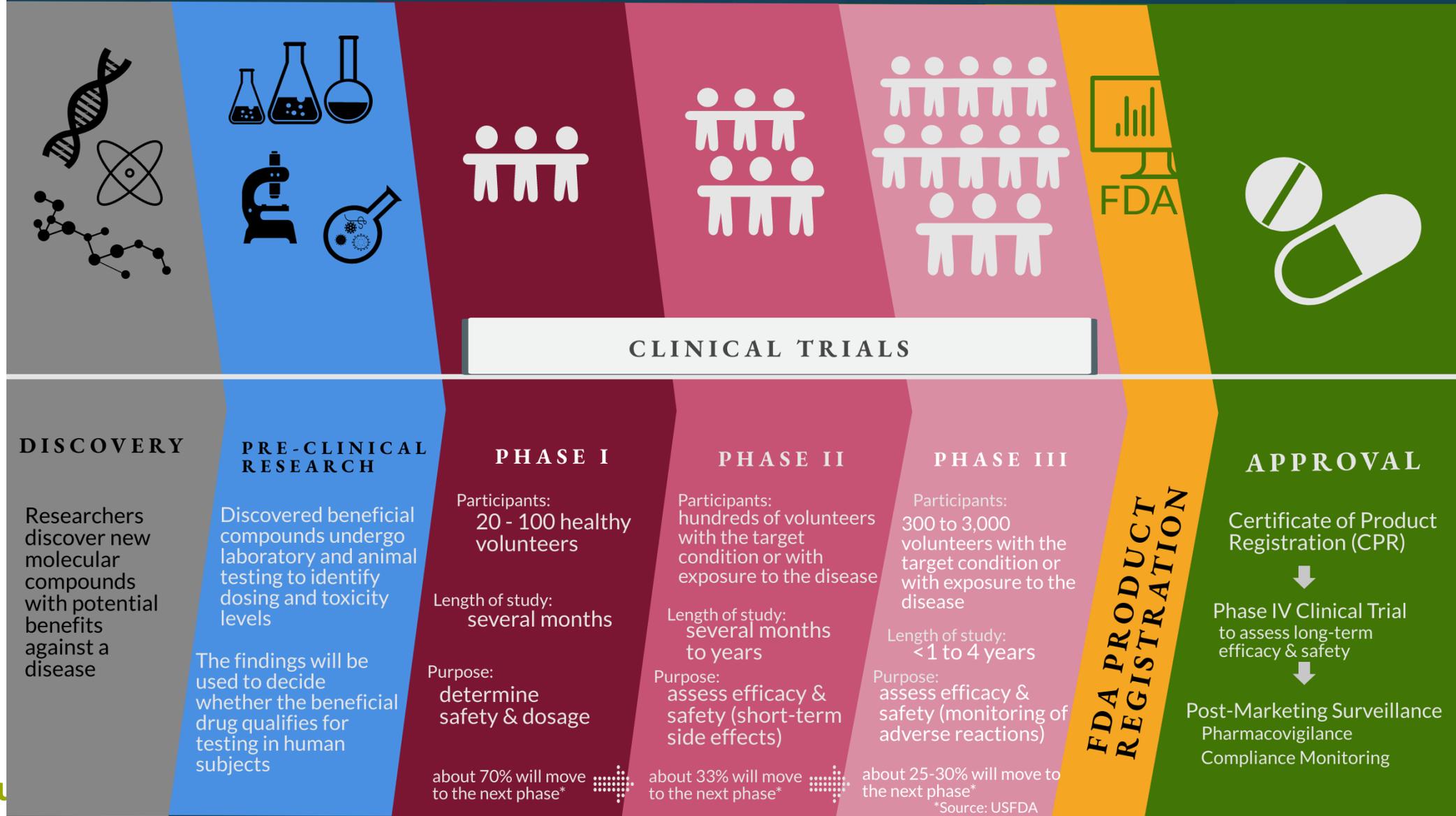
**Convincing**

**Not convincing**



Base: 1,049 Online British adults 18-75, 13-16 November 2020

# Development of Drugs & Vaccines



# Why we use vaccines

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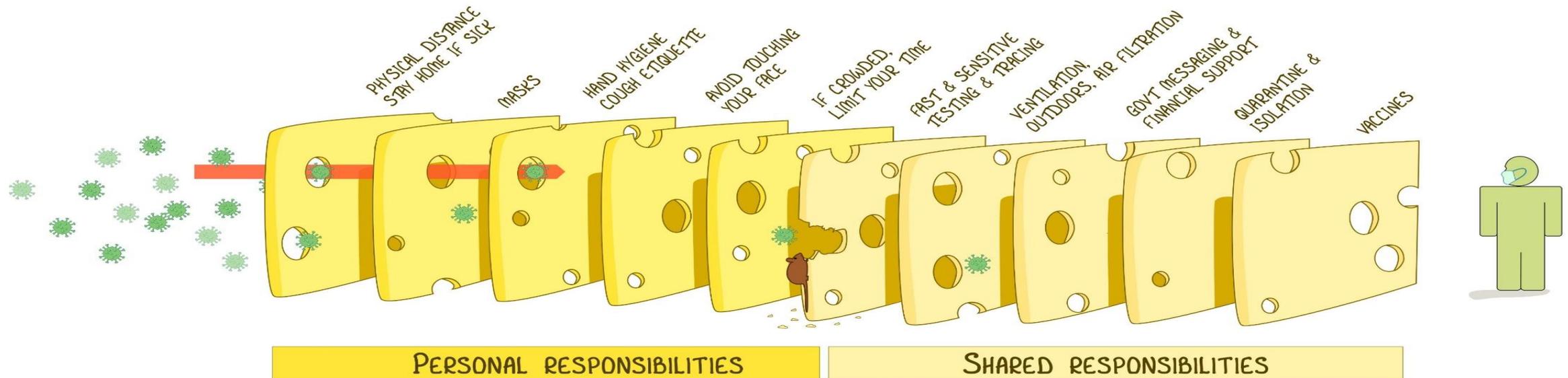
- **Vaccines can prevent infectious diseases.** Examples of vaccine-preventable diseases are: measles, polio, hepatitis B, influenza and many others.
- When most people in a community are vaccinated against a disease, the ability of the pathogen to spread is limited. This is called ‘herd’ or ‘indirect’ or ‘population’ immunity.
- When many people have immunity, this also indirectly protects people who cannot be vaccinated, such as very young babies and those who have compromised immune systems.



# Keep going with prevention & control till Spring

## THE SWISS CHEESE RESPIRATORY VIRUS PANDEMIC DEFENCE

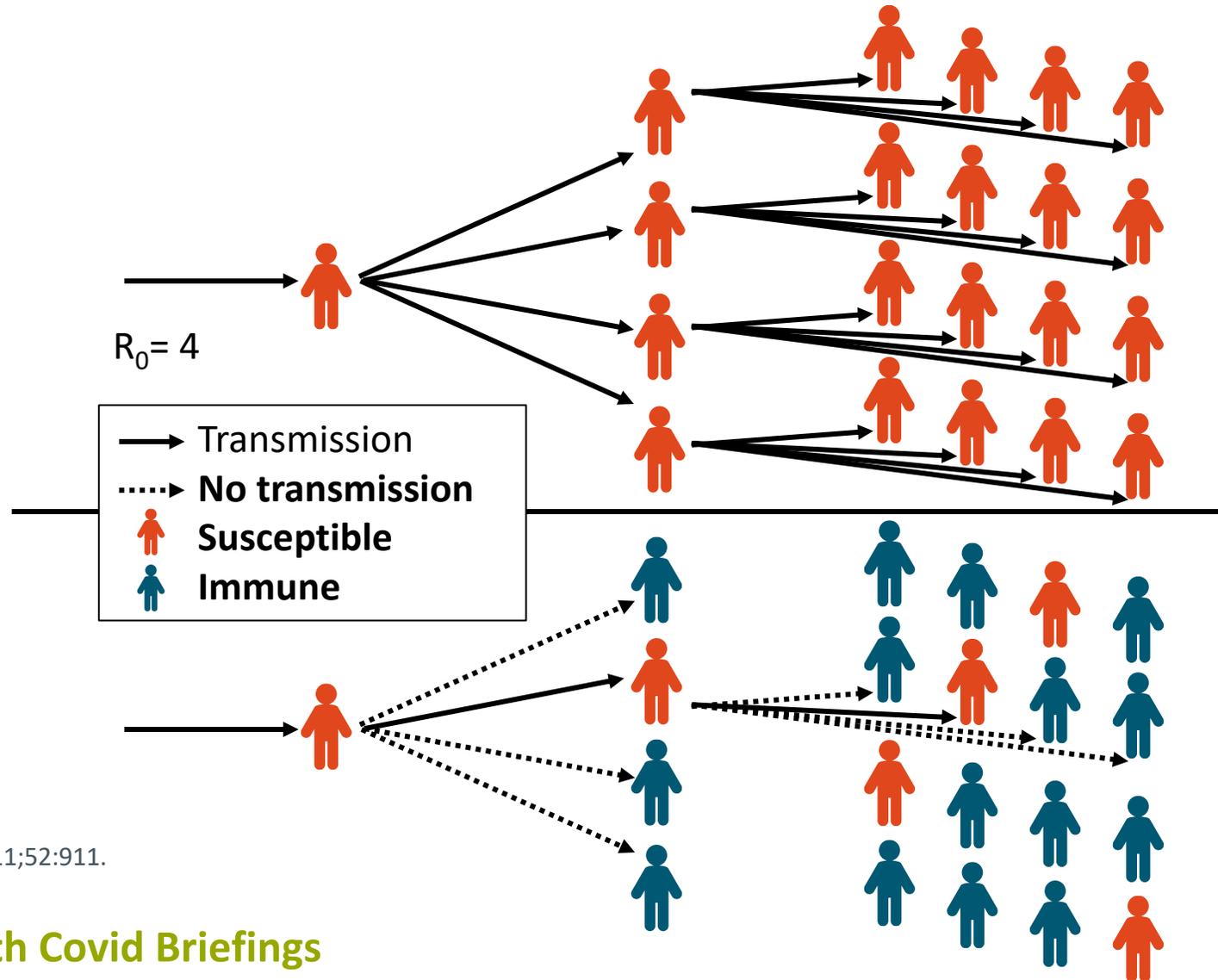
RECOGNISING THAT NO SINGLE INTERVENTION IS PERFECT AT PREVENTING SPREAD



EACH INTERVENTION (LAYER) HAS IMPERFECTIONS (HOLES).  
MULTIPLE LAYERS IMPROVE SUCCESS.

IAN M MACKAY  
VIROLOGYDOWNUNDER.COM  
WITH THANKS TO JODY LANARD, KATHERINE ARDEN & THE UNI OF QLD  
BASED ON THE SWISS CHEESE MODEL OF ACCIDENT CAUSATION, BY JAMES T REASON, 1990  
VERSION 3.0  
UPDATE: 24OCT2020

# Herd Immunity Concept



Fine. Vaccines. 2011;52:911.

# How vaccines work

- Vaccines greatly reduce the risk of infection by training the immune system to recognize and fight pathogens such as viruses or bacteria
- Vaccines safely deliver an **immunogen** which is a *specific type of antigen that elicits an immune response*, to train the immune system to recognize the pathogen when it is encountered naturally.

**Put crudely, vaccines make your body think it has been infected, or present an infections agent to it so your body recognises it when it comes back**



**There are multiple types....**

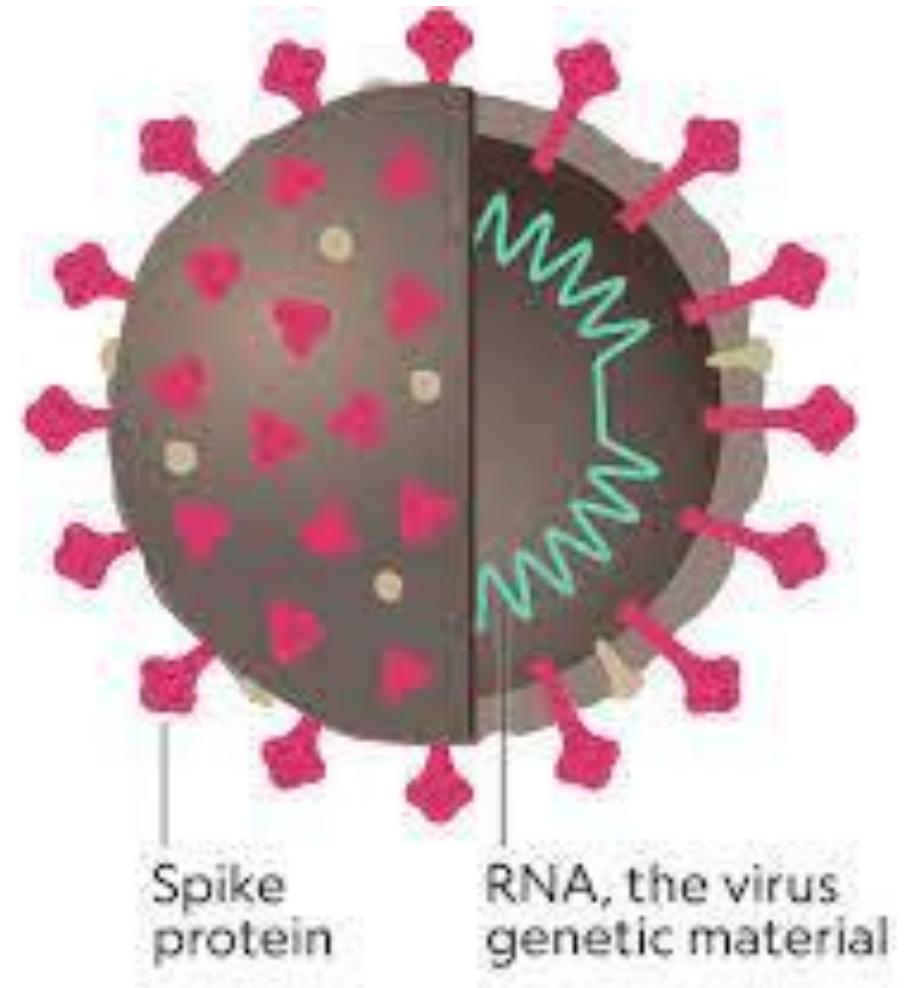
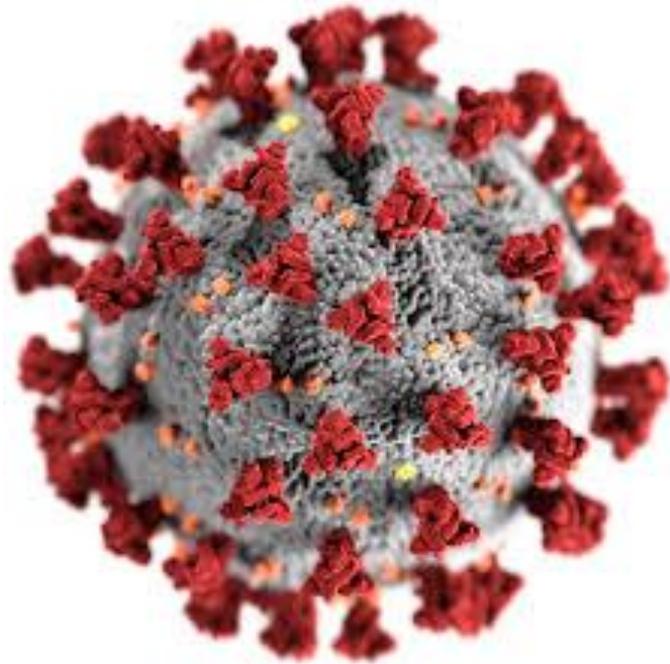
# How some of the Covid-19 vaccines compare

**BBC** NEWS

Company	Type	Doses	How effective	Storage
 <b>Oxford Uni- AstraZeneca</b>	Viral vector (genetically modified virus)	 x2	62-90%	 Regular fridge temperature
 <b>Moderna</b>	RNA (part of virus genetic code)	 x2	95%	 -20C up to 6 months
  <b>Pfizer- BioNTech</b>	RNA	 x2	95%	 -70C
 <b>Gamaleya (Sputnik V)</b>	Viral vector	 x2	92%	 Regular fridge temperature (in dry form)

\*

# SARS-CoV-2

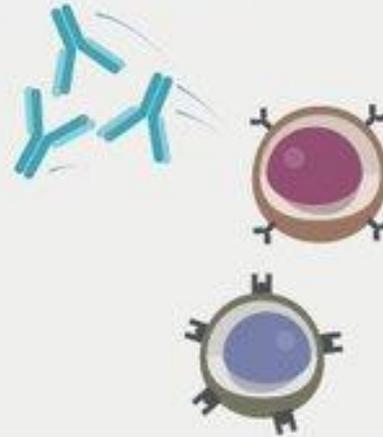


## COVID-19, long-term immunity and vaccines

Vaccines train your immune system using a harmless form of the virus.



The **vaccine** activates your **adaptive immune response**.



The adaptive immune response involves:

**B cells** that make highly specific **antibodies** to stop the virus getting into your cells.

**T cells** that can help stimulate the B cells and kill any infected cells.

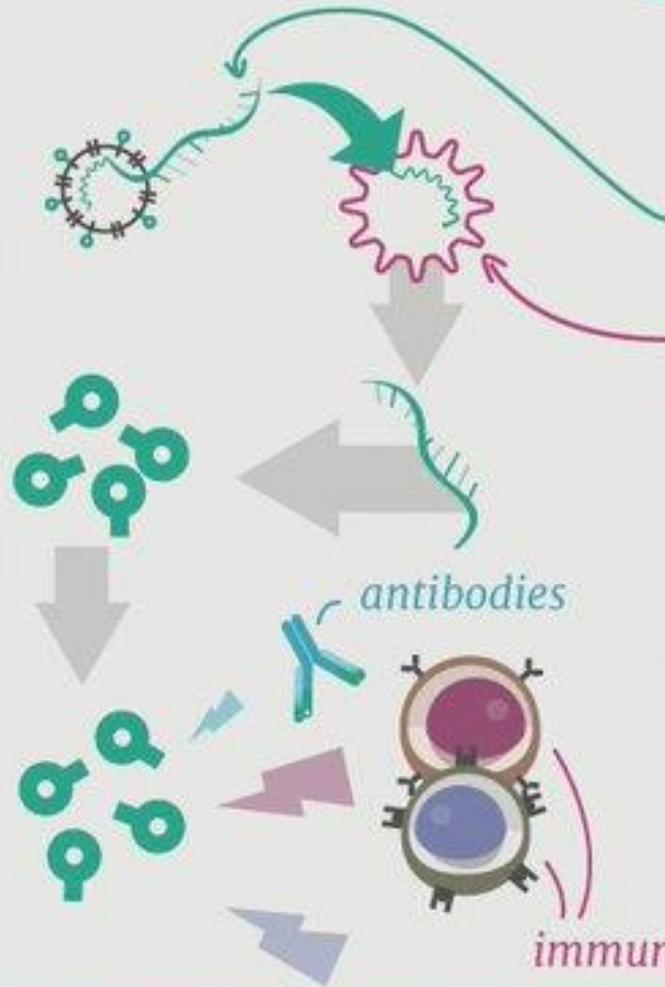


These cells remember the virus and remain in the body. This is **immune memory**.

If you encounter the real virus in the future, your immune system responds faster and more effectively to prevent infection. This is **long-term immunity**.

An effective COVID-19 vaccine will produce a strong, long-term, adaptive immune response. It might stimulate B cells and specific antibodies or T cells or a combination of both.

## Viral vector vaccines



Use an unrelated harmless virus, modified to deliver **SARS-CoV-2 genetic material**. The delivery virus is known as a **viral vector**.

Our cells use the genetic material to make a specific SARS-CoV-2 protein, which is recognised by the immune system to trigger a response.

This response builds immune memory, so your body can fight off SARS-CoV-2 in future.

### Considerations

Generate strong immune response.

May need to be stored at specific low temperatures.



### Examples in human use

University of Oxford/AstraZeneca COVID-19 vaccine  
Ebola vaccine

### In clinical trials for COVID-19

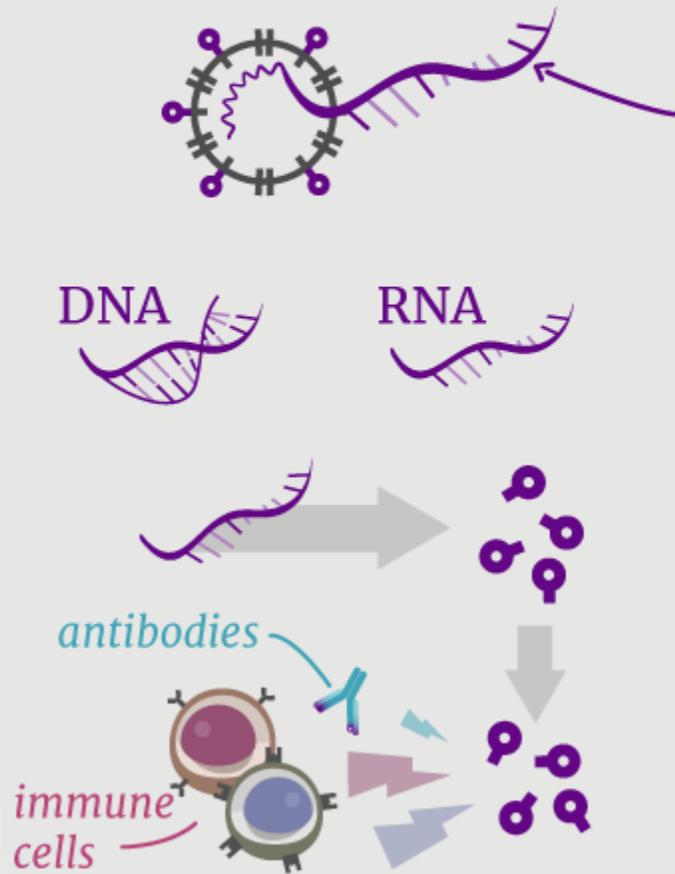
Janssen, Cansino, Gamaleya

Types of SARS-CoV-2 vaccines for COVID-19

## Genetic vaccines (nucleic acid vaccines)

British Society for  
**immunology**

[www.immunology.org](http://www.immunology.org)



Contain a segment of **SARS-CoV-2 virus genetic material** that codes for a specific protein. Can be DNA or RNA.

Our cells use the genetic material to make the SARS-CoV-2 protein, which is recognised by the immune system to trigger a response.

This response builds immune memory, so your body can fight off SARS-CoV-2 in future.

### Considerations

Low cost and fast to develop.

May need to be stored at specific low temperatures.



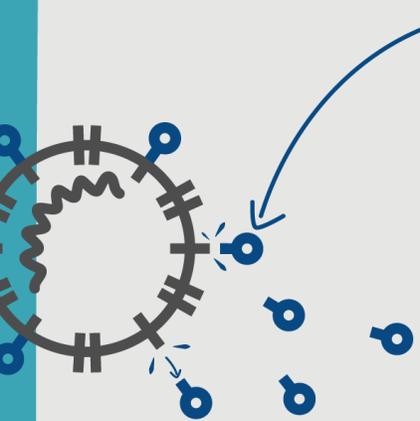
### Examples in human use

Pfizer/BioNTech & Moderna  
COVID-19 vaccines

### In clinical trials for COVID-19

Imperial College London

# Protein vaccines

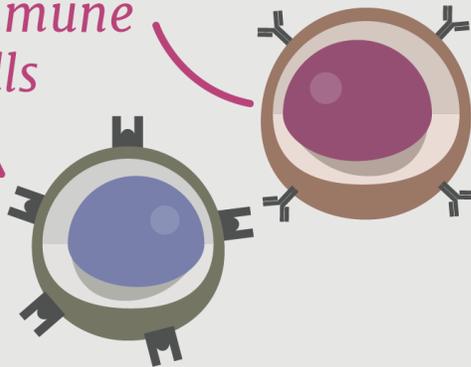


Contain **proteins** from the SARS-CoV-2 virus, which are recognised by the immune system to trigger a response.

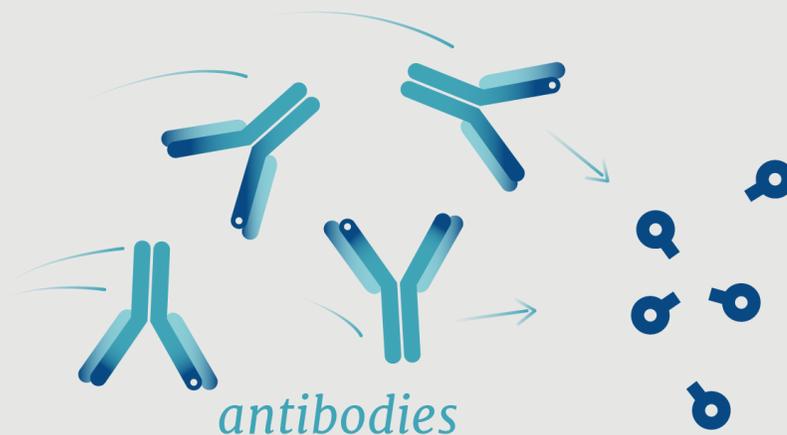
Can be whole proteins, protein fragments, or many protein molecules packed into nanoparticles.

This response builds immune memory, so your body can fight off SARS-CoV-2 in future.

immune cells



antibodies



## Considerations

Have good previous safety records.



Usually administered with an adjuvant to boost immune response.



## Examples in human use

Hepatitis B vaccine

## In clinical trials for COVID-19

Novavax, Sanofi/GSK

# What's in a vaccine?

## Water

The main ingredient.

## Preservatives and stabilisers

Maintain vaccine quality, safe storage and prevent contamination.  
*Example: Sorbitol; naturally found in fruit in larger amounts.*

## Residual traces

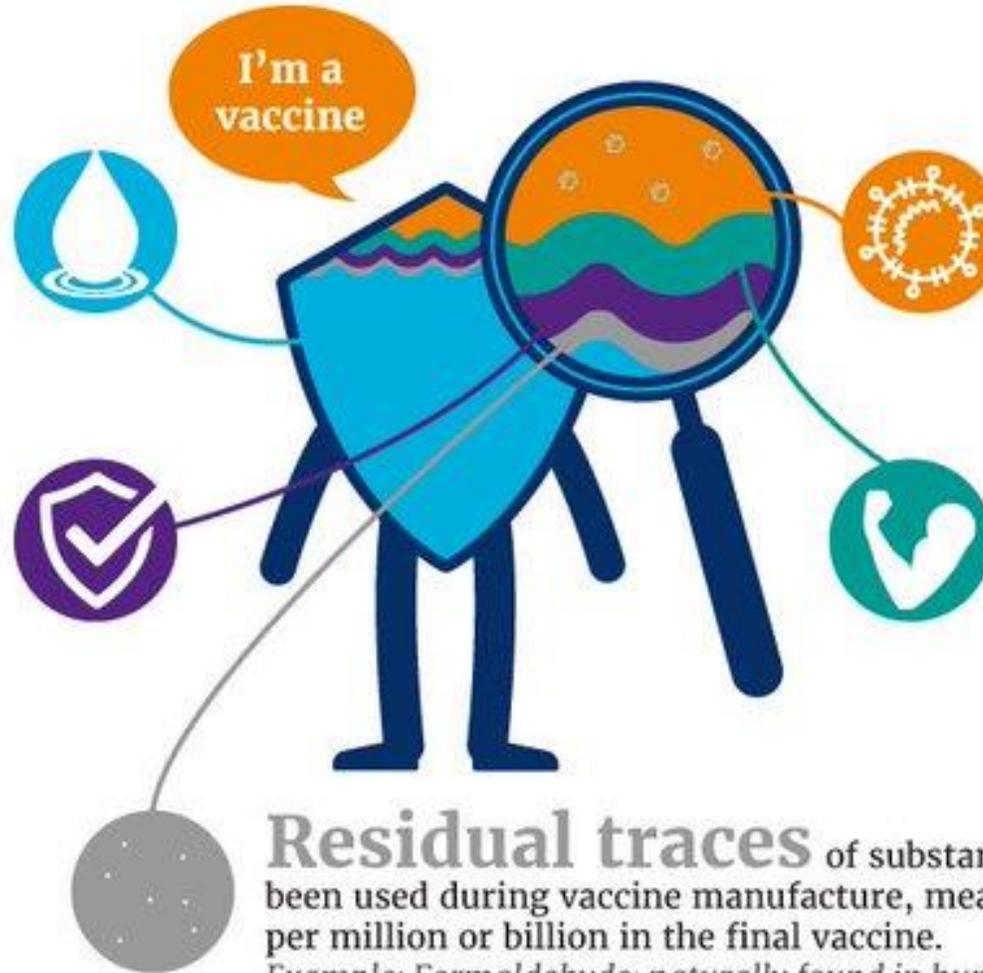
of substances that have been used during vaccine manufacture, measured as parts per million or billion in the final vaccine.  
*Example: Formaldehyde; naturally found in human body.*

## Active ingredient

A very small amount of a harmless form of the bacteria or virus you are immunising against.

## Adjuvants

Create a stronger immune response to the vaccine. Pose no significant risk to health in the very small quantities used.  
*Example: Aluminium; naturally found in drinking water at higher levels.*



# JCVI vaccination prioritisation: Sept 25 2020

1. Older adults' resident in a care home and care home workers\*
2. All those 80 years of age and over and health and social care workers\*
3. All those 75 years of age and over
4. All those 70 years of age and over
5. All those 65 years of age and over
6. High-risk adults under 65 years of age
7. Moderate-risk adults under 65 years of age
8. All those 60 years of age and over
9. All those 55 years of age and over
10. All those 50 years of age and over
11. Rest of the population (priority to be determined) \*\*

## JVCI expert comments:

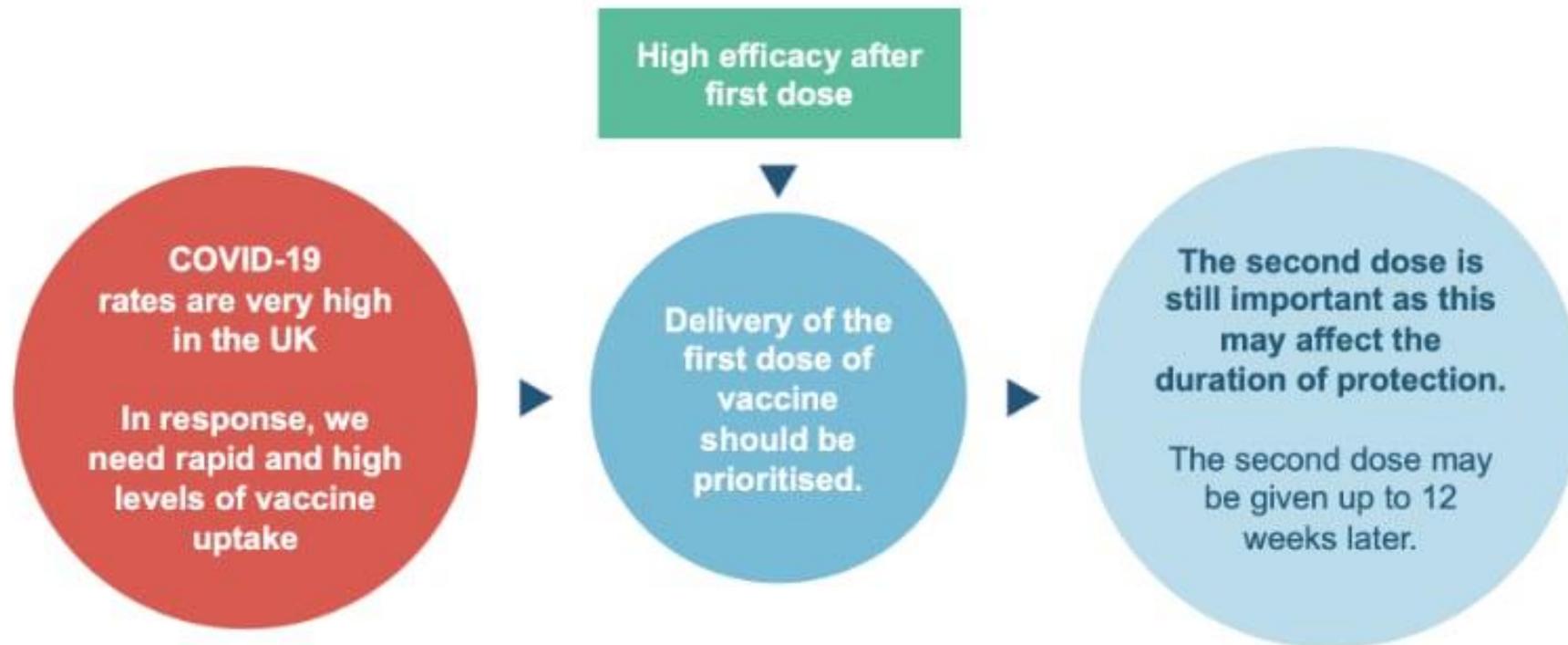
- No long term safety data on novel formats (adeno, mRNA)
- Assume waste (10-15%) and uptake (60-75%)
- 28 day gap desirable between flu and COVID vaccine requirement
- May consider vaccinating younger people to stop asymptomatic transmission spread once safety established

### UK priority groups

<b>Elderly &gt;65</b>	<b>12m</b>
<b>NHS workers</b>	<b>1.5m</b>
<b>Social care/care homes</b>	<b>2m</b>
Co-morbidities <50	~3m
BAME	<4m
	<b>= 22m</b>

# Single Dose is NOT single dose

## Advice on dosing interval for COVID-19 vaccines



# The delay in the two doses

- Both fine
- Oxford Astra Zeneca Data here

New data shows a **single dose** of the Oxford/AstraZeneca vaccine provides high levels of protection that do not decay rapidly

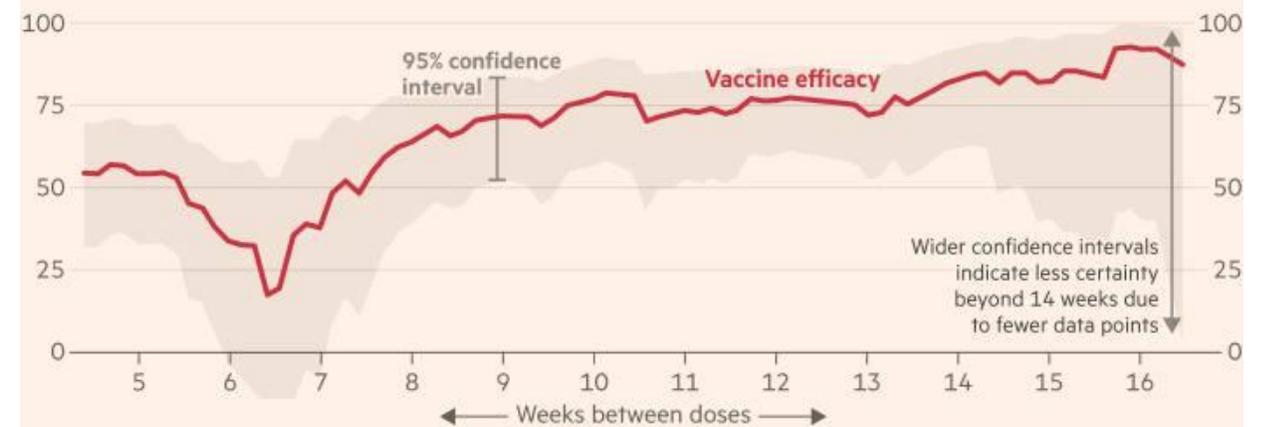
Vaccine efficacy (%) over time for single standard dose



Sources: University of Oxford; AstraZeneca; South African Medical Research Council and others  
© FT

New data shows the Oxford/AstraZeneca vaccine is highly effective with an interval of 12 weeks or longer between first and second dose

Vaccine efficacy (%) against symptomatic Covid-19, by interval between first and second dose



Sources: University of Oxford; AstraZeneca; South African Medical Research Council and others  
© FT

# Key Messages

- Behave as if everyone you meet outside your home is infected and you are too
  - 2m Distance **even with a mask**, avoid crowds, face coverings (2 layers min, preferably three), hand hygiene
- There is no alternative to people complying with the rules. The more non compliance
  - the longer the virus circulates
  - the longer the restrictions
  - The more NHS staff sickness
  - The longer it takes to vaccinate
  - The more new variants will emerge and we risk "vaccine escape"

**If you want to get out of lockdown, your only real option is compliance otherwise we will be here till well after Easter**

# Keeping up Standards

You MUST continue with their high standards of PPE and IPC and they have a duty of care even in their home lives to take all of the current government precautions.

- ✓ PPE
  - ✓ Cleaning
  - ✓ Social Distancing
  - ✓ Testing
  - ✓ Hand hygiene
- Encourage staff to be vigilant inside and outside of work.
  - Government Update [here](#)
  - **To support you we have created a new page on all the latest guidance and resources- [www.hcpa.info/ipc](http://www.hcpa.info/ipc)**

**Social care staff have done so well up to now; let's not let our guard down.**

# FAQS- Allergic Reactions

**Where can we find out what allergies effect you having the vaccine?**

**Is vaccine recommended to people with the following clinical circumstances and are there higher risks?**

Examples:

kidney problems, asthma, taking thyroid medication, overweight, taking hormone medication following breast cancer, upcoming surgery and lung cancer (after operation).

Individuals with a history of anaphylaxis to food, an identified drug or vaccine, or an insect sting can receive any COVID-19 vaccine, as long as they are not known to be allergic to any component (excipient) of the vaccine. All recipients of the Pfizer BioNTech COVID-19 vaccine should be kept for observation and monitored for a minimum of 15 minutes.

The British Society for Allergy and Clinical Immunology (BSACI) has advised that:

- individuals with a history of immediate onset-anaphylaxis to multiple classes of drugs or an unexplained anaphylaxis should not be vaccinated with the Pfizer BioNTech vaccine. The AstraZeneca vaccine can be used as an alternative (if not otherwise contraindicated)
- individuals with a localised urticarial (itchy) skin reaction (without systemic symptoms) to the first dose of a COVID-19 vaccine should receive the second dose of vaccine with prolonged observation (30 minutes) in a setting with full resuscitation facilities (e.g. a hospital)
- individuals with non-allergic reactions (vasovagal episodes, non-urticarial skin reaction or non-specific symptoms) to the first dose of a COVID-19 vaccine can receive the second dose of vaccine in any vaccination setting

**Green Book Chapter 14a-** Click [here](#)

# FAQS- Alternatives

**Are there any alternatives to the vaccine, for example a tablet or a nasal spray?**

Potentially at some point, yes. However I don't see it happening anytime soon because the problem with anti-viral drugs with the exception of HIV is Anti-viral drugs are not as good as the vaccine. The evidence we have from the past is that anti-viral drugs haven't been as affected as vaccines.

# FAQS- Doses

## Can you please explain the reason for the change in gap between the doses for the different vaccines?

We know from forty years experience of vaccine research that it will be safe. It wont cause problems. So the worst that can happen is that it doesn't work. In terms of that, the medicines regulator - the Medicines and Healthcare Products Regulatory Agency (MHRA) - data analysis showed that, both Pfizer and Astra Zeneca vaccines offer considerable protection after a single dose, and the evidence suggests that persists over sixteen weeks. So all the data reviewed by MHRA suggests that people will still have protection over the delay. If they didn't feel it was safe they would be able to prohibit licensing for that use. Some of this is also down to the aggressive marketing techniques of some of the manufacturers. It is in their commercial interest for the second dose not to be delayed. We need to recognise that this twelve week delay is an unusual step, taken because we are in such extreme situations with covid. BUT - all the evidence says it is safe, it works, and will be effective.

# FAQS- Vaccines

## Can I choose Pfizer and not Oxford-AstraZeneca?

Not currently. Any vaccines that the NHS will provide will have been approved because they pass the MHRA's tests on safety and efficacy, so people should be assured that whatever vaccine they get, it is worth their while. The important point for any vaccine is whether the MHRA approves it for use – if it does then that means it's a worthwhile vaccine to have and people should have it if they are eligible. All three vaccines that are being used in the UK have the MHRA's approval. The NHS has no say over which vaccine they are given to administer.

# FAQS- Pregnancy

## Can pregnant women have a Covid-19 vaccine?

There is no known risk with giving inactivated virus or bacterial vaccines or toxoids during pregnancy or whilst breast-feeding. However, the COVID-19 vaccines have not yet been tested in pregnant women, so it has been advised that until more information is available, pregnant women should not routinely have these vaccines. As a matter of caution, COVID-19 vaccine is therefore not routinely advised in pregnancy but there are some circumstances in which the potential benefits of vaccination are particularly important for pregnant women. This may include women who are at very high risk of catching the infection or those with certain medical conditions that put them at high risk of suffering serious complications from COVID-19 infection. In such circumstances, a woman may choose to have COVID-19 vaccine in pregnancy following a discussion with her doctor or nurse.

If a COVID-19 vaccine is given to a pregnant woman, she should be reassured that the vaccine does not contain live SARS-CoV-2 virus and therefore cannot cause COVID-19 infection in her or in her baby. Some COVID-19 vaccines contain a different harmless virus to help deliver the vaccine – whilst this virus is live, it cannot reproduce and so will not cause infection in a pregnant woman or her baby.

If you find out that you are pregnant after you have had the vaccine, don't worry. The vaccines do not contain organisms that multiply in the body, so they cannot cause COVID-19 infection in your unborn baby. As they have done for other vaccines, PHE is establishing a monitoring system to follow up women who are vaccinated in pregnancy to help reassure women as time goes on.

# FAQS- Fertility

## Does the vaccine cause infertility?

There is no scientific evidence to suggest that the vaccine could cause infertility in women. In addition, infertility is not known to occur as a result of natural COVID-19 disease, further demonstrating that immune responses to the virus, whether induced by infection or a vaccine, are not a cause of infertility.

The Pfizer-BioNTech COVID-19 vaccine is a mRNA vaccine. It contains a small piece of the SARS-CoV-2 virus's genetic material that instructs cells in the body to make the virus's distinctive "spike" protein. After a person is vaccinated, their body produces copies of the spike protein, which does not cause disease, and triggers the immune system to learn to react defensively, producing an immune response against SARS-CoV-2. Contrary to false reports on social media, this protein is not the same as any involved in formation of the placenta.

## I'm trying to conceive, should I still have the vaccine?

The current guidance is that the vaccination is safe for women of childbearing age.

Here are the key points you should consider:

- if you are pregnant you should not be vaccinated unless you are at high risk – you can be vaccinated after your pregnancy is over
- if you have had the first dose and then become pregnant you should delay the second dose until after the pregnancy is over (unless you are at high risk)
- If you are pregnant but think you are at high risk, you should discuss having or completing vaccination with your doctor or nurse.

Although the vaccine has not been tested in pregnancy, you may decide that the known risks from COVID-19 are so clear that you wish to go ahead with vaccination. There is no advice to avoid pregnancy after COVID-19 vaccination. If you are breastfeeding, you may decide to wait until you have finished breastfeeding and then have the vaccination.

# FAQS- Breast Feeding

## Should you have a Covid-19 vaccine if you are breastfeeding?

There are no data on the safety of COVID-19 vaccines in breastfeeding or on the breastfed infant. Despite this, COVID-19 vaccines are not thought to be a risk to the breastfeeding infant, and the benefits of breast-feeding are well known. Because of this, the JCVI has recommended that the vaccine can be received whilst breastfeeding. This is in line with recommendations in the USA and from the World Health Organisation.

# FAQS- Side Effects

## What are the side effects of the COVID-19 vaccine?

Like all medicines, COVID-19 vaccines can cause side effects. Most of these are mild and short-term, and not everyone gets them. Common side effects include a painful arm, feeling tired, headache, general aches and mild flu-like symptoms. However, these symptoms are normal and are a sign that your body is building immunity. These symptoms normally last less than a week. Further details can be found [here](#).

In the final safety analysis of over 21,000 participants 16 years and older, the most common events were injection site pain (>80%), fatigue (>60%), and headache (>50%).

## Has anyone died in the UK from taking the vaccine, out of the 3M people that have taken the vaccine?

Nobody has died following having the vaccine in the UK or anywhere else in the world.

# FAQS- When?

## How soon after being Covid-19 positive or having symptoms should you have a vaccine?

If you have a confirmed case of COVID -19 you should wait at least 4 weeks after you had symptoms, or 4 weeks since your positive test if you didn't have any symptoms, and until you have recovered from your COVID -19 infection, before having the vaccine.

# Q&A

## Provider Hub

Call 01707 708 108 (9am – 5pm | Mon – Fri)

Email [assistance@hcpa.info](mailto:assistance@hcpa.info)

Visit- [www.hcpa.info/covid-19](http://www.hcpa.info/covid-19)

Sign up for the Daily HCPA newsletters



# Support COVID-19 pages managed on the HCPA website- [www.hcpa.info/covid-19](http://www.hcpa.info/covid-19)

