

# COVID-19 VACCINE CONVERSATIONS

Online event:

Thu 18 Feb, 5.30–7.30pm

Black  
communities  
in City and  
Hackney

Panelled by community leaders –  
this will be a chance to have honest  
conversations and ask the questions  
you want answers to.

Our panel for the evening will include:



Dr. Sandra Husbands



Prof. Donald Palmer



Rev. Rosemia Brown



Peter Merrifield



Toyin Agbetu



Patrick Vernon, OBE



Abdi Hassan



Janette Collins, MBE



Facilitated by: Jake Ferguson

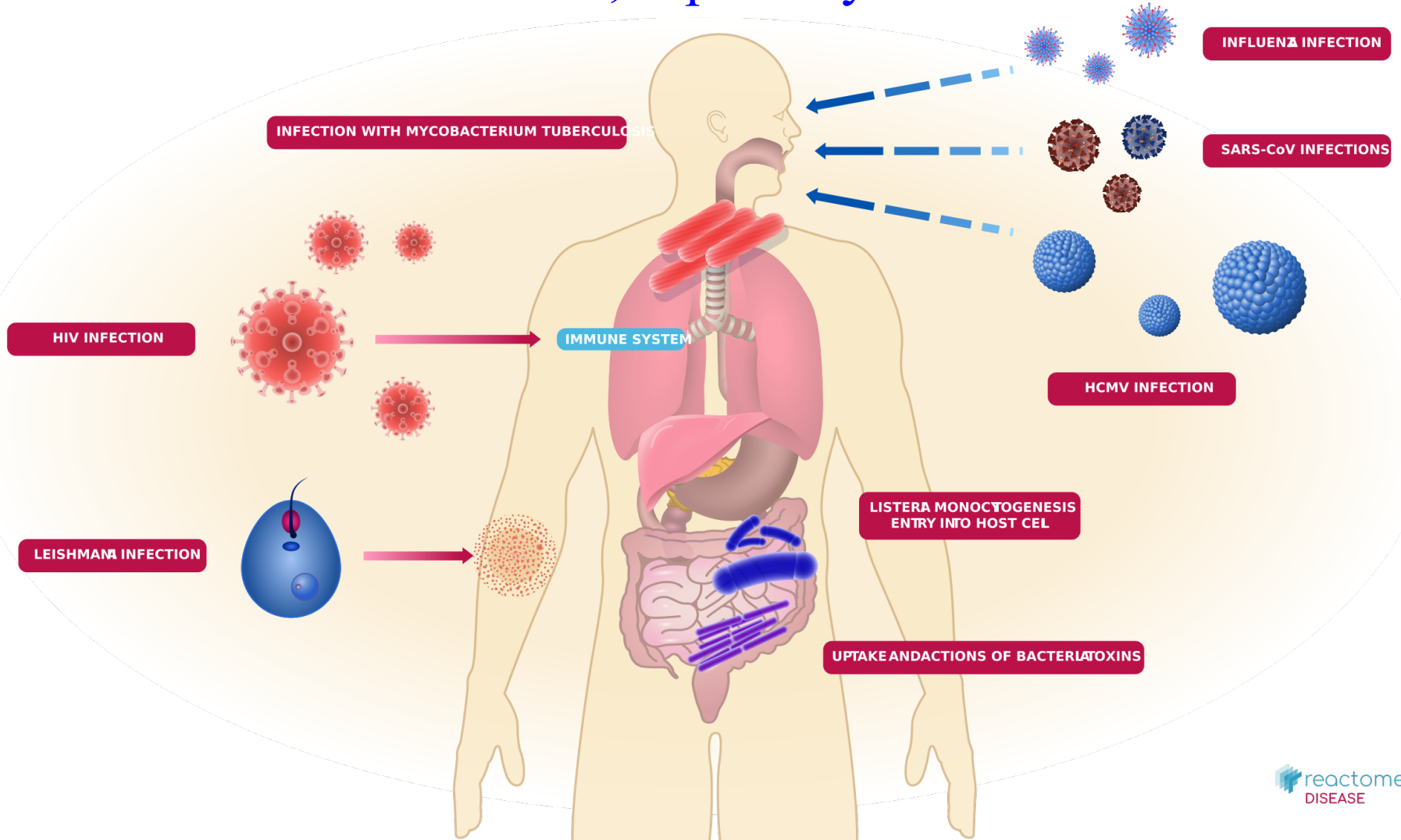
How the immune system works and why we sometimes need  
vaccination

Dr Donald Palmer  
Associate Professor of Immunology  
BSc (Hons), MSc, PhD, PGCAP, FRSB FHEA  
Education & Careers Secretary of British Society for  
Immunology

Member of the Yellow Fever Vaccine Expert Working Group convened in 2019 by Commission of Human Medicine through the Medicines and Healthcare products Regulatory Agency (MHRA).

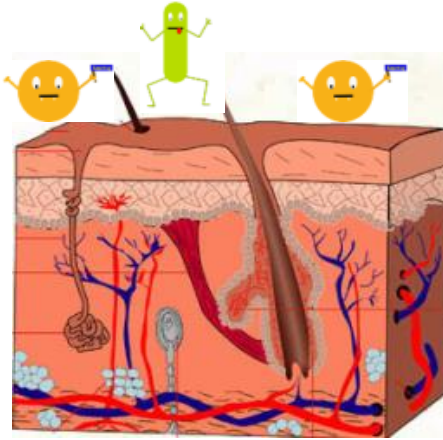
# What is Immunity?

Protection from disease, especially infectious diseases

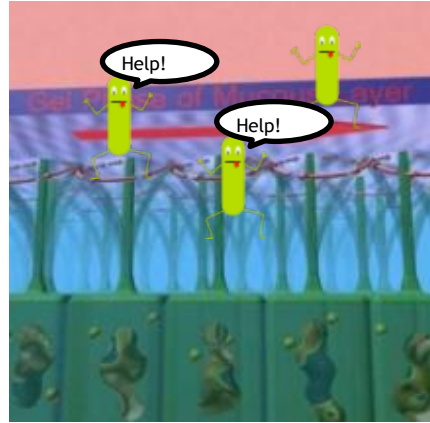


# The Immune System: The body's defenses

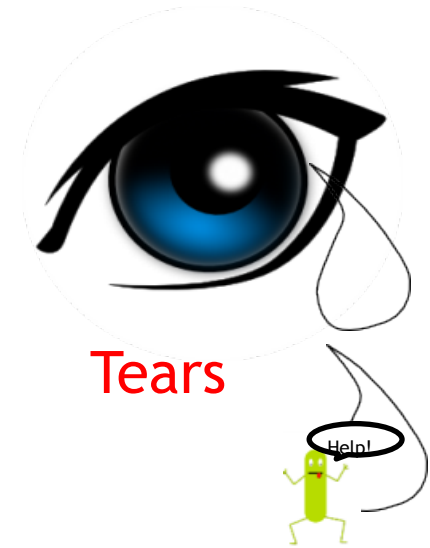
## INNATE



Skin

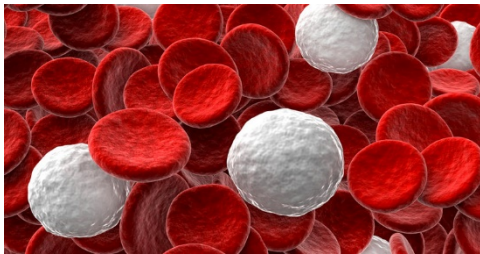


Mucous



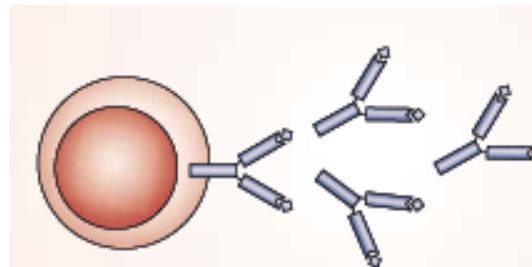
Tears

## ADAPTIVE (Immunological Memory)



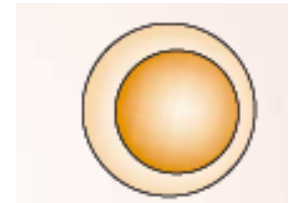
White Blood Cells

B cell

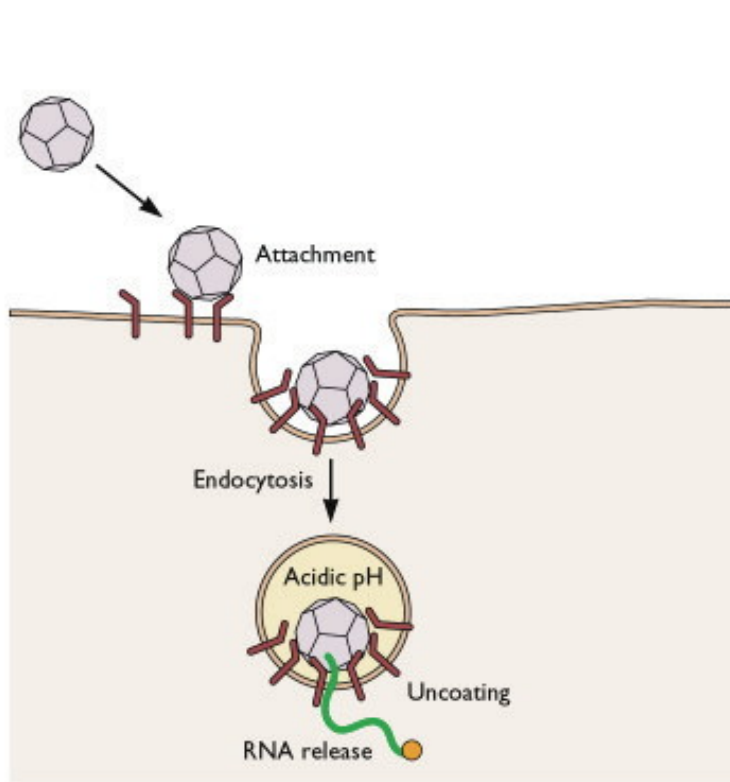


Antibodies

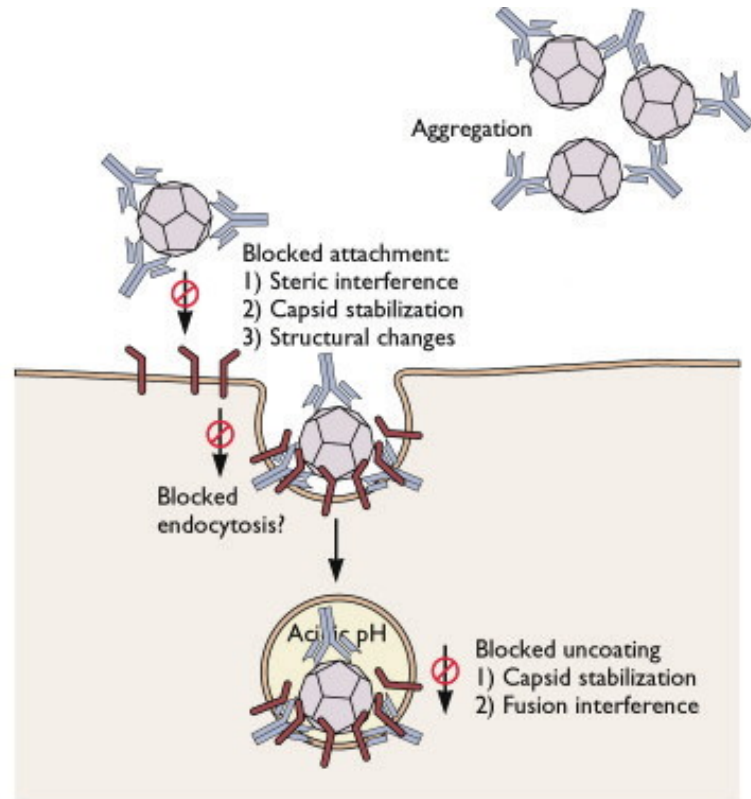
T cells



# How does a virus makes you ill and how does the immune system prevent this?



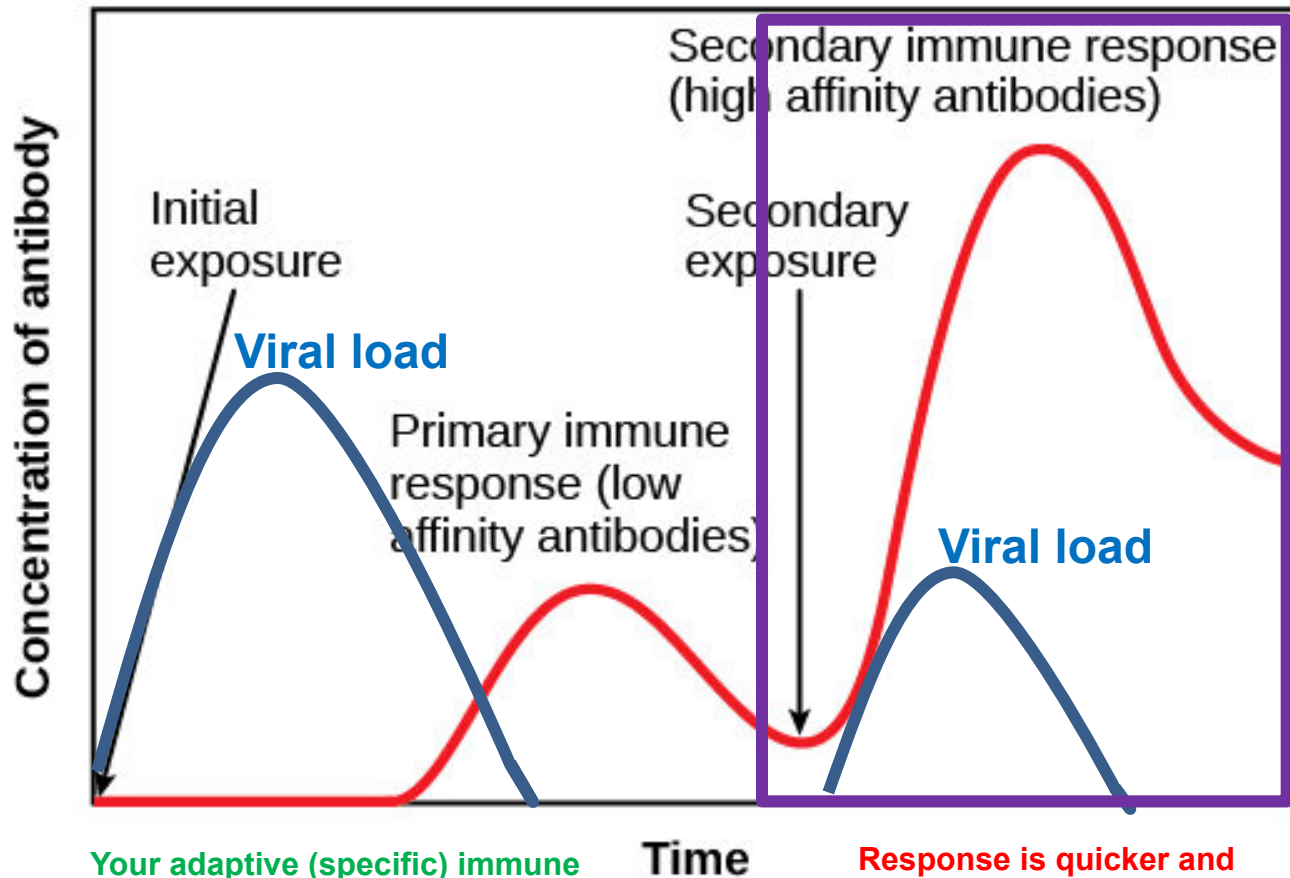
**Destruction of cells**



**Prevents the destruction of cells**

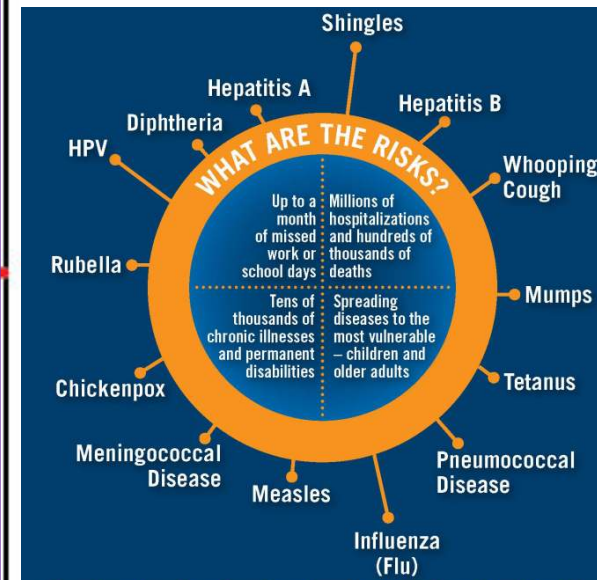
# Why do we sometime need vaccines

There are situations in which our immune system is not able to combat infectious agents



Your adaptive (specific) immune response can take up to 1-2 weeks to reach its peak is providing all the protection. In the meantime naturally immunity

Response is quicker and greater. This is what vaccines do by boosting functional immunity



<https://www.nfid.org/>



# How do vaccines work?

You are given a small amount of a harmless form of a disease...

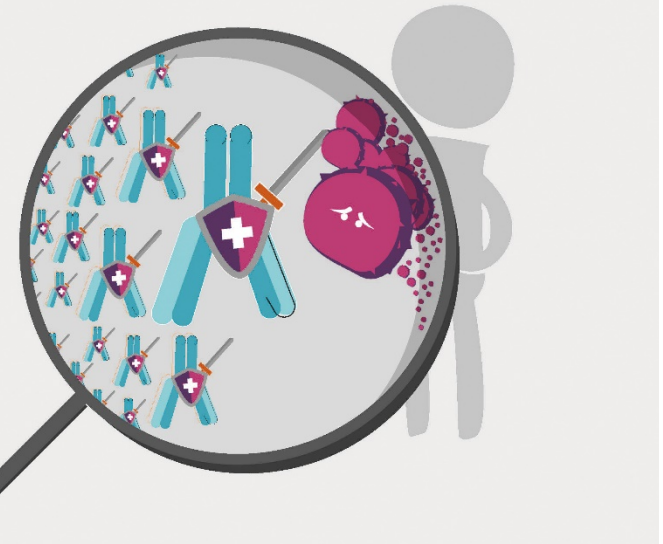


...Then your body makes antibodies to fight it off

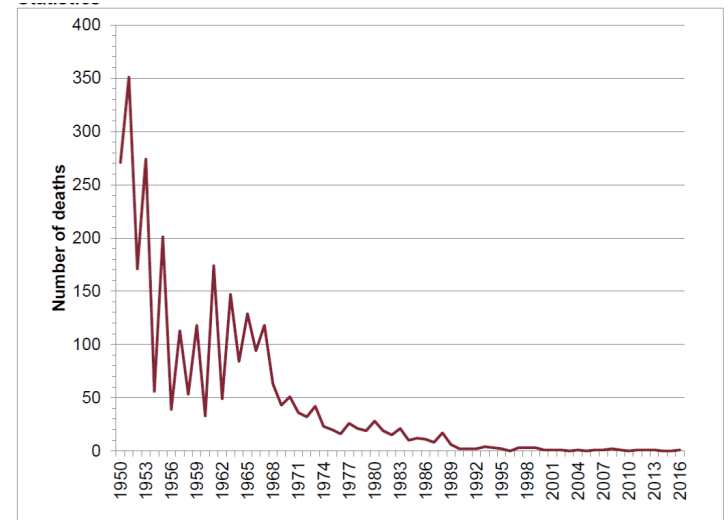
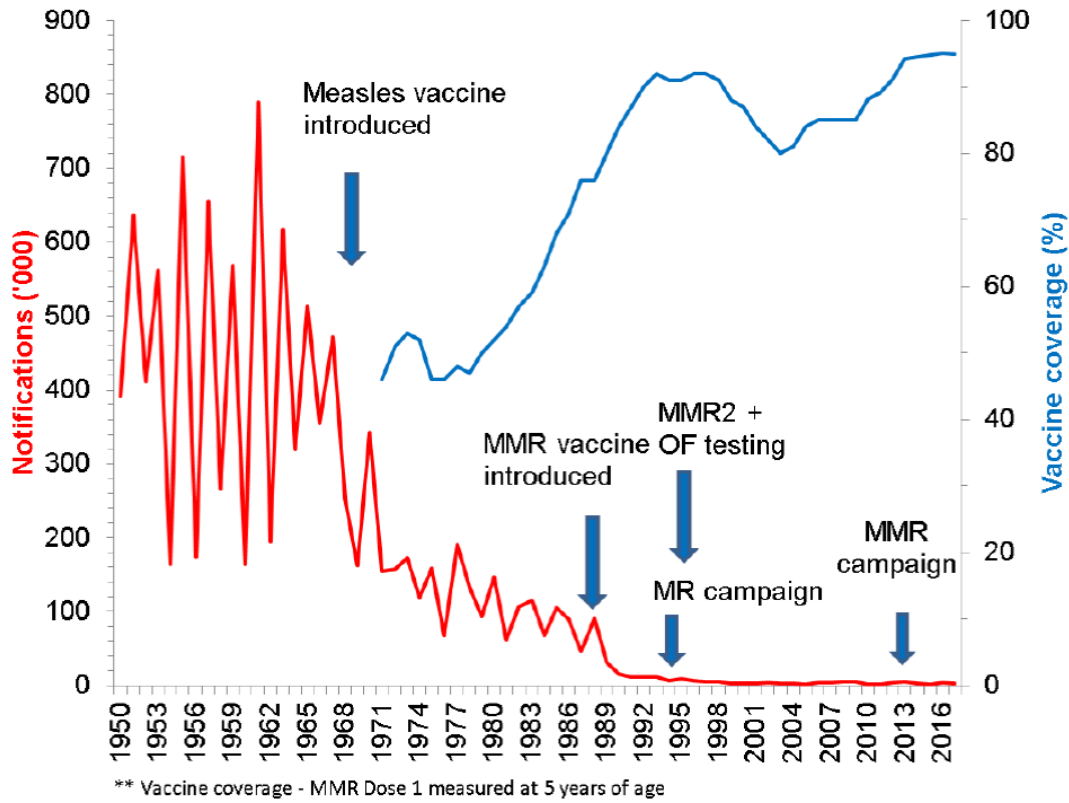
Then if you encounter the disease again...

...your body already has the antibodies, so you don't get sick.

You are **immune.**

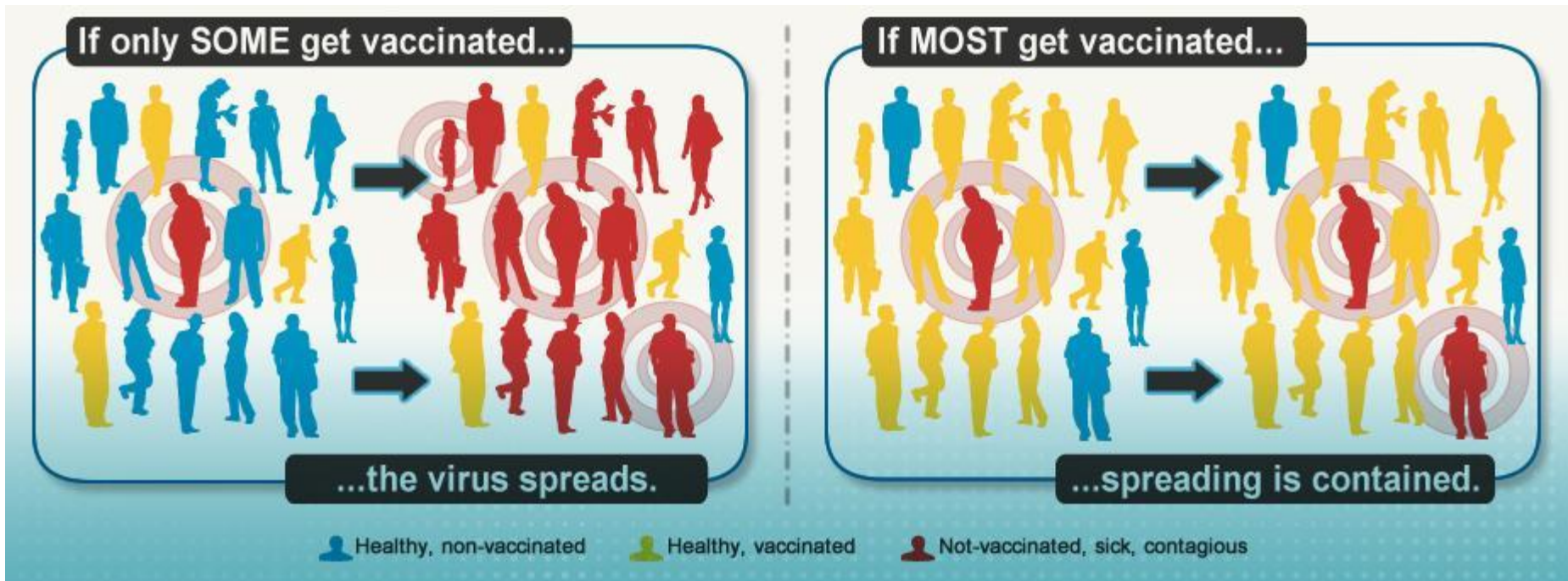


# UK coverage of measles vaccination and measles notifications from 1950 to 2016



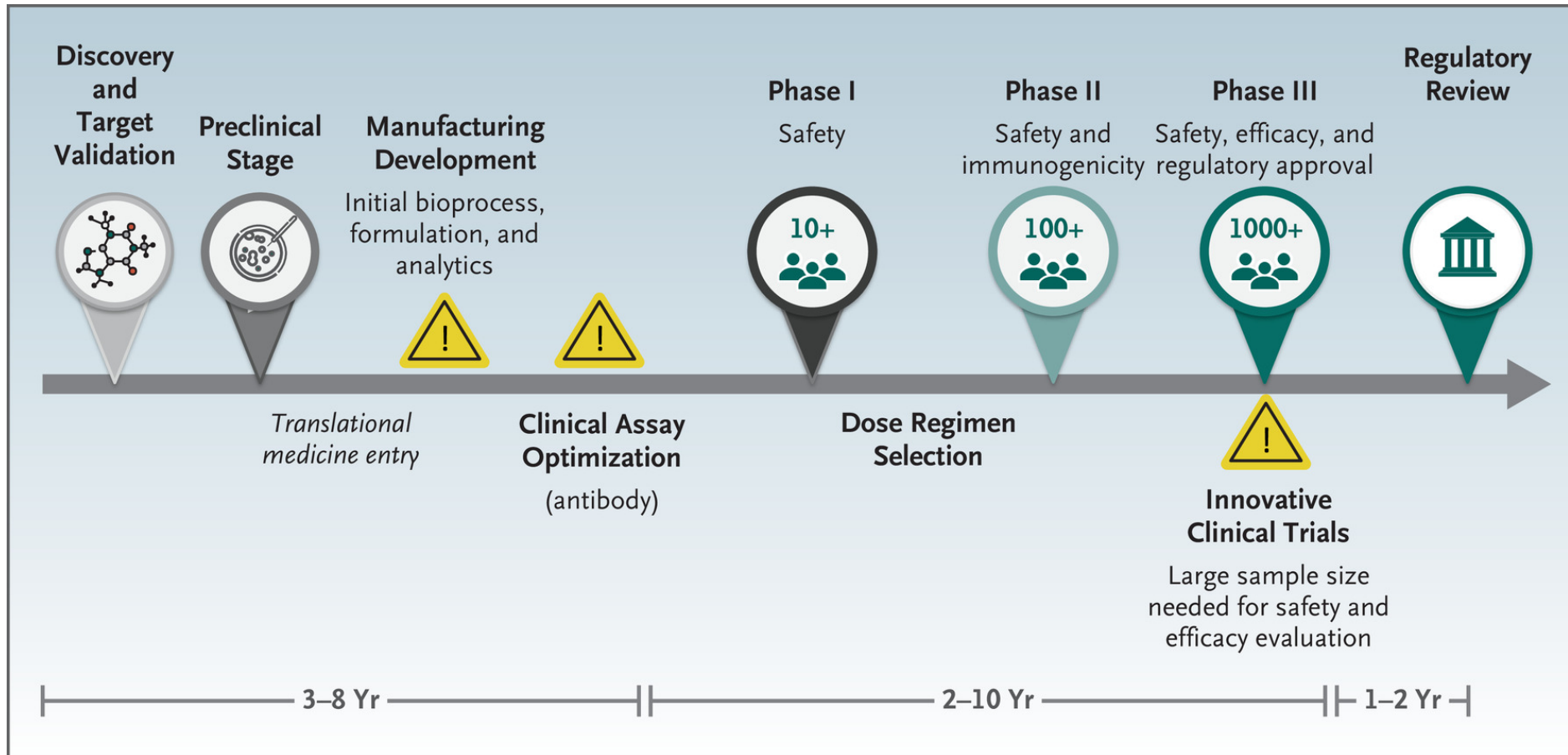
# Herd immunity

Virus spread stops when the probability of infection drops below a critical threshold





# How does a Medicine get on the shelf?



# Covid-19 Vaccine

Vaccine Type	Ingredients (main is water)	Efficacy	No of participants Phase 3	Geographic location	Age
AZ/Oxford (viral vector)	Vector, salt, lipids, sugar, alcohol (trace)	62-90% (2)	>12,000	UK, South Africa (SA), Brazil	18-55 (88%) >55 (12%)
Pfizer/BioN (mRNA)	mRNA, Lipids, salts, sugar	95% (2)	46, 000	Argentina, Brazil, US, Germany, SA	56-85 (41%)
Moderna (mRNA)	mRNA, Lipids, acids, acid stabilisers, salts, sugar	95% (2)	30,000	US (6,000 Hispanic/Latino) 3,000 African American	25-44 (29%) 45-64 (39%) 65+ (25%)

**Table 1. Demographic and Clinical Characteristics at Baseline.\***

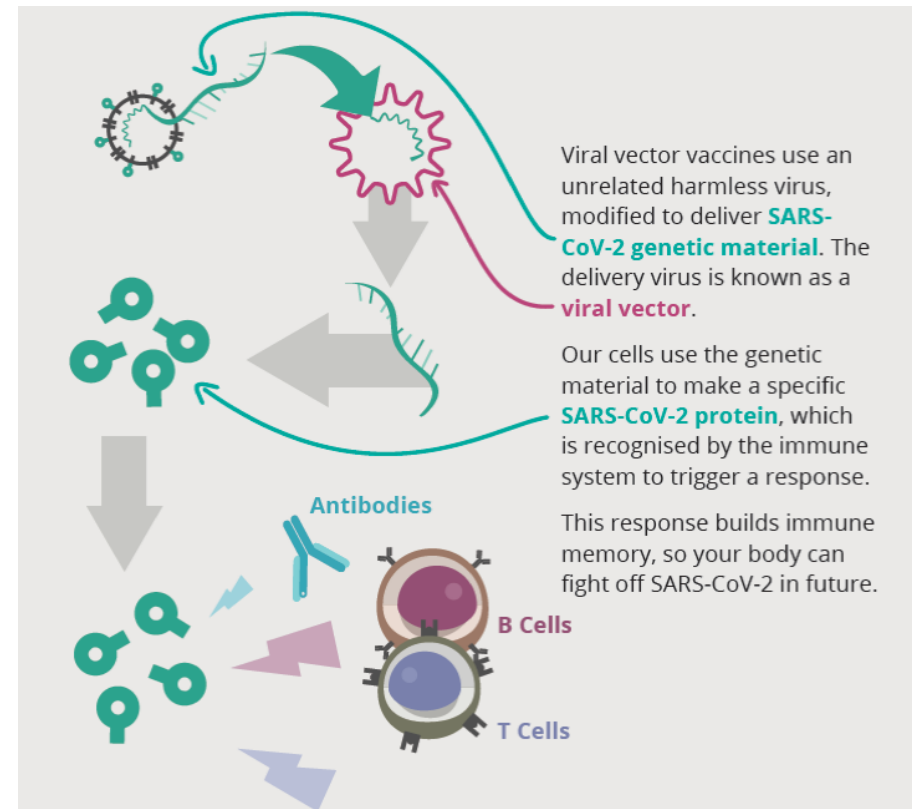
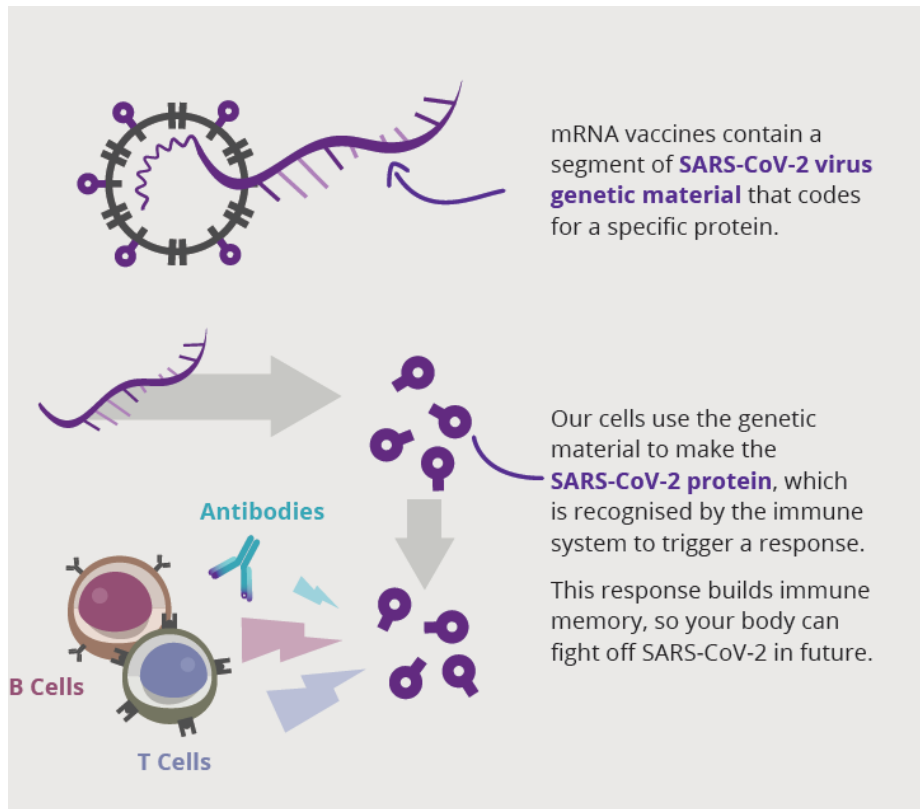
Characteristics	Placebo (N=15,170)	mRNA-1273 (N=15,181)	Total (N=30,351)
Sex — no. of participants (%)			
Male	8,062 (53.1)	7,923 (52.2)	15,985 (52.7)
Female	7,108 (46.9)	7,258 (47.8)	14,366 (47.3)
Mean age (range) — yr	51.3 (18–95)	51.4 (18–95)	51.4 (18–95)
Age category and risk for severe Covid-19 — no. of participants (%)†			
18 to <65 yr, not at risk	8,886 (58.6)	8,888 (58.5)	17,774 (58.6)
18 to <65 yr, at risk	2,535 (16.7)	2,530 (16.7)	5,065 (16.7)
≥65 yr	3,749 (24.7)	3,763 (24.8)	7,512 (24.8)
Hispanic or Latino ethnicity — no. of participants (%)‡			
Hispanic or Latino	3,114 (20.5)	3,121 (20.6)	6,235 (20.5)
Not Hispanic or Latino	11,917 (78.6)	11,918 (78.5)	23,835 (78.5)
Not reported and unknown	139 (0.9)	142 (0.9)	281 (0.9)
Race or ethnic group — no. of participants (%)‡			
White	11,995 (79.1)	12,029 (79.2)	24,024 (79.2)
Black or African American	1,527 (10.1)	1,563 (10.3)	3,090 (10.2)
Asian	731 (4.8)	651 (4.3)	1,382 (4.6)
American Indian or Alaska Native	121 (0.8)	112 (0.7)	233 (0.8)
Native Hawaiian or Other Pacific Islander	32 (0.2)	35 (0.2)	67 (0.2)
Multiracial	321 (2.1)	315 (2.1)	636 (2.1)
Other	316 (2.1)	321 (2.1)	637 (2.1)
Not reported and unknown	127 (0.8)	155 (1.0)	282 (0.9)
Baseline SARS-CoV-2 status — no. of participants (%)§			
Negative	14,598 (96.2)	14,550 (95.8)	29,148 (96.0)
Positive	337 (2.2)	343 (2.3)	680 (2.2)
Missing data	235 (1.5)	288 (1.9)	523 (1.7)
Baseline RT-PCR test — no. of participants (%)			
Negative	14,923 (98.4)	14,917 (98.3)	29,840 (98.3)
Positive	95 (0.6)	87 (0.6)	182 (0.6)
Missing data	152 (1.0)	177 (1.2)	329 (1.1)
Baseline bAb anti-SARS-CoV-2 assay — no. of participants (%)			
Negative	14,726 (97.1)	14,690 (96.8)	29,416 (96.9)
Positive	303 (2.0)	305 (2.0)	608 (2.0)
Missing data	141 (0.9)	186 (1.2)	327 (1.1)
Risk factor for severe Covid-19 — no. of participants (%)			
Chronic lung disease	744 (4.9)	710 (4.7)	1,454 (4.8)
Significant cardiac disease	744 (4.9)	752 (5.0)	1,496 (4.9)
Severe obesity	1,021 (6.7)	1,025 (6.8)	2,046 (6.7)
Diabetes	1,440 (9.5)	1,435 (9.5)	2,875 (9.5)
Liver disease	96 (0.6)	100 (0.7)	196 (0.6)
Human immunodeficiency virus infection	87 (0.6)	92 (0.6)	179 (0.6)

## Demographics and clinical characteristics of participants in the Moderna clinical trial

Note the age range, ethnicity and various diseases such as diabetes, cardiac disease etc which make up to more than 25% of participants in this study.

[https://www.nejm.org/doi/full/10.1056/NEJMoa2035389?query=recirc artType railA article](https://www.nejm.org/doi/full/10.1056/NEJMoa2035389?query=recirc%20artType%20railA%20article)

# Covid-19 Vaccines: How do they work?



# Why have covid-19 vaccines been developed so fast?





# Summary

- Our Immune system is important throughout life
- Vaccines offer a safe and controlled alternative to natural immunity
- Herd immunity protects individuals AND the community in general
- Herd immunity cannot be achieved without a vaccine
- COVID-19 vaccines have been developed under the same stringent regulations that other vaccines are normally produced, just on an accelerated timeline
- Severe adverse effects are extremely rare