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Health and wellness initiatives - Lunch and Learn

'Where are we now with COVID-19? Vaccines, variants and returning to campus

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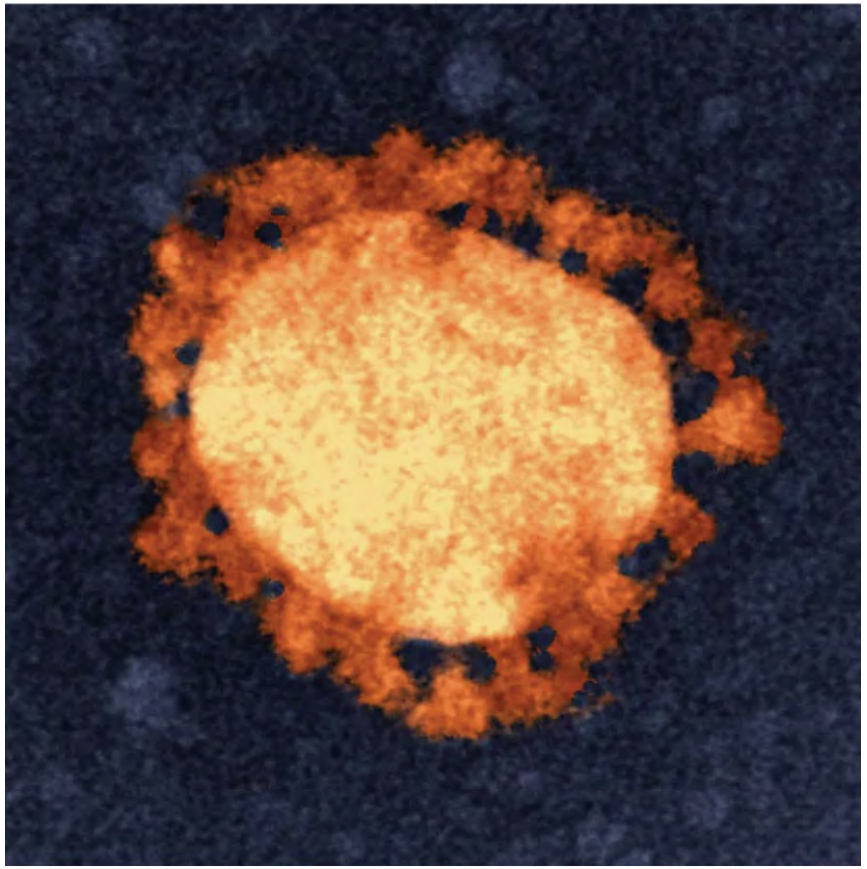
8 July 2021

What is COVID-19?

- A virus is a package of parasitic genetic material
- This coronavirus is SARS-Cov-2
- SARS-Cov-2 causes COVID-19.



An electron-microscope image of the COVID-19 virus. CSIRO

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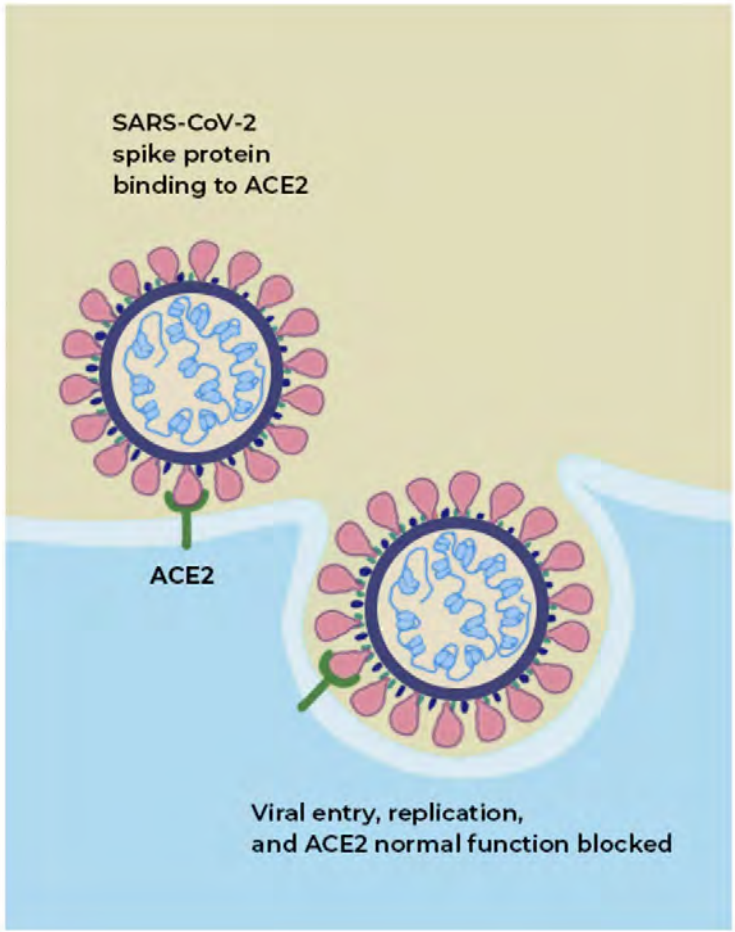
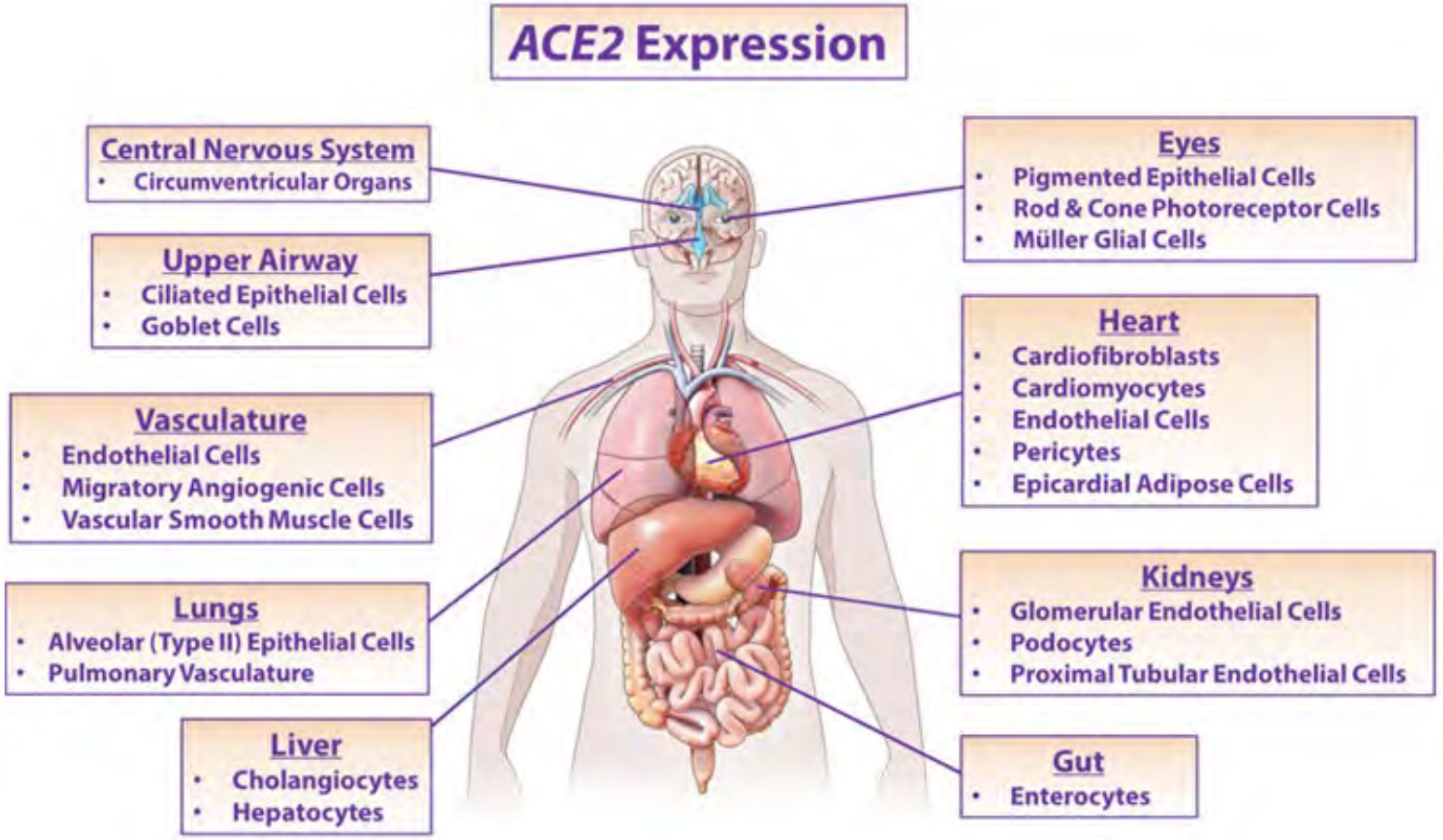
How does the virus infect your body?

Spike proteins on the virus bind to ACE-2 proteins on our cells





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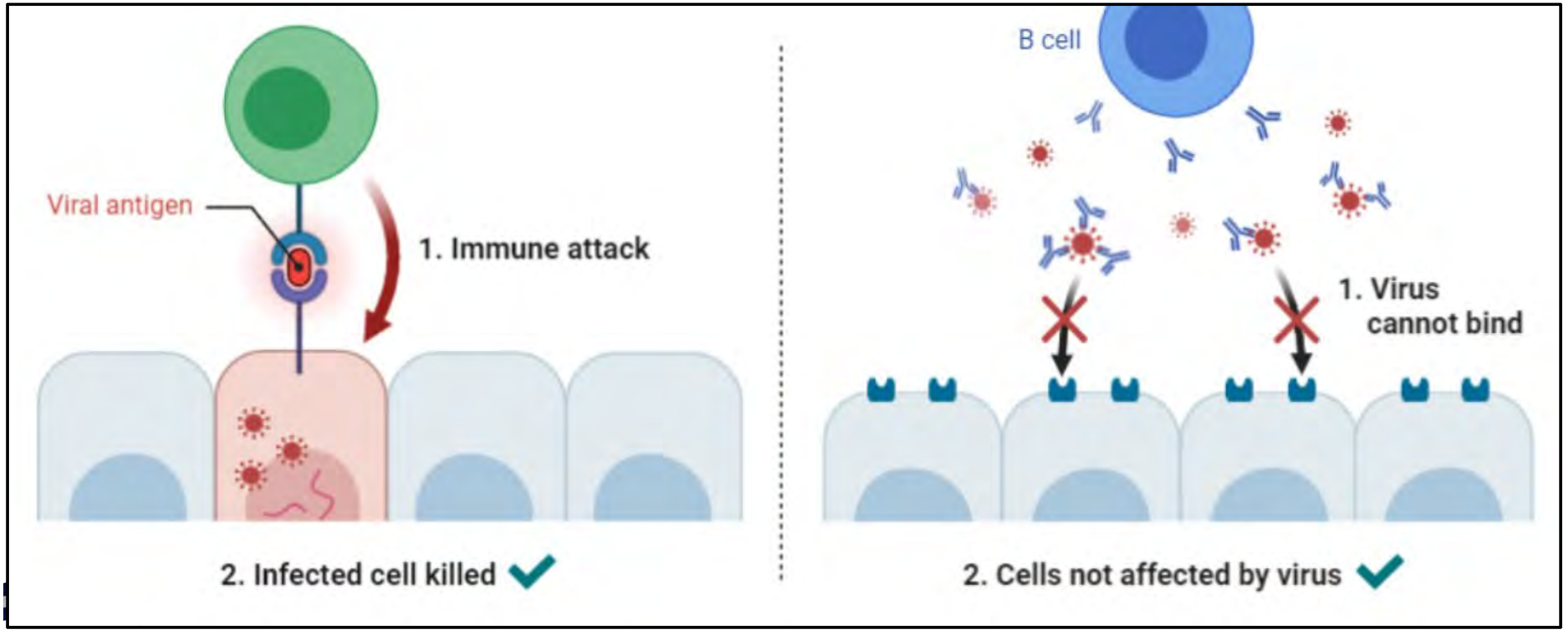
The immune system is usually effective against COVID-19

- **T cells** kill infected cells
- ***Antibodies*** block virus infection



Australia's Vaccines

- **Pfizer/BioNTech)**
- Partly available now; supply will soon increase
- mRNA; 2 doses; reliant on overseas supply
- Very high efficacy
- Recommended for ages under 60

- **Astra-Zeneca (Oxford)**
- Fully available now
- adenovirus; 2 doses; can be made in Aust (CSL)
- High efficacy
- Recommended for ages over 60

- **Moderna**
- Coming soon….
- mRNA; 2 doses; reliant on overseas supply
- Very high efficacy

- **Novavax**
- Coming soon….
- Recombinant protein; 2 doses;
- Very high efficacy

All the vaccines are safe and effective.

They provide outstanding protection against serious disease

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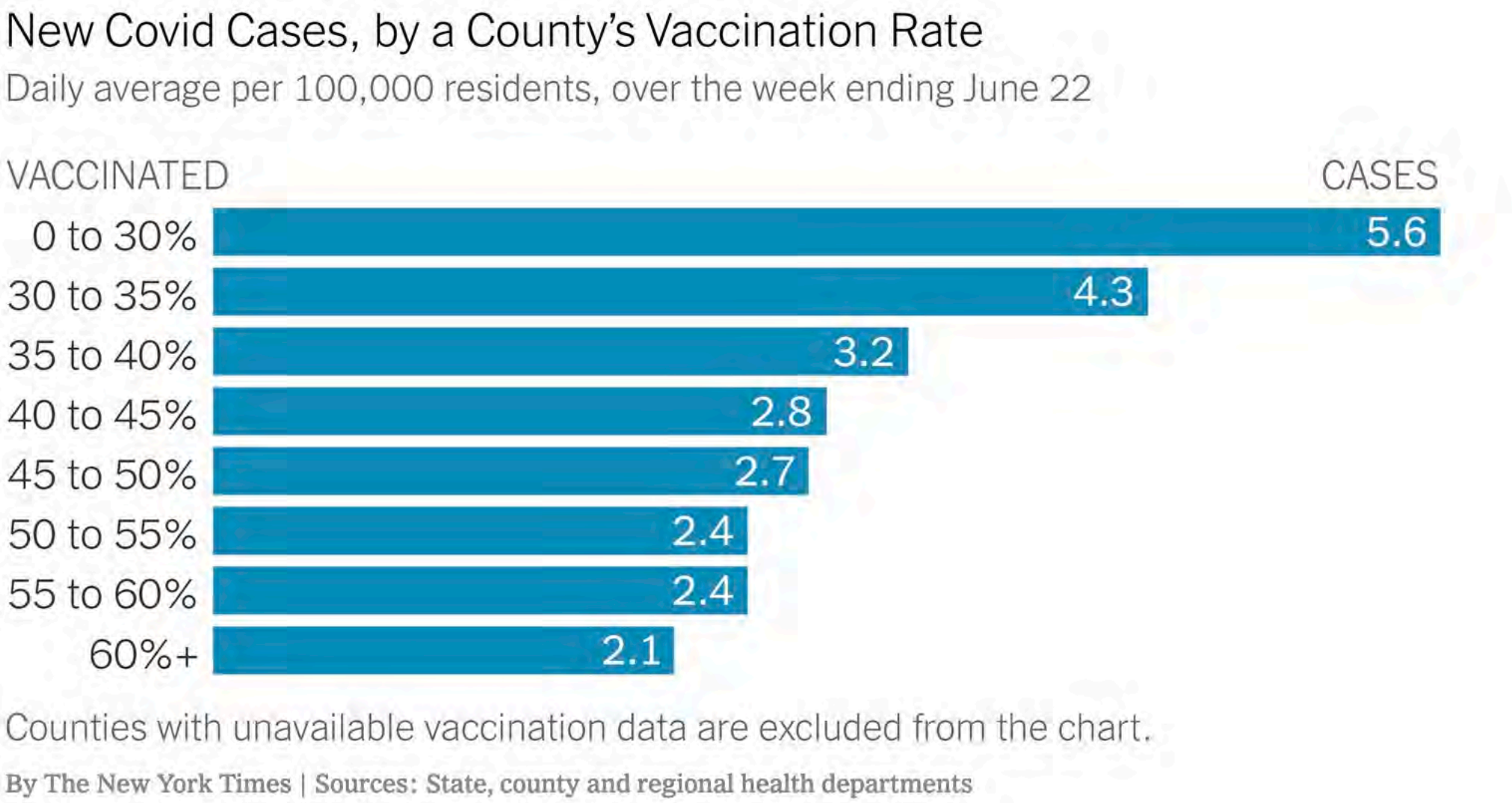
High vaccination rates are reducing COVID-19 infections



Caveats to all COVID-19 vaccines

- They are not 100% effective
- The risks and benefits will vary between individuals
- They have side effects
- We do not know how long they provide protection (likely >12mo).
- Effective on asymptomatic disease poorly understood (appear to help)
- Effect on disease transmission poorly understood (appear to help)
- Their effectiveness is lower for some variants. Boosters may be required.

AstraZeneca vaccine

- Approved for use in all adults, but only recommended for over 60s.
- Associated with a rare, clotting side effect.
- Risk of clotting falls with age (risk from COVID-19 increases with age).
- There is a balance between risks and benefits; The risk is predictable, but some benefits are personal.

Virus variants (mutant viruses)

Viruses always mutate – it is not surprising that many have emerged

- Variants will continue to appear – most have no effect. Some may make the virus more concerning; others may make it weaker.
- The concerning COVID-19 variants have mutations affecting the spike protein
- This can increase transmissibility (more infectious) and reduce vaccine effectiveness.
- Variants can potentially be more dangerous or become resistant to medication and other public health measures.
- Booster shots may be required for some variants (like the flu vaccine)

Virus variants (World Health Org - July 2021)

‘Variants of Concern’

- Alpha (UK) (more infectious)
- Beta (Sth Africa)
- Gamma (Brazil)
- **Delta** (India) (more infectious, more serious cases, minor resistance to vaccines, infecting more children)

‘Variants of Interest’

- Lots of them
- **Lambda** (Peru) (more infectious, more serious cases, more resistant to vaccines, infecting more children)

How are we preventing COVID-19 infections?

Government

- Testing (to identify outbreaks)
- Border control (to stop spread)
- Quarantine/lockdowns (to stop transmission)
- Vaccination (to reduce infections and diseases severity)

Personal

- Testing (to identify outbreaks)
- Mask wearing (to reduce spread)
- Disinfecting/washing surfaces and hands (reduce spread)
- Social distancing (reduce spread)

Restrictions are preventing virus transmission

2019

313085 confirmed cases of influenza. 812 people died.

0 cases of COVID 19

2020

21356 confirmed cases of influenza. 37 people died.

28408 cases of COVID-19. 909 people died

2021

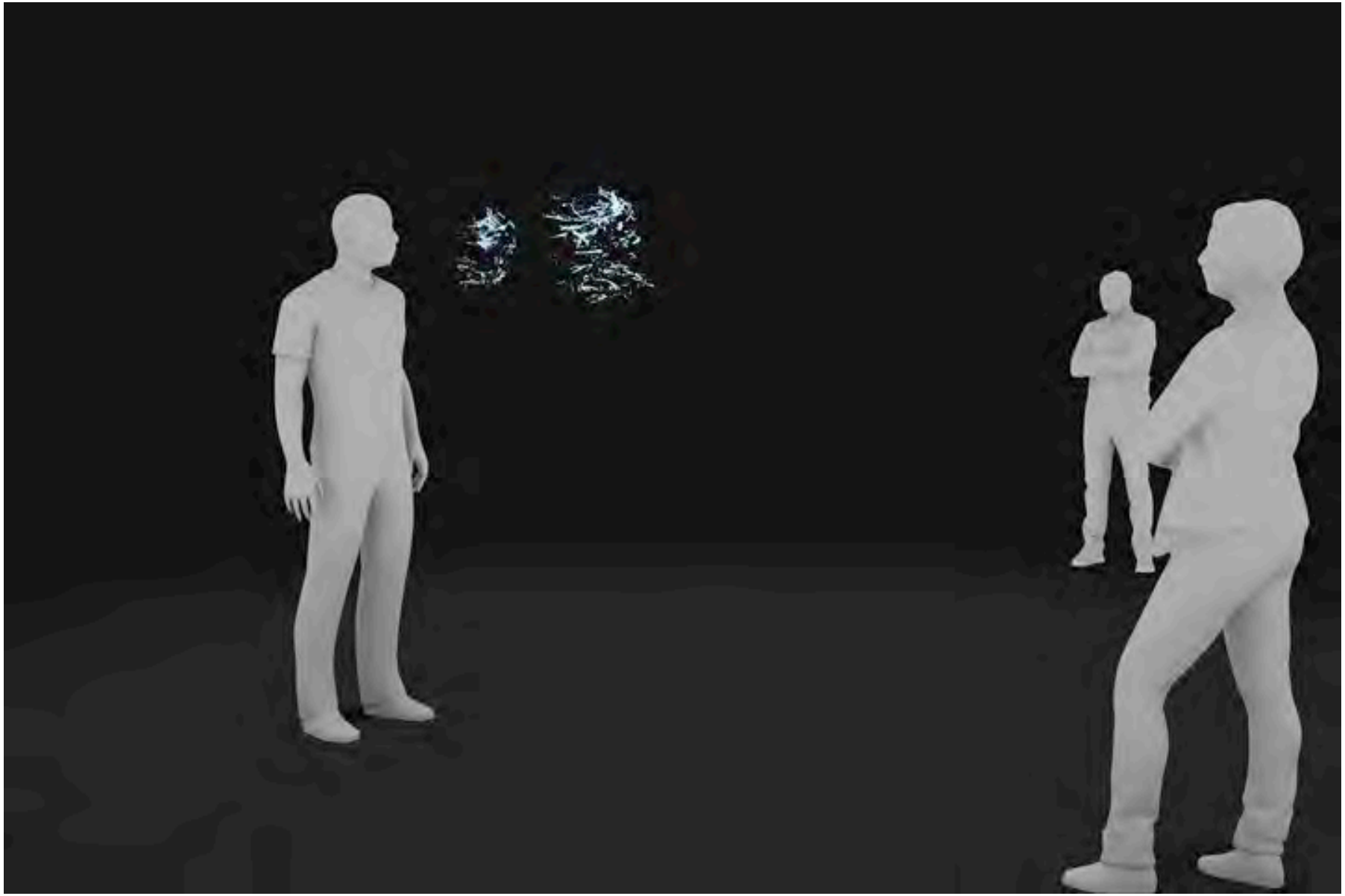
382 **confirmed** cases of influenza. No-one has died.

2395 cases of COVID-19. 1 person has died.

What are the main risks of infection?

- It’s possible to catch COVID-19 from infected surfaces, but extremely rare
- Most people catch COVID-19 through airborne transmission
- Droplets (e.g., sneeze/cough) and aerosols (breathing, talking)

Be aware of potential airborne transmission



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Why are masks useful?

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How to minimize risks at work and home

- Vaccination
- Get tested if you have any cold symptoms and quarantine until recovered
- Social distance
- Maximize ventilation. Open doors and windows; meet by TEAMS, go outside, or into larger rooms.
- Be aware of air flow – from people and within rooms (air con)
- Speak up if you have suggestions – Uni is receptive
- Common sense – none of the above provide 100% protection.

Summing up

- **Enjoy freedoms, but don’t be complacent. Balance avoidance of risk with enjoyment of life and work.**
- **COVID-19 continues to spread and further outbreaks are likely in Australia.**
- **Vaccines offer a lot of protection, especially against serious disease.**
- **Virus variants remain an ongoing threat.**
- **Vaccines will not immediately end the pandemic.**
- **Masks, social distancing and testing for COVID-19 will be around for a while.**
- **Take responsibility for your safety**

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Research Study

'Immunology of COVID-19 vaccine effectiveness'

We are looking for volunteers in Ballarat to take part in a study of how a particular type of immune cell may help determine the effectiveness of the COVID-19 vaccines**.**

For more information about this study, please contact:

Professor Stuart Berzins: ***s.berzins@federation.edu.au***

This study has received ethics clearance (HREC/73975/BHSSJOG-2021-257552) from the BHS and SJOG Human Research Ethics Committee.

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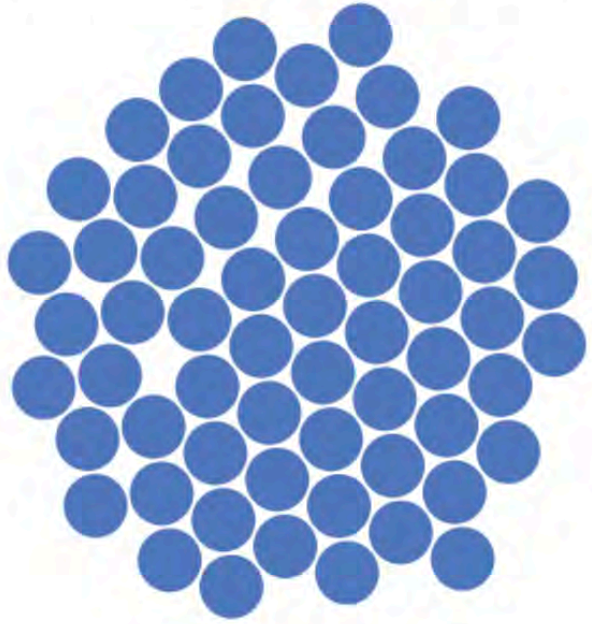
Thanks and questions?

Efficacy = how much vaccine reduces an ‘outcome’

Typically refers to effect on symptomatic COVID-19

Placebo group

63 per 5,000 volunteers contracted Covid-19



Vaccinated group

18 per 5,000

(28% of placebo)

Efficacy estimate

72%

fewer cases in the vaccinated group than in the placebo group

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