Multiple Sclerosis Care and the COVID-19 pandemic.

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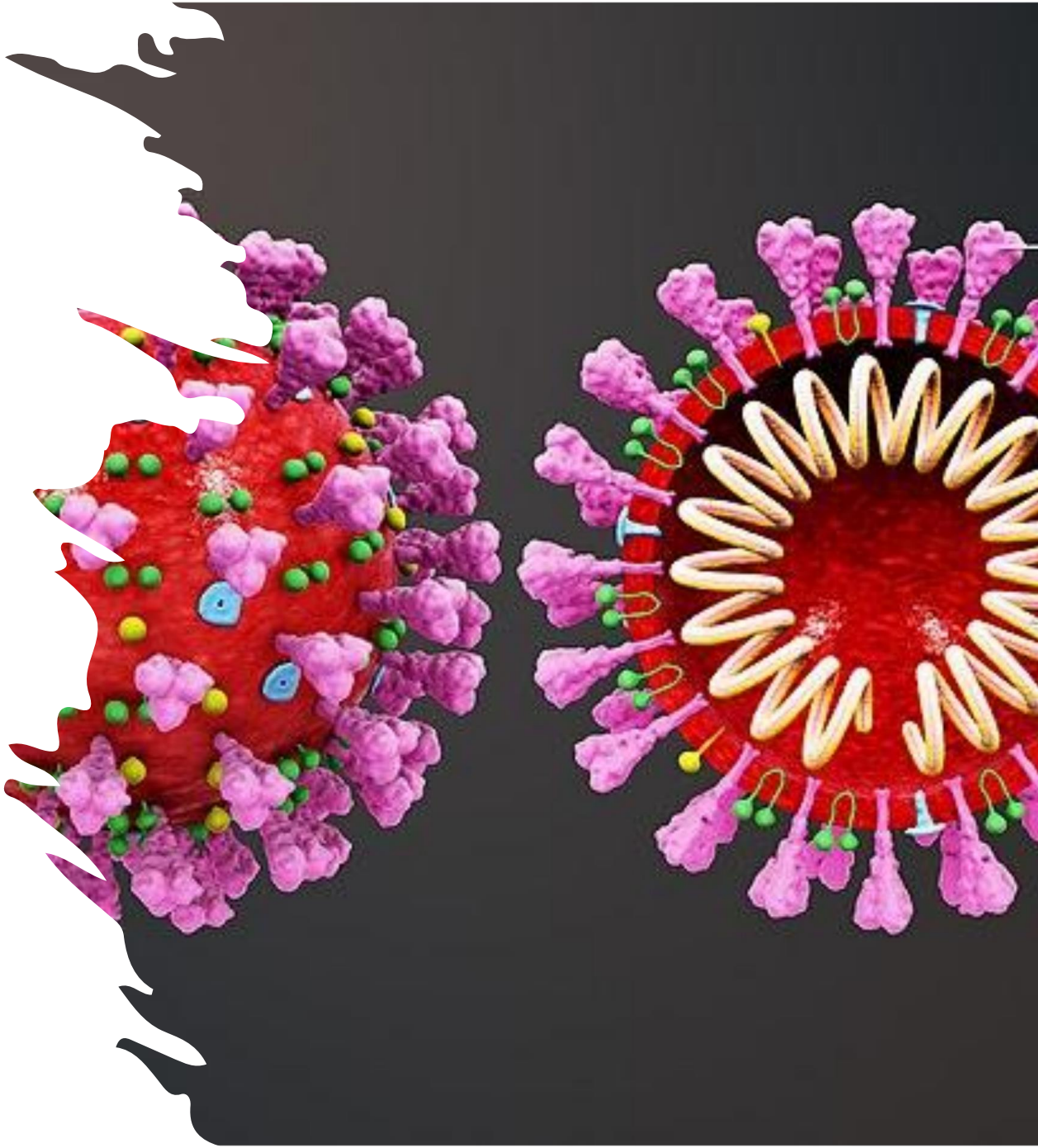
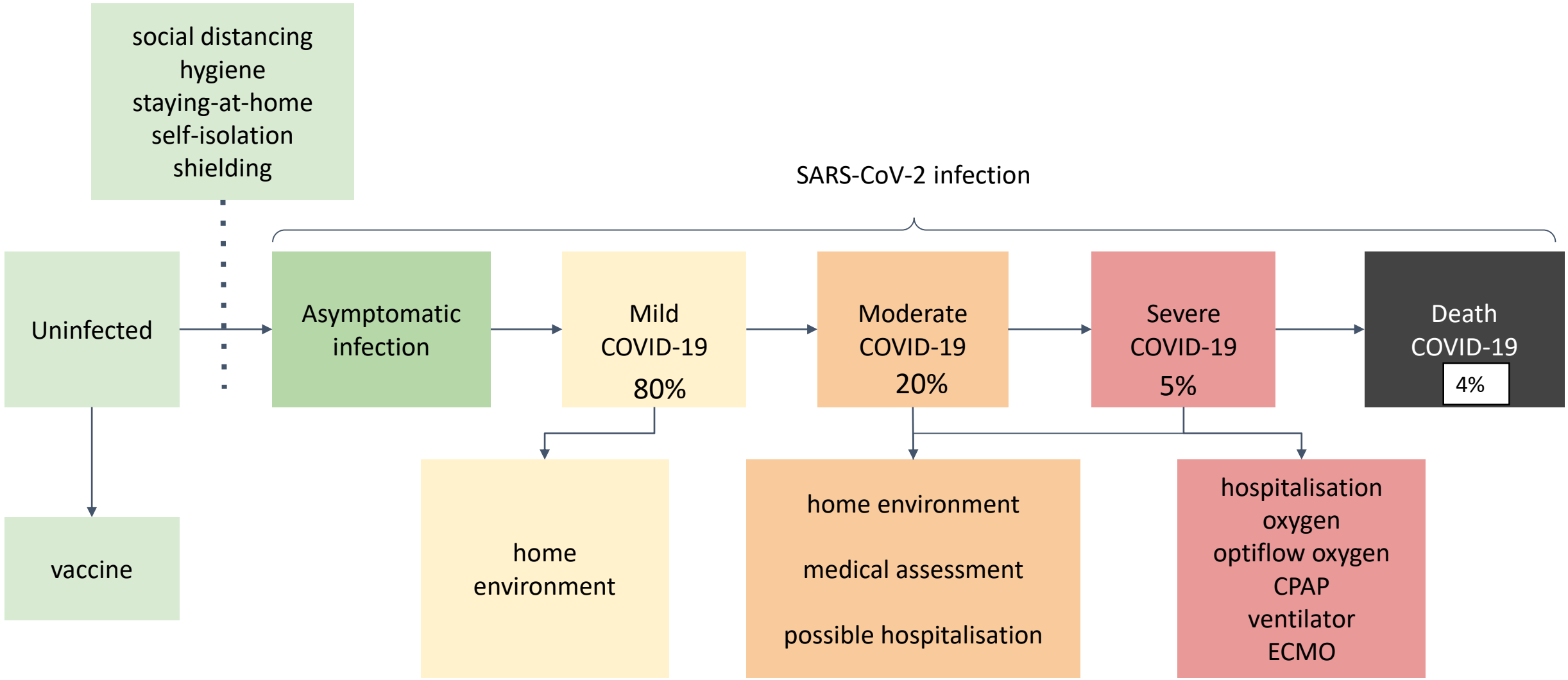
- CoronaVIrus Disease 2019 (COVID-19) is a novel illness caused by severe acute respiratory syndrome due to the coronavirus 2 (SARS-CoV2)

More than 200 million people have been infected and over 4.5 million have died worldwide.



SARS-coronavirus-2 / COVID-19 disease spectrum

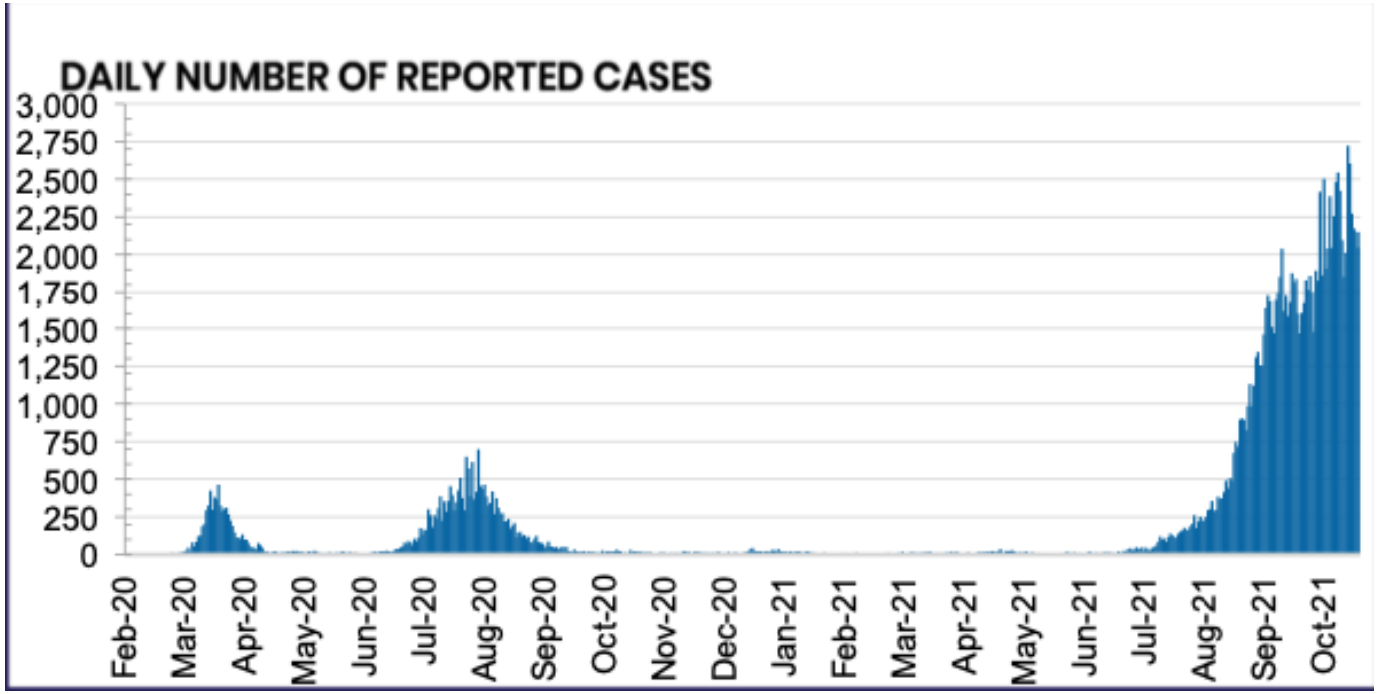


Adapted from slide: slideshare/G Giovannoni

Current state

Australia (20 October 2021)

816 Locally acquired in last 24 hours	**2** Overseas acquired in last 24 hours	**1,332** Under investigation in last 24 hours
28,526 Active cases (estimated)	**1,378** Currently hospitalised	**192,296** Tests in last 24 hours
149,398 Total cases	**1,577** Total deaths	**41,564,096** Total tests



Department of Health, States & Territories Report 20 October 2021. http://health.gov.au

Data Collection…

Coordinated data collection in Australia in New Zealand

Google Sheets

- Data fields developed as per WHO case definition
- Data fields aligned with other global data collection initiatives

Monash University server

- Access approved by administrator after verification of membership to ANZAN or MSNA (and NZ equivalent)

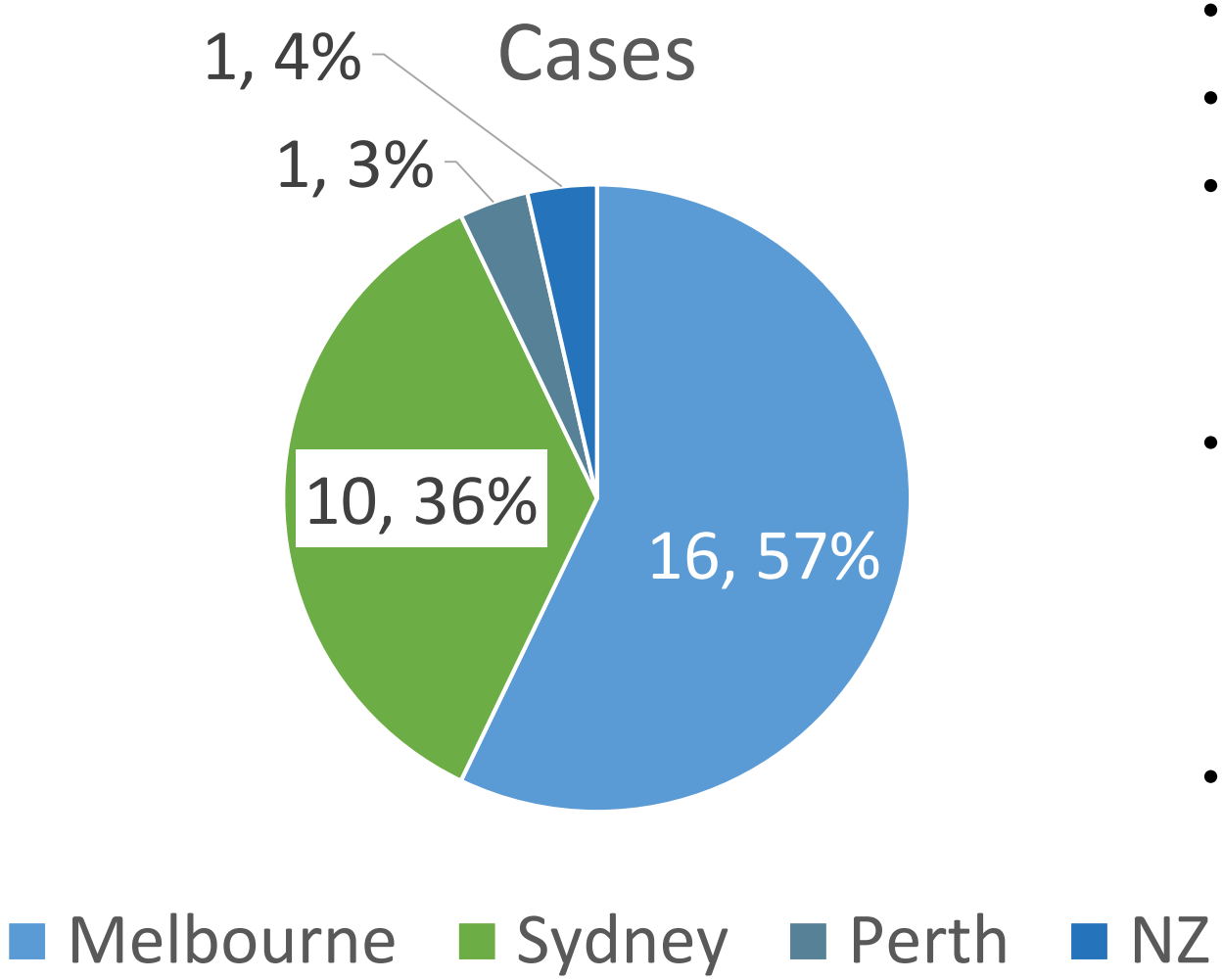
Advantages:

- Access to all clinicians, including those in private practice, rurally
- Access to MS nurses

Disadvantages:

- Ethics
- Global data sharing - requires an overseeing contracting organization

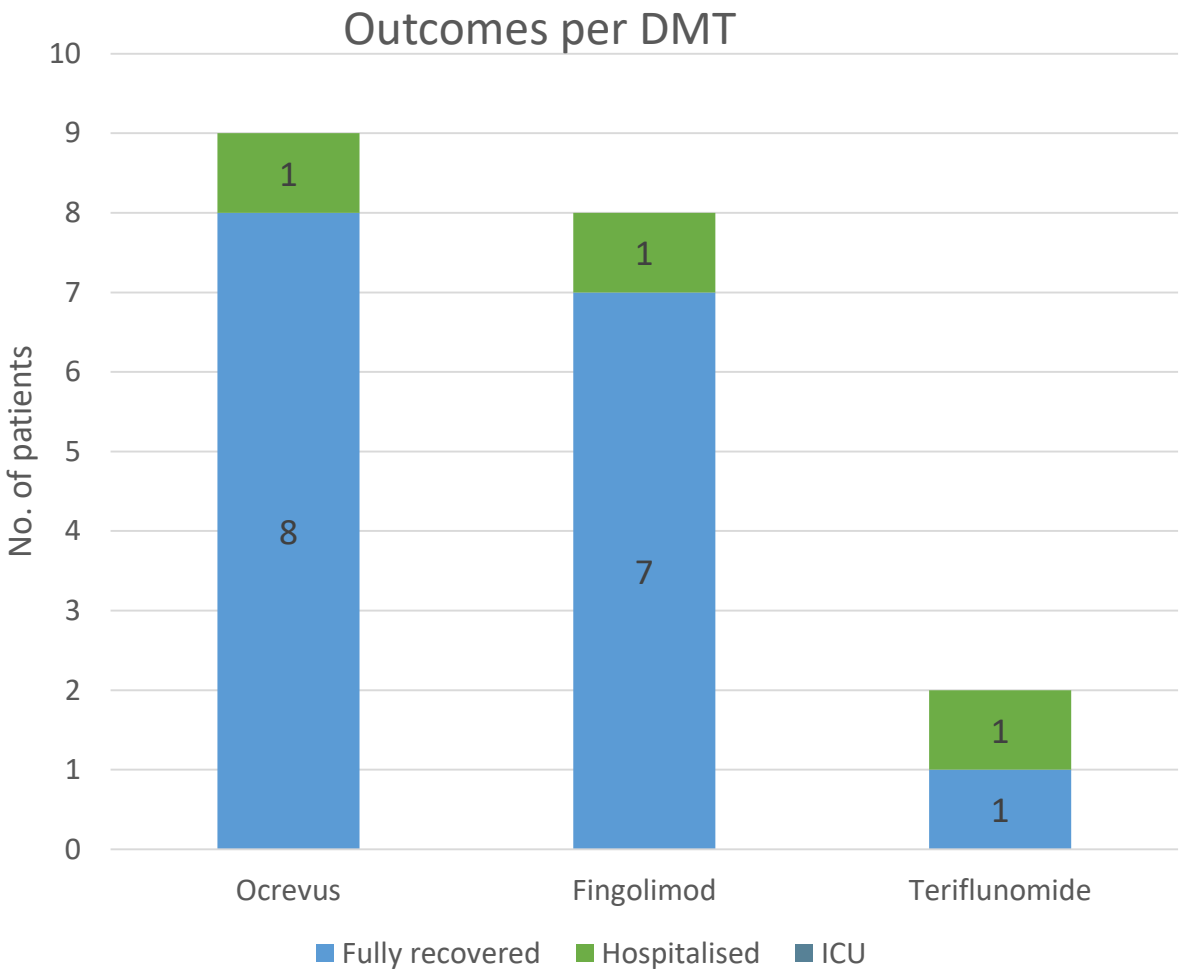
ANZAN COVID-19 registry



- 28 cases overall reported (likely more…)
- 14 females
- Average EDSS 3.5 – most people have developed a neurological problem affecting at least two “systems” (vision, walking, balance, sensation, bladder, bowel, memory)
- All on MS Treatments
  - Ocrevus = 9 patients
  - Fingolimod = 8 patients
  - Tysabri = 1, Tecfidera =2, Teriflunomide=1
- All DMTs continued or briefly stopped during infection

EDSS, Expanded Disability Status Scale;

Outcomes



- Of 3 people who required hospital admission:
  - All were on the higher end of the disability scale – needing a walking stick or frame or wheelchair.
  - High blood pressure in two
  - 1 person with both high blood pressure and emphysema.
- All recovered

Are people with MS (pwMS) at an increased risk of contracting COVID-19?

What about MS Treatments? Are some worse than others in increasing risk and severity of infection?

Literature update – what do we know?

Summary of the currently published studies:

- Italian + French
  - 1787 combined pLwMS
  - No increased risk of infection
  - People on Ocrevus at increased risk of more severe infection
- USA Study
  - COViMS North American registry of MS patients with COVID-19 (n=858)
  - No increased risk of infection.
  - Ocrelizumab- increased risk of hospital and ICU admission
- Global data sharing Study – data from 28 countries
  - 2340 pwLMS
  - No increased risk of infection
  - Ocrevus and rituximab – increased risk of hospitalization, ICU admission but not death

Sormani, M.P., 2021. DMTs and Covid-19 severity in MS: a pooled analysis from Italy and France.
ACTA 8, 1738–1744.. doi:10.1002/acn3.51408.
Salter et al. ACTRIMS/ECTRIMS 2020; LB1242.
Simpson-Yap S, etal., Associations of Disease-Modifying Therapies With COVID-19 Severity in Multiple Sclerosis. Neurology. 2021 Oct.

Check you personal risk:

- the online QCovid® risk calculator developed by the University of Oxford (https://qcovid.org/)

What about care beyond medications?

The behaviour of pwMS in the pandemic

- In one study, 40% of pwMS had postponed clinical appointments, laboratory tests and MRI scans.
- Treatment alterations were made in 14% and worryingly in 65% this decision had been self-determined and was not at the advice of their neurologist.
- More anxiety and depression

Hautecoeur P. CONFISEP: Impact of the Covid-19 pandemic lockdown on patients with multiple sclerosis in the north of France. Rev Neurol (Paris) 2021.

Long-term effects of disrupted care

- Risks of inadequate treatment
  - Real risk of clinicians choosing less effective therapy, or delaying therapy for too long, potentially harming patients in the long term
- Inadequate health maintenance
  - Disrupted NDIS programs, rehab
  - Loss of function can take years to regain
- Inadequate safety monitoring of treatments
- Mental health problems

NDIS, National Disability Insurance Scheme

Hautecoeur P. CONFISEP: Impact of the Covid-19 pandemic lockdown on patients with multiple sclerosis in the north of France. Rev Neurol (Paris) 2021.

Conclusions

- At this stage:
  - No major signal of increased risk of infection in pLwMS
  - People with MS most at risk
    - Increased age, increased EDSS and other comorbidities
    - DMT: concistent data that anti-CD20 therapies increased the risk of
- Experience in Aus/NZ thus far (n=28) in keeping with international data reports
- Next 6-12 months in Australia
  - Ensuring we update clinical care, monitoring
  - Patient confidence in their treatment and monitoring
- Vaccinations

COVID-19 vaccinations in pLwMS

The AIMS of COVID-19 vaccination

Prevent	Prevent serious illness
Prevent	Prevent hospitalization and death
Protect	Protect others

Staged roll-out of COVID-vaccines in Australia

- Astra Zeneca/Oxford vaccine
  - 2- doses, 3 months apart
- Pfizer/BioNTech vaccine
  - 2 doses 3 weeks apart
- Moderna vaccine
  - 2 doses 3-4 weeks apart
- March 2021
  - Phase 1b: pLwMS eligible for vaccination
  - Astra Zeneca, limited supply of Pfizer

Current Vaccination status of Australia

Side effects of COVID Vaccines

In general	Neurological side effects	AstraZeneca
• sore arm • mild headache • chills/fever • fatigue	• Guillain Barre syndrome • Bell's palsy • spinal cord inflammation • Heart muscle inflammation	• Risk of clotting disorder • Large veins of the brain, abdomen • Immune syndrome – can be treated early • 3.3 in 100,000 < 60yr • 1.8 in 100,000 >60 yrs

Vaccines for pLwMS

- No evidence that that Covid vaccines increases the risk of relapse
- Fever and fatigue can increase MS symptoms – so called “pseudo-relapse”
- All vaccines are “non-live” and are SAFE to use in pLwMS regardless of which treatment they are on
- There may be practicalities to consider in relation to timing your vaccine with your treatment

Humoral immune response to COVID-19 mRNA vaccine in patients with multiple sclerosis treated with high-efficacy disease-modifying therapies

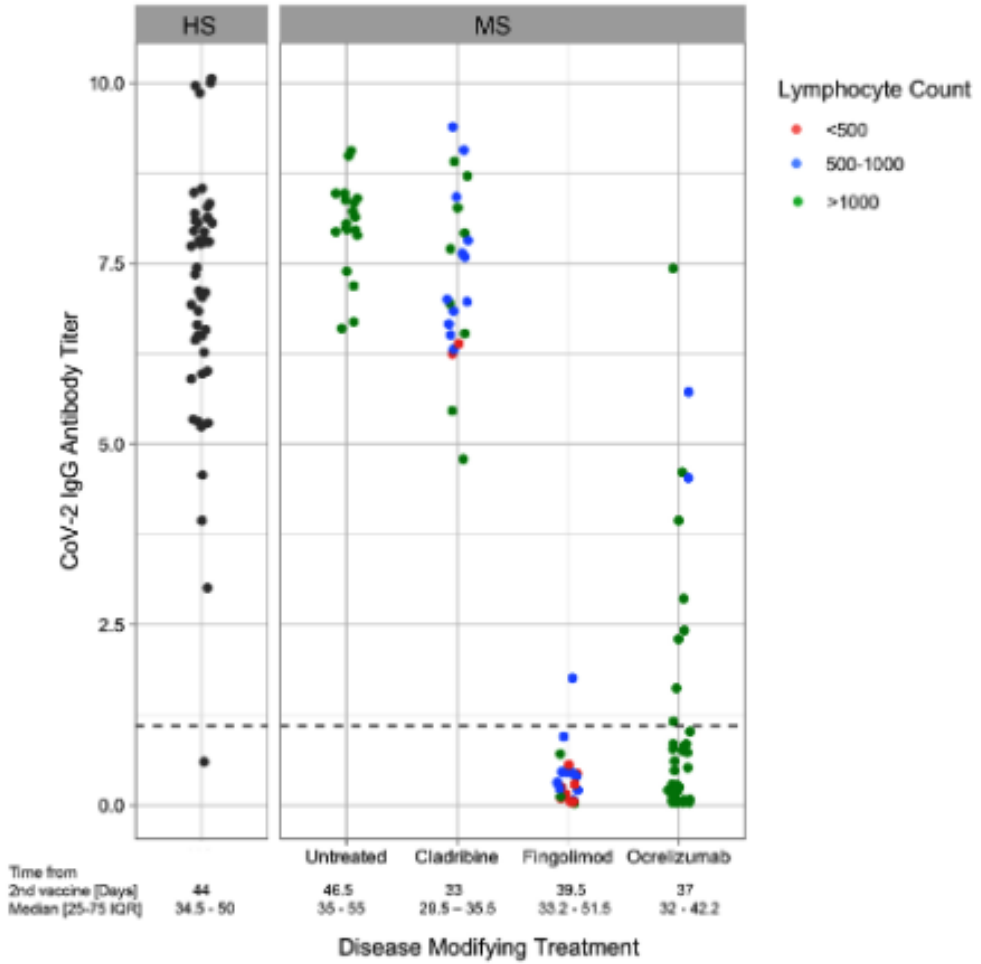
Ther Adv Neurol Disord

2021, Vol. 14: 1–8

DOI: 10.1177/17562864211012835

Anat Achiron, Mathilda Mandel, Sapir Dreyer-Alster, Gil Harari, David Magalashvili, Polina Sonis, Mark Dolev, Shay Menascu, Shlomo Flechter, Rina Falb and Michael Gurevich

pLwMS on Fingolimod (Gilenya) and Ocrevus are less likely to develop sufficient protective antibodies after COVID vaccination



JAMA Neurology | Brief Report

Humoral and T-Cell Response to SARS-CoV-2 Vaccination in Patients With Multiple Sclerosis Treated With Ocrelizumab

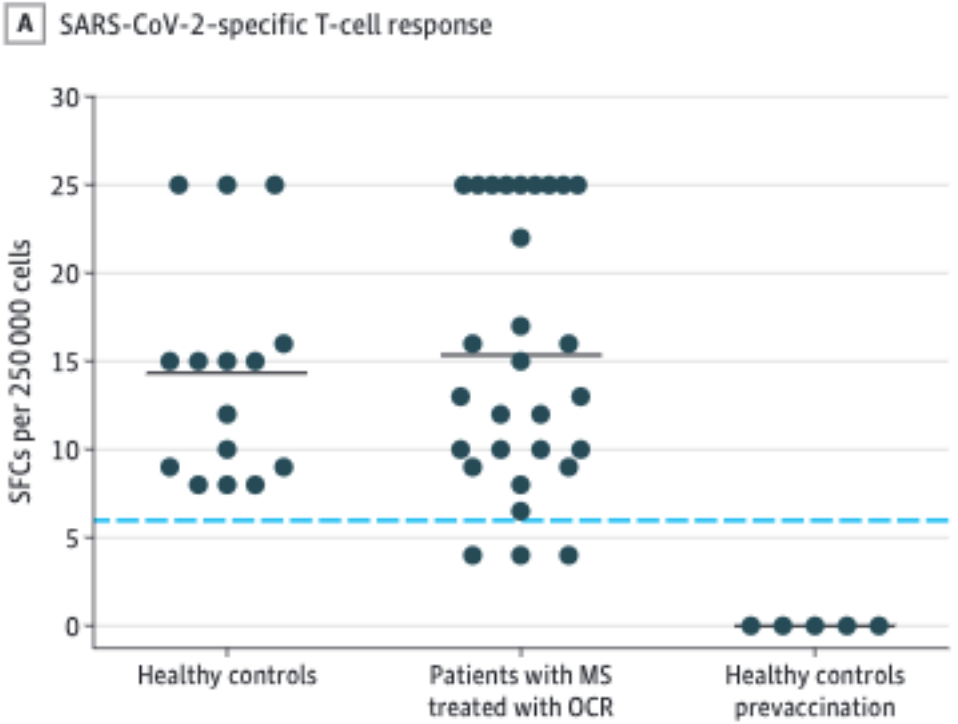
Livnat Brill, PhD; Ariel Rechtman, BSc; Omri Zveik, BMedSc; Nitzan Haham, BMedSc; Esther Oiknine-Djian, PhD; Dana G. Wolf, MD, PhD; Netta Levin, MD, PhD; Catarina Raposo, PhD; Adi Vaknin-Dembinsky, MD, PhD

Key Points

Question Do patients with multiple sclerosis treated with the B-cell–depleting agent ocrelizumab develop T-cell and humoral responses to the SARS-CoV-2 messenger RNA vaccine?

Findings In this cohort study of 112 participants, those treated with ocrelizumab developed lower serology response compared with untreated patients and healthy controls but showed preserved T-cell response to the SARS-CoV-2 vaccine compared with healthy controls.

Meaning In this study, preserved vaccine-specific T-cell responses in patients with multiple sclerosis treated with ocrelizumab are reassuring and will help to develop therapeutic strategies in patients with multiple sclerosis during the COVID-19 pandemic.



How long does the vaccine last?

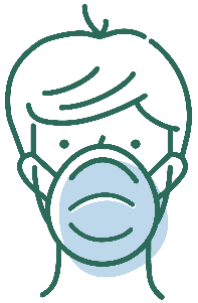
- Antibodies start to decrease 4-6 months after vaccination
- Protection against serious infection and hospitalization seem to last longer
- Boosters….. Likely needed for everyone.

Latest advice – 17 October

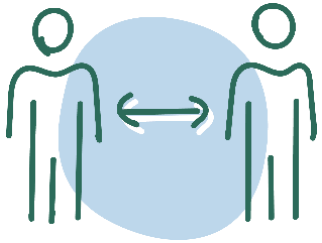
- pLwMS on certain medications need a 3rd vaccine dose to get sufficient protection
- Ocrelizumab
- Fingolimod, Siponimod, Ozanimod
- 2-6 months after the last dose of the vaccine

After Vaccination

- Continue COVID-19 prevention measures:



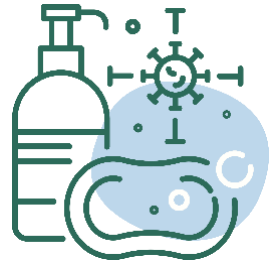
Cover your nose and mouth with a mask.



Stay at least 6 feet from people who don't live with you.

Avoid crowds and poorly ventilated spaces.

Wash your hands.



Clean and disinfect frequently touched surfaces.

- If you have questions about your health and vaccination, call your doctor, nurse, or clinic.

Conclusion

- COVID vaccinations are safe in pLwMS
- Protects against catching COVID, but more importantly against severe infection
- Some people need a 3rd dose
- We may all need a booster at some stage

Thanks for listening!