COVID-19

7 July 2020

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HNE Population Health

Images courtesy of Jason Roberts / VIDRL – Doherty Institute (with technical assistance from Andrew Leis / Bio21 Institute), Sandy

COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU)

Total Confirmed
11,520,461

Confirmed Cases by Country/Region/Sovereignty

2,911,888	US
1,603,055	Brazil
697,413	India
686,777	Russia
302,718	Peru
298,557	Chile
287,290	United Kingdom
256,848	Mexico
251,789	Spain
243,051	Iran
241,819	Italy
231,818	Pakistan
213,716	Saudi Arabia
206,844	Turkey
205,597	France
197,952	Germany
196,750	South Africa
165,618	Bangladesh

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Last Updated at (M/D/YYYY)
7/7/2020 5:33:59 a.m.

Cumulative Confirmed Cases | Active Cases | Incidence Rate | Case-Fatality Ratio | Testing Rate | Hospitalization Rate

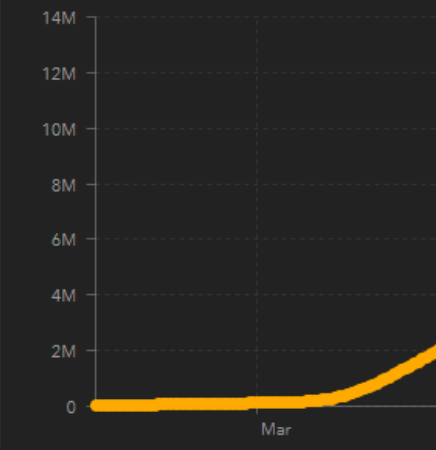
188
countries/regions

Lancet Inf Dis Article: Here. Mobile Version: Here.
Lead by JHU CSSE. Technical Support: Esri Living Atlas team and JHU APL. Financial Support: JHU and NSF. Resource support: Slack, Github and AWS. Click *here* to **donate** to the CSSE dashboard team, and other JHU COVID-19 Research Efforts. FAQ. Read more in this blog. Contact US.

Global Deaths
535,499

130,101 deaths	US
64,867 deaths	Brazil
44,321 deaths	United Kingdom
34,869 deaths	Italy
30,639 deaths	Mexico
29,923 deaths	France
28,388 deaths	Spain
19,693 deaths	India

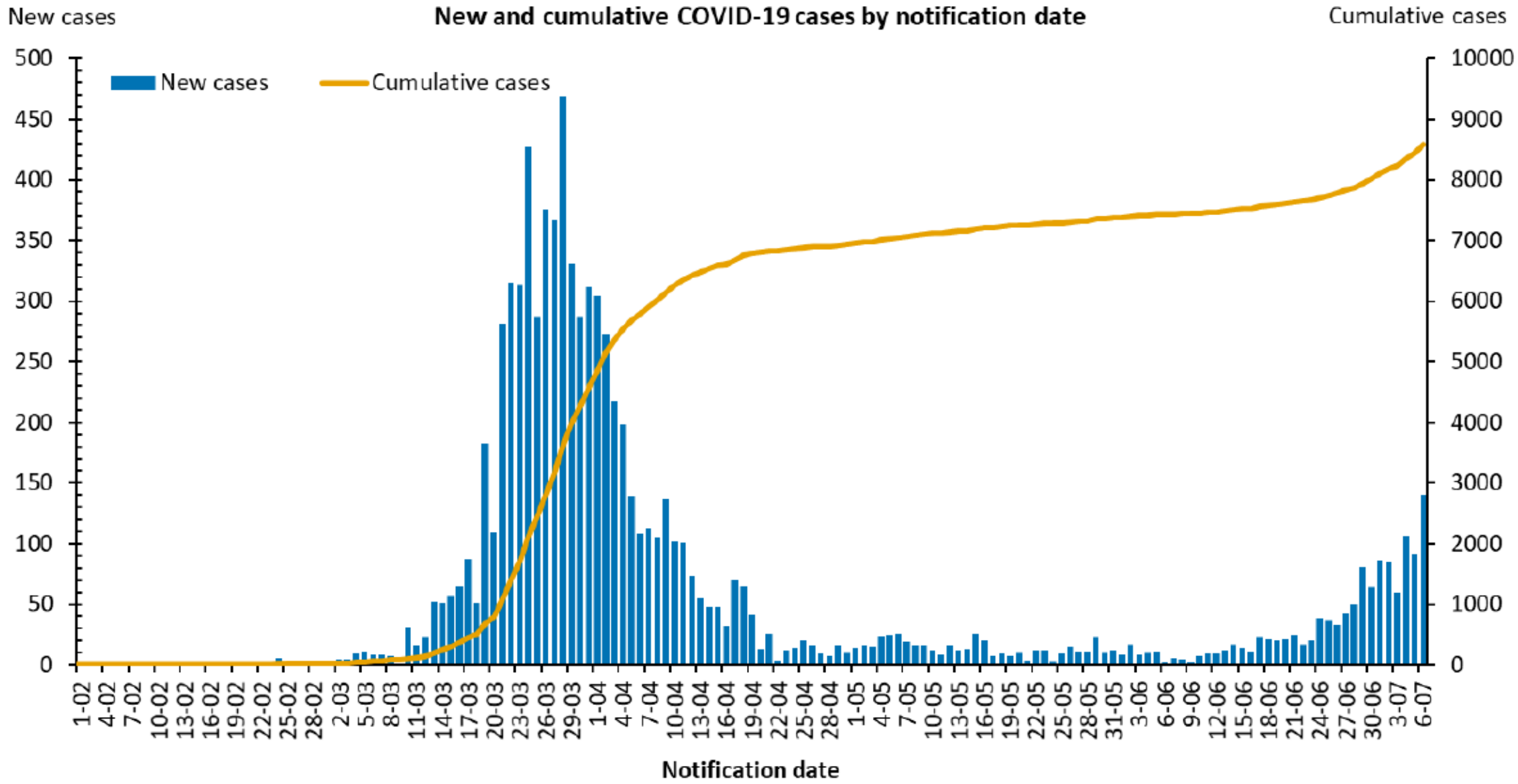
Global Deaths | Global Recovered



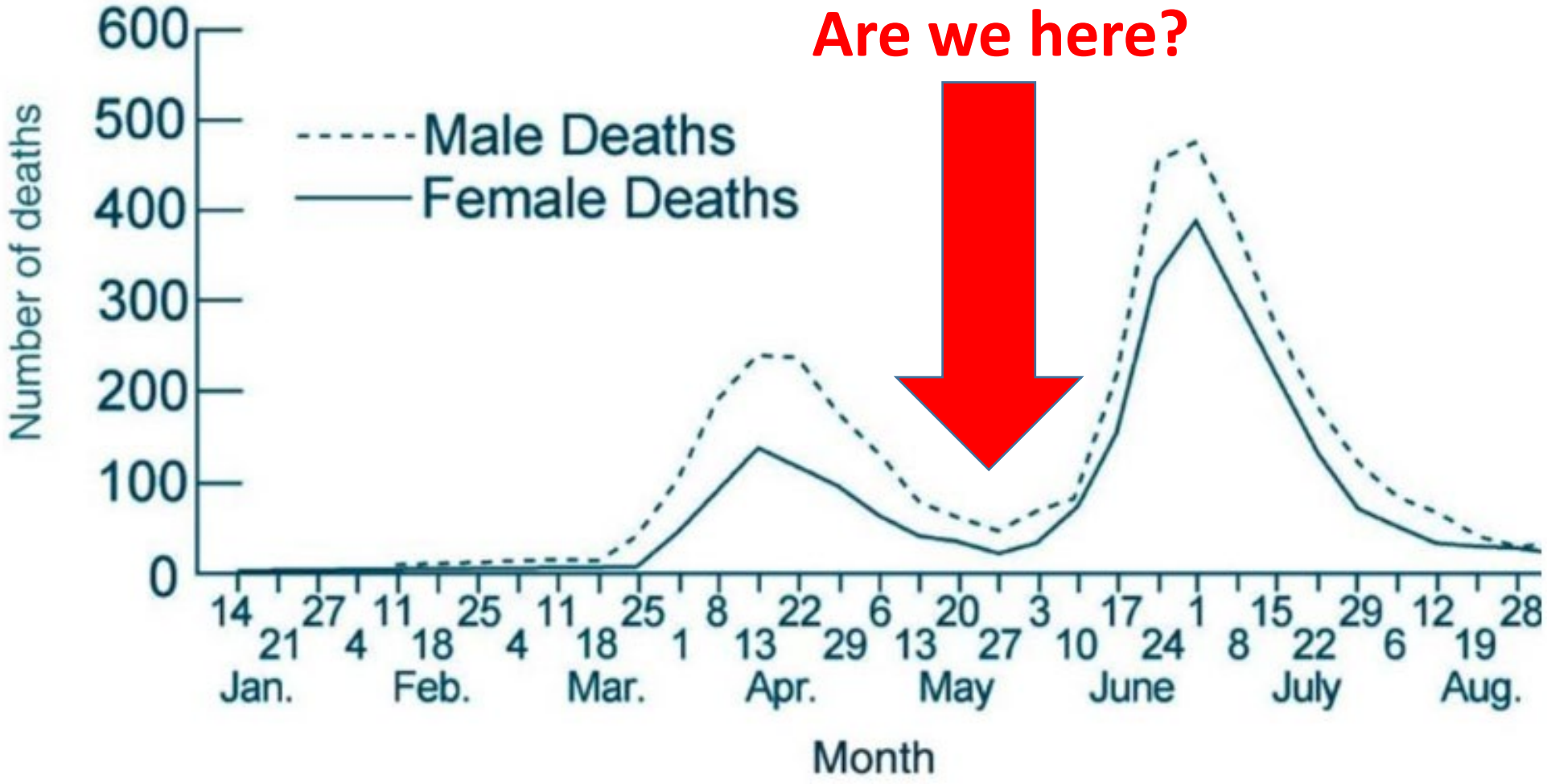
Confirmed | Logarithmic | Daily Cases

Figure 1. Number of new and cumulative confirmed cases, by date of notification, Australia

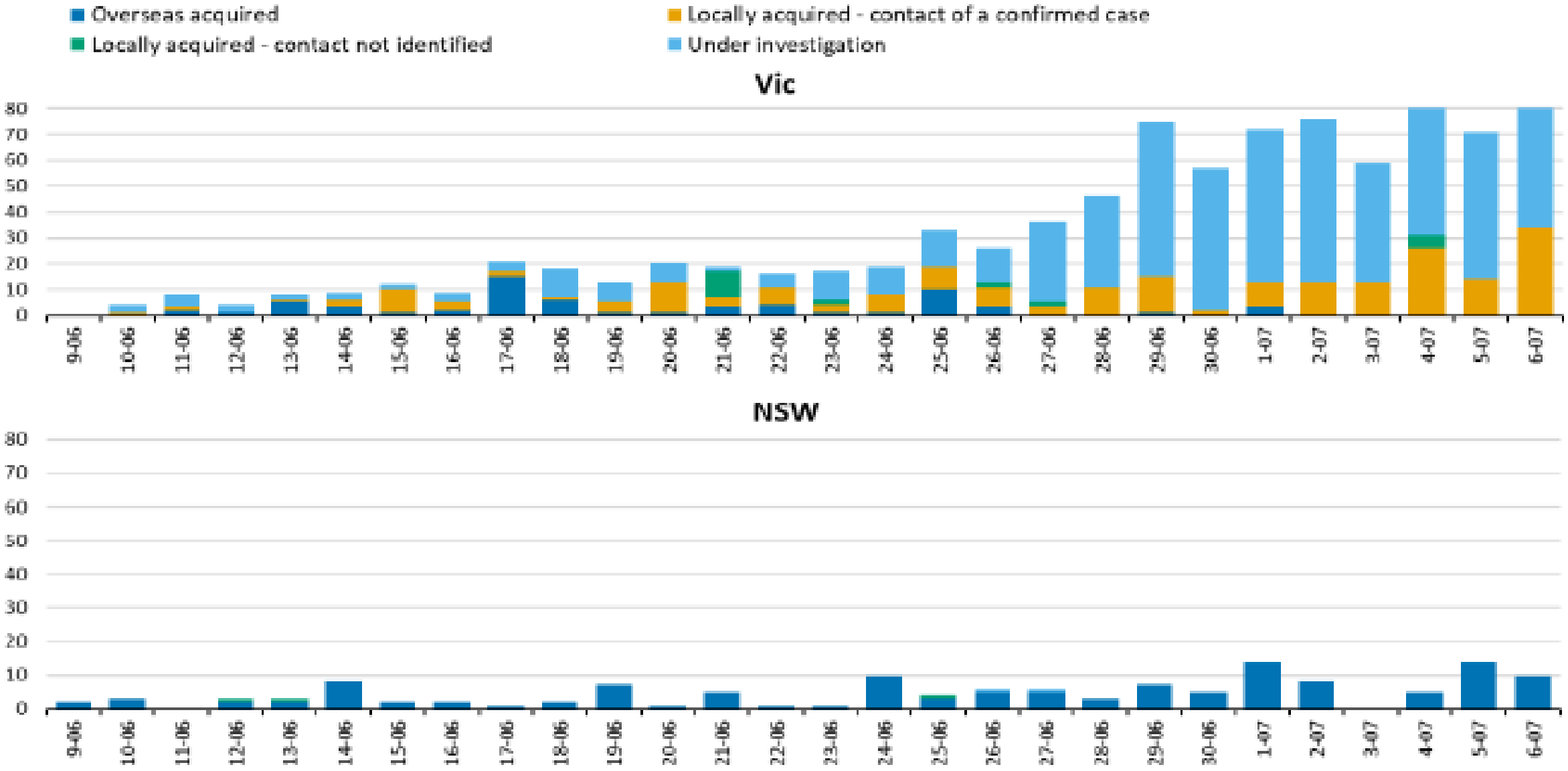
Data source: State and Territory daily reporting to the Department of Health



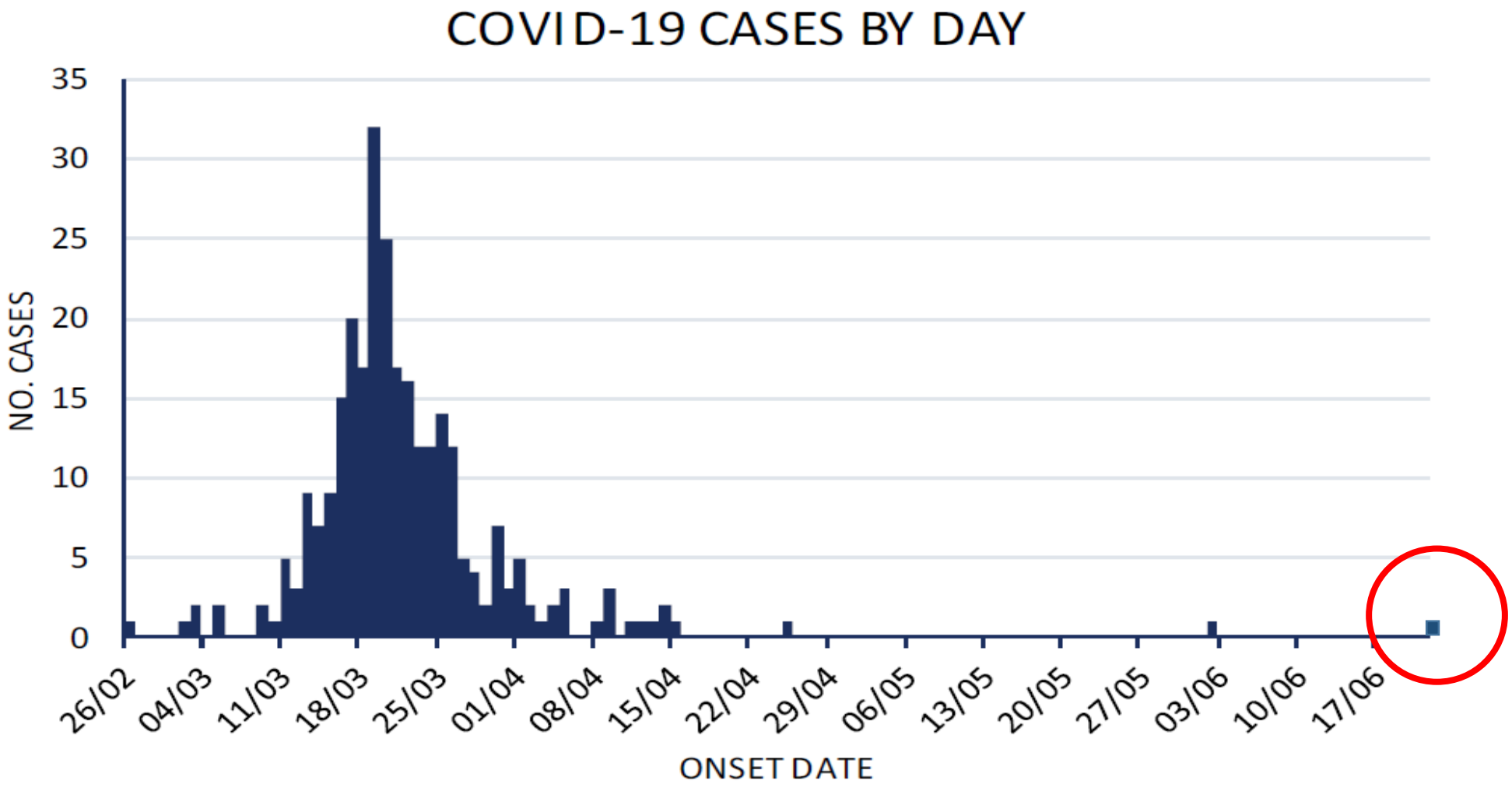
Deaths per week, 1919 Influenza Pandemic NSW



Newly confirmed cases by source of acquisition for selected jurisdictions



Epidemic curve – Hunter New England




NO ENTRY
TO NSW
BIG FINES
Albury City
Welcome
to Albury
WIRADJURI COUNTRY
13 15 52

ACF staff and visitor restrictions

- No entry to people who have been in the greater Melbourne area in the previous 14 days

Advice for people who have visited or travelled from greater Melbourne visiting high-risk settings

A cautious approach is applied to restrict people who have been in or transited through the greater Melbourne metropolitan area from visiting high-risk settings until 14 days after leaving the area. People who have travelled to any part of Melbourne must not visit sensitive settings including aged care facilities and hospitals.

Follow advice for people who have visited or travelled from greater Melbourne visiting sensitive settings, including aged care facilities, hospitals, community based care and boarding schools.

NSW Health strongly recommends that anyone travelling from the Greater Melbourne area:

- limits contact with vulnerable people in our communities, including those over 65 years and immunocompromised people
- does not attend large gatherings, including funerals or weddings
- does not visit rural, regional or remote communities unless a resident there.

Testing Criteria

- Anyone with respiratory symptoms or unexplained fever or isolated loss of smell or taste
- Anyone tested for COVID-19 should isolate until results available

Release from isolation / return to work

- Release from isolation
  - 10 days from onset (or discharge from hospital)
  - 3 days after resolution of all acute symptoms

- Immunocompromised persons also require:
  - 2 negative PCR results on nasopharyngeal swabs
  - Use Zoster vaccine contra-indication list

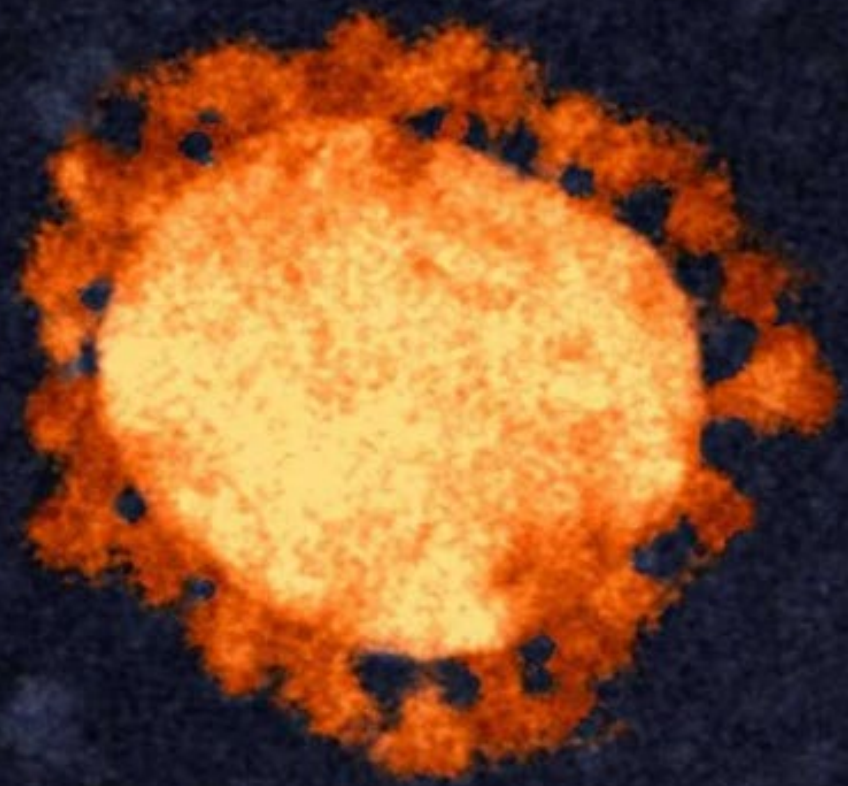
- PHU will continue to coordinate release

EU and UK

Table. Number of affected facilities (long-term care and other specified settings), COVID-19 cases and deaths among residents, examples from countries in the EU/EEA and the UK, May 2020

Country	Report date (in 2020)	Number of affected facilities (n)	COVID-19 cases in LTCF residents	COVID-19-related deaths in LTCF residents	Total COVID-19 deaths	% of all COVID-19 deaths in the country	Reference
Belgium	8 June	UNK	9,266	4,833	9,606	50	[97]
France	8 June	8,033	37 405	14,178	28 940	49	[98]
Germany	8 June	UNK	16 988	3 386	8 674	39	[99].
Ireland	10 June	465 a	6 392	811	1 352	60	[96,100]
Norway	8 June	UNK	UNK	142	239	59	[101].
The Netherlands	19 May	UNK	9 474	1,779	5 694 [1]	31	[96,102]
Spain	10 June	5,457	UNK	19 445	27 136	72	[103,104]
Stockholm County, Sweden	15 April	212	1 711	630	1 400	45	[105]
Sweden	18 May	UNK	2 866	1 777	3 661	49	[106]
UK – England	29 May	UNK	78 564	13 460	45 748	23	[107]
UK – Scotland	7 June	678 (63%)	6 274b	1 861	4 000	47	[108,109].

Questions?



Images courtesy of Jason Roberts / VIDRL – Doherty Institute (with technical assistance from Andrew Leis / Bio21 Institute), Sandy Crameri / CSIRO and NIAID-RML.

PCR performance – sensitivity (false negatives)

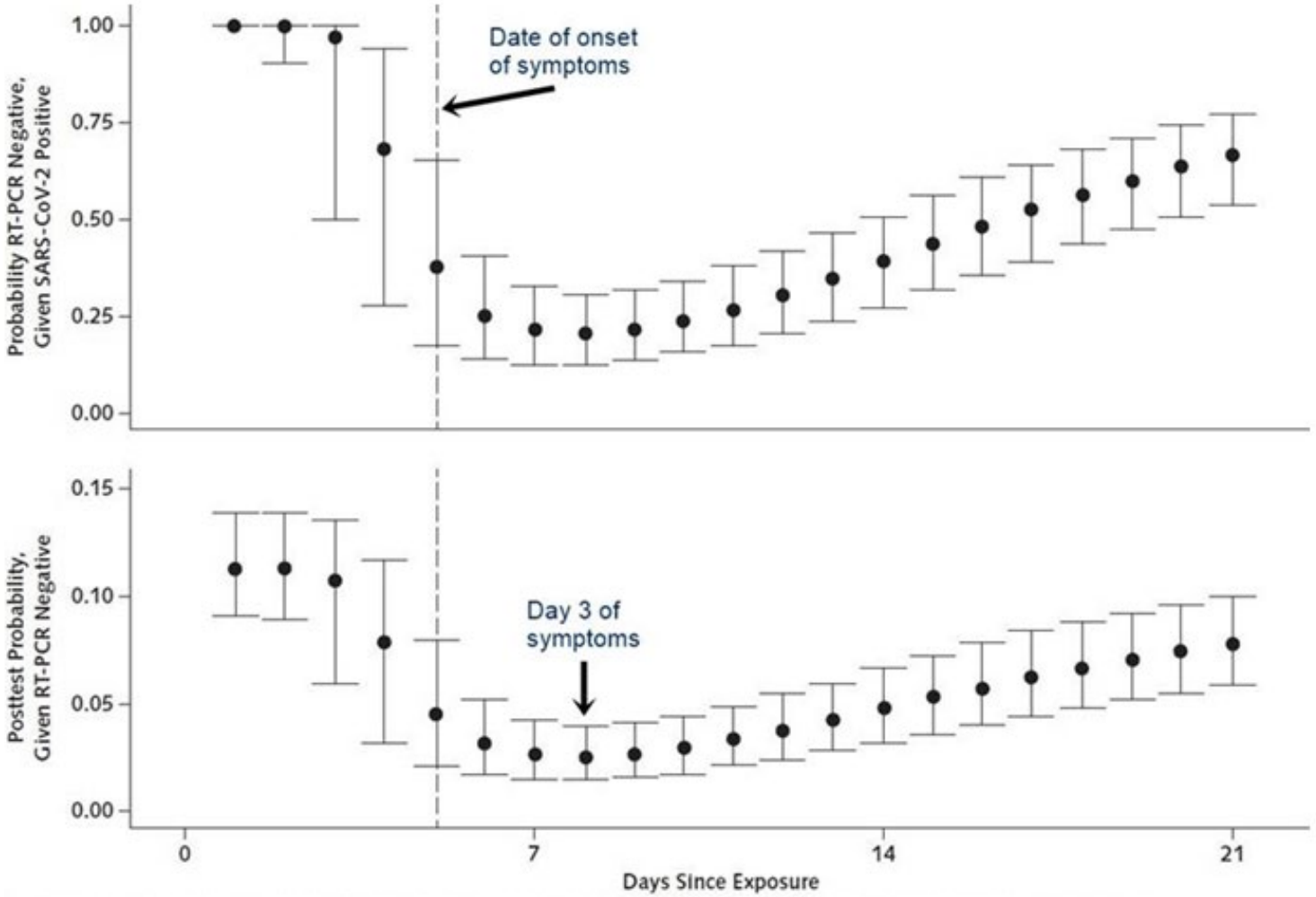
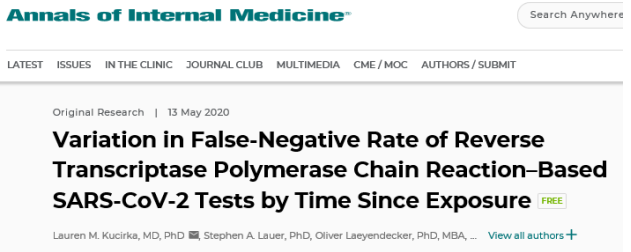


Figure 2. Probability of having a negative RT-PCR test result given SARS-CoV-2 infection (top) and of being infected with SARS-CoV-2 after a negative RT-PCR test result (bottom), by days since exposure.
Ann Int Med 13/5/20 Kucirka et al https://www.acpjournals.org/doi/10.7326/M20-1495#f2-M201495

20% false negative rate at best (Day 3 of symptoms)



PCR performance – false positives

- Do occur, important consideration in our low prevalence setting. Now have a NSW Expert Panel to review when suspected.
- Red flags:
  - No apparent source of infection
  - Weak positives (high Ct)
  - Multiple positives on a single run
- Consider
  - Re-testing the patient (new sample)
  - Whole genome sequencing
  - Serology (at appropriate time)
  - Lab review

Serology

Possible clinical indications include:

- Making a retrospective diagnosis in individuals who have recovered from infection prior to testing
- Cases with PCR results negative or unavailable, but infection highly suspected
- Cases with unexpected positive PCR results (? false-positive)
- Identifying asymptomatic infection, especially in close contacts of cases or healthcare workers

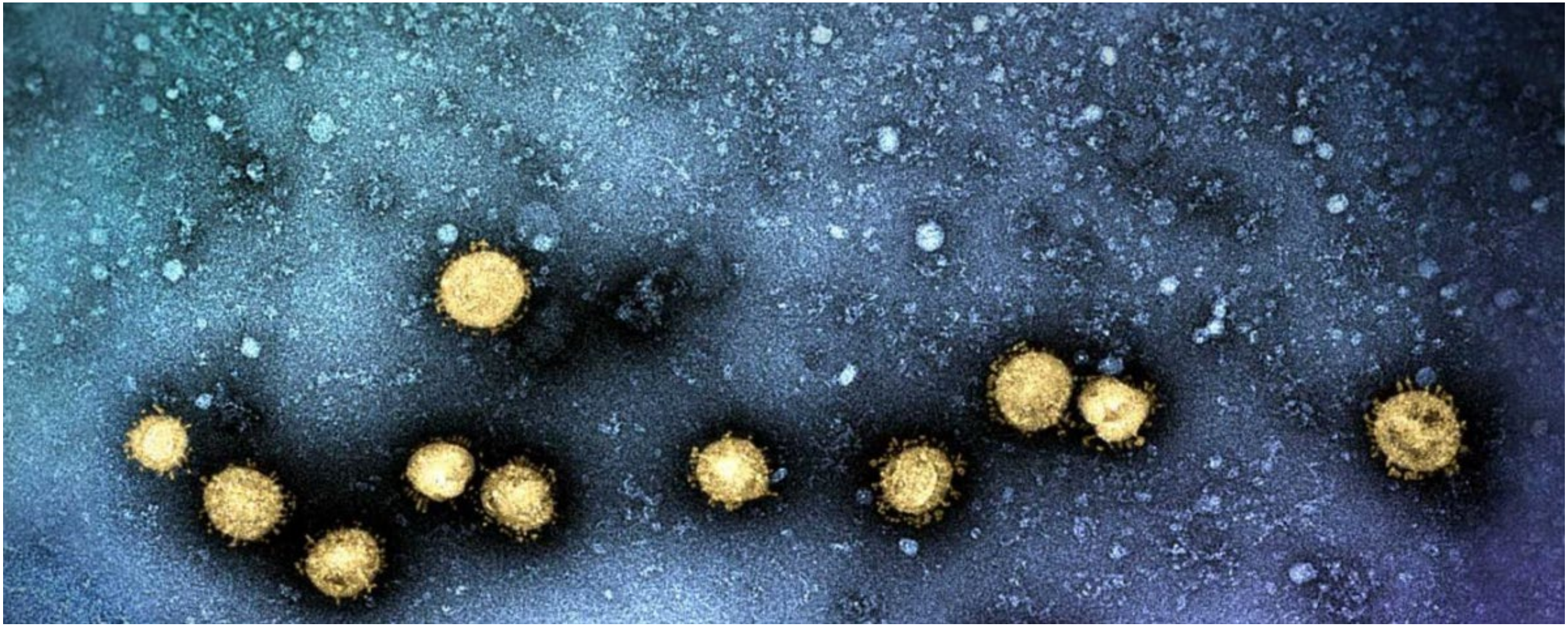
NB. Long-term immunity from COVID-19 remains unknown at this stage, which means the implications of a positive SARS-CoV-2-specific antibody result are difficult to assess. It is not currently known if a positive result means a person is protected from re-infection, or how long any possible immunity might last.

Serology

- Validated serology available from Westmead / ICPMR (IgA, IgM, IgG)
  - Beware point of care testing, TGA approved but very poor performance
- No role in acute diagnosis of infection
- Window period (onset to detectable antibody) av. of 10d, up to 14 days
- Best performance if consider all of IgAMG rather than any one type
- Sensitivity ~ 91% for any of Ig A, M or G pos
- Specificity ~ 98.8% for any of Ig A, M or G (99.9% for all of Ig AMG)
- Sample collected at around 3 weeks from onset has highest proportion positive cases over all of Ig AMG
- Positivity drops for IgA and M from 3 weeks, IgG drops from 5-6 weeks
- Paired sera usually desirable, collect two weeks apart

Asymptomatic infection

- Not uncommon, estimated proportion varies
- Mid-point estimate ~ 16% of all cases (range 6–41%)
- Often actually pre-symptomatic
  - Mild symptoms easily missed
  - HNE review re-assigned 27% of “asymptomatic” as mildly symptomatic
  - Important for establishing infectious period
  - Pre-symptomatic transmission occurs
- Limited role in transmission
  - Secondary attack rate for cases with no / mild / moderate symptoms were 0.3% / 3.0% / 6.0%



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