

Vaccines capped NSW's hospitalisations. It's Victoria's turn next

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26 September 2021

Analysis

The smaller and sooner-than-expected peak in severe COVID-19 infections in NSW should be replicated in Victoria as a result of the vaccines, health experts say.

Tom Burton Government editor

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Health experts say the smaller and sooner-than-expected peak in severe COVID-19 infections in NSW should be replicated in Victoria as better-than-expected vaccine effectiveness pushes against modellers' worst-case scenarios.



COVID-19 hospital admissions in NSW peaked late last week, and ward and intensive care admissions have kept falling. There were 242 COVID-19 patients in ICU at the peak last week, compared to the Burnet Institute's projected peak of 560 in late October.



Victorian public health authorities hope the peak in hospital admissions will mirror NSW and be lower than forecast. *Wayne Taylor*

The NSW case fatality rate, which measures deaths as a percentage of all cases, has more than halved from above 2 per 100 cases in July and August to under 1 per cent.

The effective reproduction (Reff) number, the number of people each person infects, for NSW has dropped to an outbreak low of 0.64, according to the latest official common operating position released late on Friday.

The transmission potential of the virus, which measures the susceptibility to infection and ongoing spread, is also sitting at a low of 0.86, now heavily suppressed by the combined efforts of restrictions and vaccine. It is akin to the Reff, in that a number below one means the virus is fading.

“That’s almost entirely due to the vaccine rollout,” Melbourne University biostatistics professor James McCaw said.

The proportion of eligible adults in NSW who are fully vaccinated has soared from below 20 per cent in July to 60 per cent on Sunday.

“You can see a slow and steady decline in the transmission potential in NSW” over that period, he added.

Professor McCaw leads one of seven academic groups supporting the Doherty Institute’s modelling plan for safe reopening. His team of academic bio-mathematicians provides the common operating data for the Australian Health Protection Principal Committee of chief health officers.

Doherty Institute epidemiologist Professor Jodie McVernon agreed with Professor McCaw.

“We are already seeing case numbers starting to decline in highly vaccinated areas, and that should give us confidence that these vaccines actually work,” she said.

“They provide ongoing protection in a way those other measures [such as health restrictions] don’t.”

Is hardly news, but we can now say confidently *from Australian data* that COVID vaccination PREVENTS DEATHS. The observed reduction in the raw NSW death rate with rising vaccination is huge, approaching a factor of three: pic.twitter.com/45N6JUK5kW

— Gerg (@Gergyl) September 23, 2021



Melbourne University Professor James McCaw says lower cases are almost entirely attributable to high vaccine effectiveness.

Professor McCaw is optimistic the real-world impact of the vaccines in preventing acute reactions to the COVID-19 virus will also be replicated in Victoria.

Victoria will hit its 80 per cent first dose target this week, allowing for some easing of restrictions. That puts the state on track for reopening of businesses in the first week of November, when the proportion of fully vaccinated adults will hit 70 per cent.

Victoria's double vaccination coverage is at 47 per cent. Doherty's modelling predicts vaccine coverage of 50 per cent reduces the delta strain's "native" Reff of about eight by 1.8. The so-called "native" Reff illustrates the rate of infection with no health measures in place.

"I would anticipate that over the coming weeks Victoria's transmission potential will get very close to one if not dropped under one," Professor McCaw said.

Victoria's official common operating picture Reff was down to 0.84 on September 19, but with a range as high as 1.66. Its transmission potential is falling and sitting at 1.14, down from 1.22 at the start of the month.

The @BurnetInstitute modeling for the NSW "Areas of Concern" LGAs was based on a projection of new cases. Here's their first chart (page 2), overlaid with the actual cases (7-day avg) to 23 Sep.

 <https://t.co/k68pcPaQQD> pic.twitter.com/95zR2GGCHI

— Mike Honey   (@Mike_Honey_) September 25, 2021

But it is the far better real-world result in NSW that is starting to give Victorian public health authorities confidence the state's acute care numbers may taper at lower levels than what the Burnet Institute projected.

Burnet suggested Victorian hospitalisations would peak at 1666 in late October and ICU admissions would hit 360.

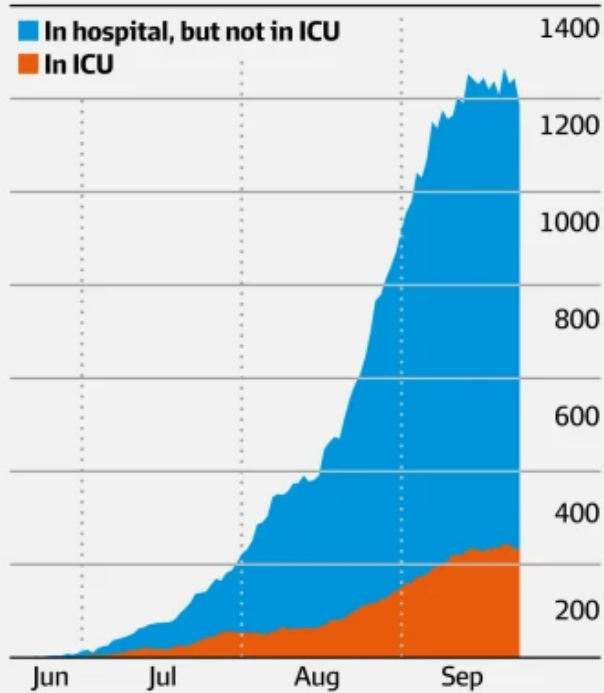
NSW hospitalisation numbers peaked in the past week at 1268 and have been falling, with data analyst Mike Honey predicting they will fall to 1007 by the start of October. Burnet suggested there would be 3000 people in hospitals at the peak in mid to late October.

ICU numbers typically lag cases by about 10 days, but have peaked at 57 per cent lower than Burnet expected and about a month earlier.

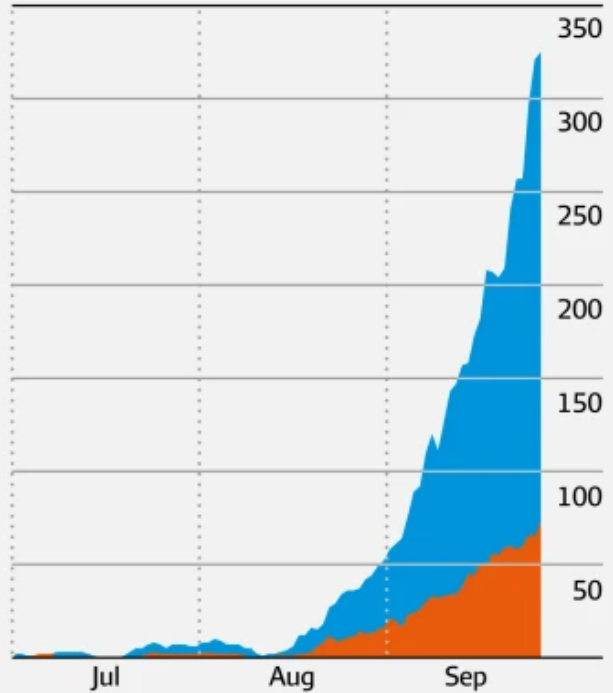
NSW acute cases are now predicted to fall as new infections continue to come off peaks, with Mr Honey suggesting that on current trends there will be 186 cases in ICU wards by October 6.

COVID-19 hospitalisations

NSW

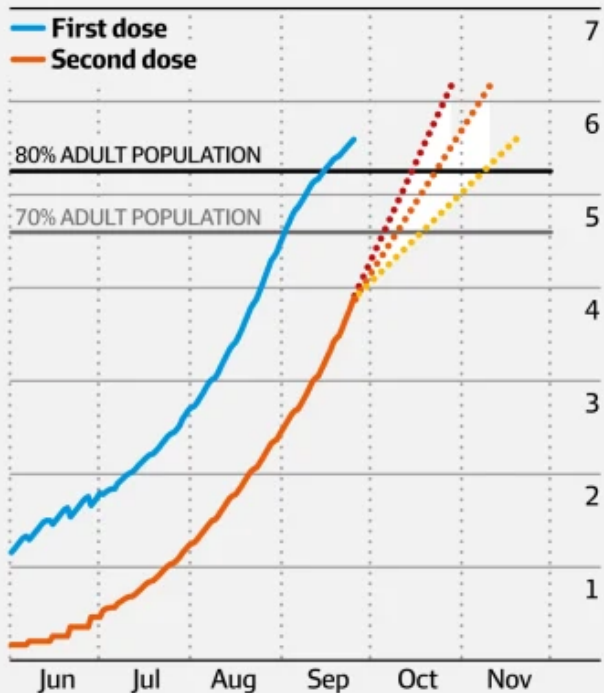


VIC

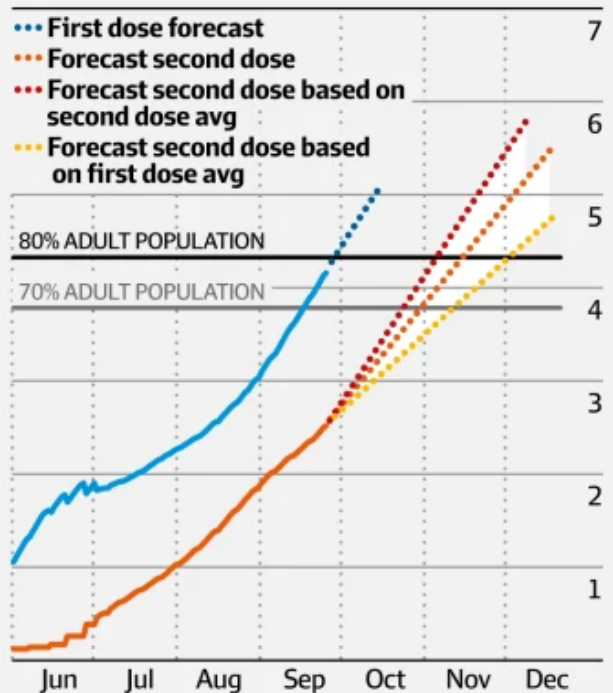


Vaccine targets and forecasts (million)

NSW



VIC



SOURCE: COVID19DATA

Vaccines suppressing transmission

Patients on ventilators seem to have also peaked at 123 cases, with Mr Honey forecasting ventilator use in NSW to be about 93 cases by October 11.

The trends in hospital and acute care are mirroring lower-than-expected cases as a result of vaccine suppression of transmission.

Burnet predicted cases would peak at about 1500 for the council areas of concern in Sydney, but the actual seven-day average peaked at about 1000 cases.

Deaths typically lag cases by about 20 days and should peak around the end of the month. Death rates have been stable at about 1 per cent of cases.

UNSW Kirby Institute Professor Greg Dore attributed the earlier and smaller ICU peak in NSW to the vaccine being more effective than expected since there had been no material change in restrictions.

He also questioned if the delta variant was two times more virulent, as suggested by Canadian research that was noted by the Doherty Institute last week. This research found delta patients are twice as likely as alpha patients to die and one and half times more likely to end up in ICU.

Exit wave predictions

The key variable in the projections is vaccine effectiveness against onward transmission, with Australian and New Zealand models differing over this. The Doherty model assumes a relatively high effectiveness against transmission of about 50 per cent, based on overseas data.

The Melbourne University population interventions unit model and the New Zealand model relied on a more conservative vaccine effectiveness of 25 per cent.

If the same clinical results continue, this could also mean the higher wave peaks predicted for December and January from the end of lockdowns will be lower than projected.

NSW has yet to release modelling of the health impact from this so-called exit wave.



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Burnet has projected Victoria will see 2200 cases across the outbreak and exit with about 770 deaths in January. Hospitalisations will then peak at 4553 in mid-December, after lockdown ends, and ICU will peak a week later at 760 admissions.

Victoria's hospital system is designed to manage 2500 patients and about 450 ICU patients.

These projections appear to be significantly higher than the health impact of delta in comparable jurisdictions where vaccines have been highly effective against hospitalisation and death.

The Burnet modelling suggests Victoria will have three times the cases and more than 10 times the deaths of Denmark, which has a similar population to Melbourne.

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