



Australian Government

Coronavirus  
(COVID-19)

# Update: Modelling the current impact of COVID-19 in Australia

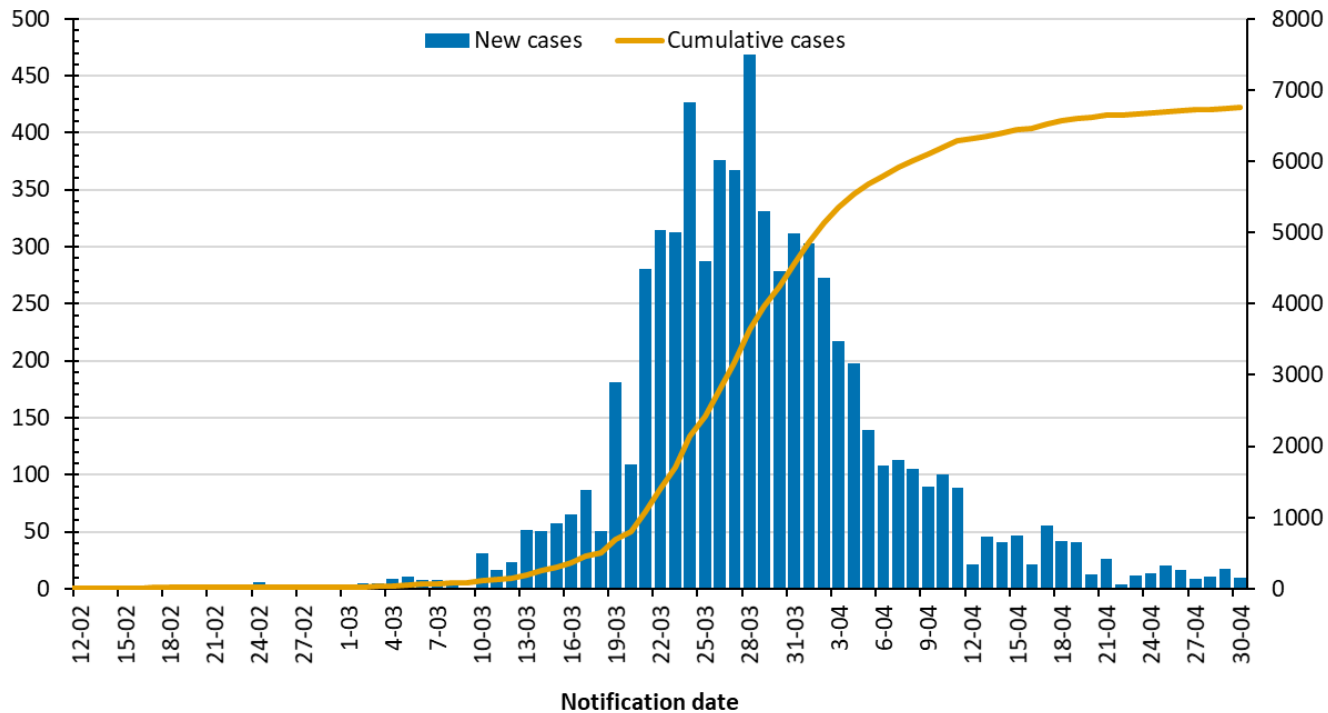
## 1 May 2020



# Where we are now

Coronavirus  
(COVID-19)

new cases      **New and cumulative confirmed COVID-19 cases by notification date**      cumulative cases

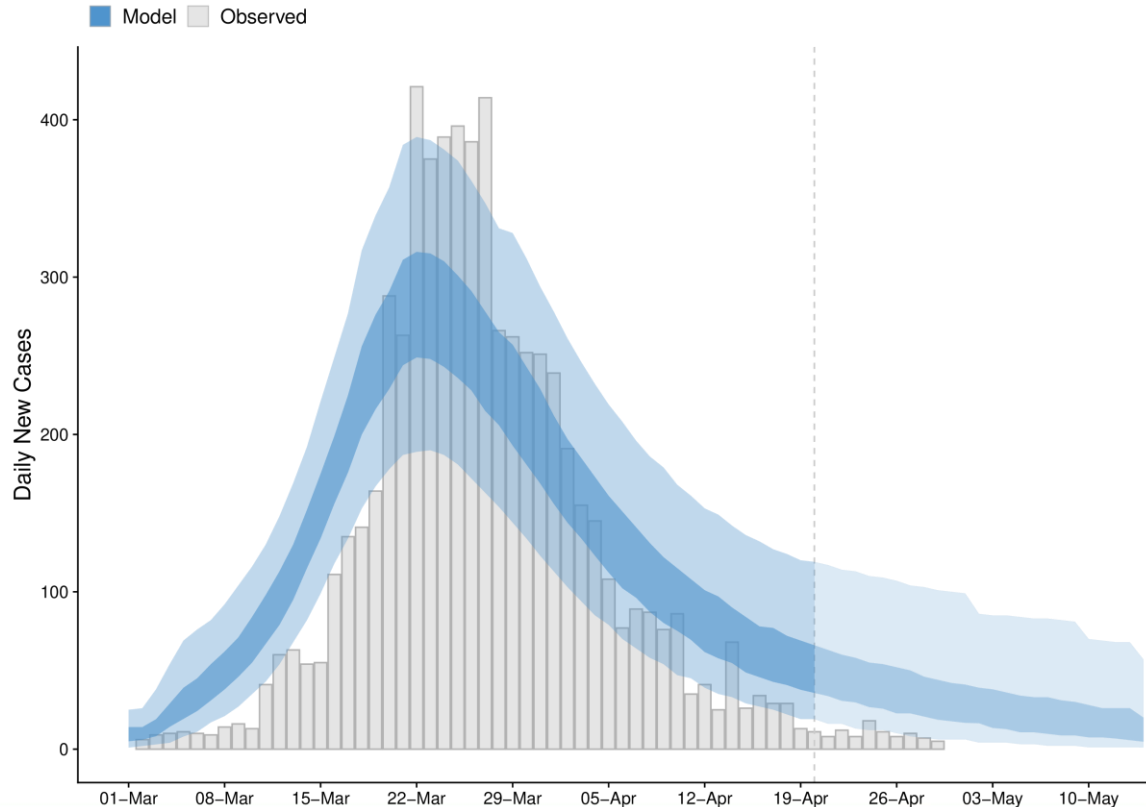


As at 6am, 1 May:  
16 newly confirmed  
cases in last 24 hours

Total number of cases  
continue to flatten

# Forecasting Model

Coronavirus  
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*Figure: Time series of new daily confirmed cases of COVID-19 from 1 March to 29 April (grey bars) overlaid by daily case counts estimated from the forecasting model up to 20 April and projected forward from 21 April to 14 May inclusive.*

Inner shading = 50% confidence intervals  
Outer shading = 95% confidence intervals

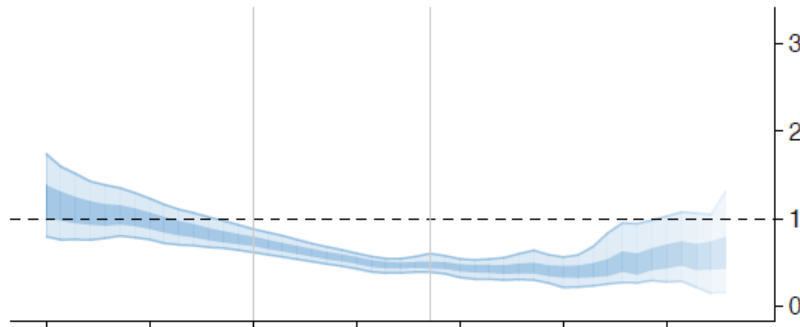
Note that the forecasting analysis includes data up to and including 20 April (indicated by the dashed grey line). The most recent daily confirmed cases are also shown but are subject to possible reporting delays.

With new cases at such low levels for the past week, the forecast is still performed onwards from 21 April.

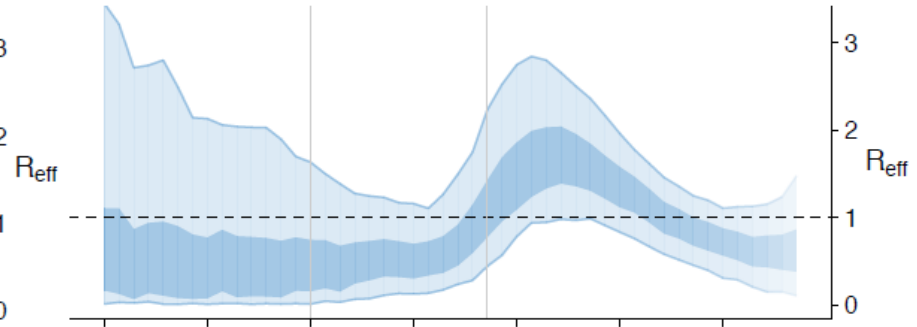
# Estimates of Effective Reproduction Rate Number ( $R_{eff}$ )

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## New South Wales (NSW)



## Tasmania (TAS)



*Figure: Time-varying estimate of the  $R_{eff}$  of COVID-19 up to 16 April for NSW and 17 April for Tas*

- Based on data up to and including 26 April
- All other states excluded due to very low case numbers

Black dotted line in middle = 1.0  
(target value for the  $R_{eff}$  required for control)

Light blue ribbon:  $R_{eff}$  = 90% credible interval  
Dark blue ribbon:  $R_{eff}$  = 50% credible interval

Assumptions – imported cases compared to local:

- Before 15 March = imported cases 20% less infectious
- 15-27 March (voluntary self-quarantine) = imported cases 50% less infectious
- After 27 March (monitored hotel quarantine) = imported cases 99% less infectious

# Adherence to social distancing measures (NSW example)

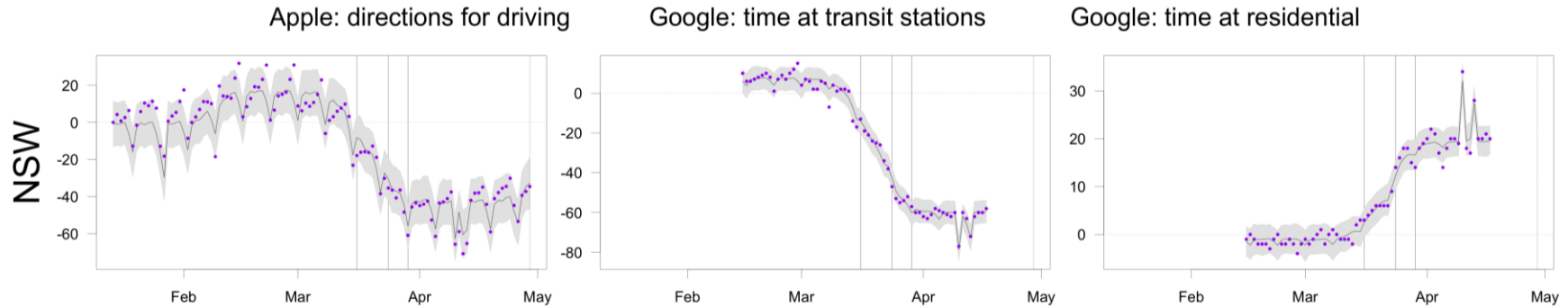


Figure: Percentage change compared to a pre-COVID-19 baseline of three mobility data streams in NSW up to 29 April (Apple; dashed vertical line) and 17 April (Google)

Relating changes in population mobility data streams to changes in  $R_{eff}$  may enable development of early indicators of increased transmission.

Solid vertical lines give dates of three social distancing measures:

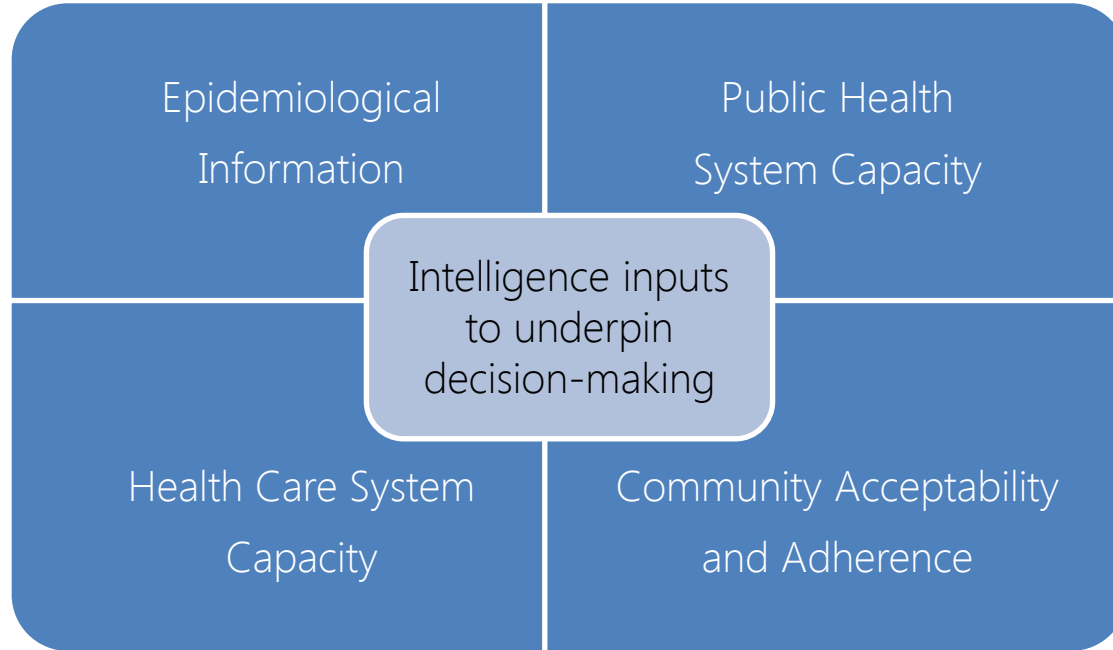
1. restriction of gatherings to 500 people or fewer;
2. closure of bars, restaurants, and cafes;
3. restriction of gatherings to 2 people or fewer.

Blue dots in each panel are data stream values (percentage change on baseline).

Solid lines and grey shaded regions = posterior mean and 95% credible interval estimated by our model of the latent behavioural factors driving each data stream.

# Pandemic Health Intelligence Plan

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