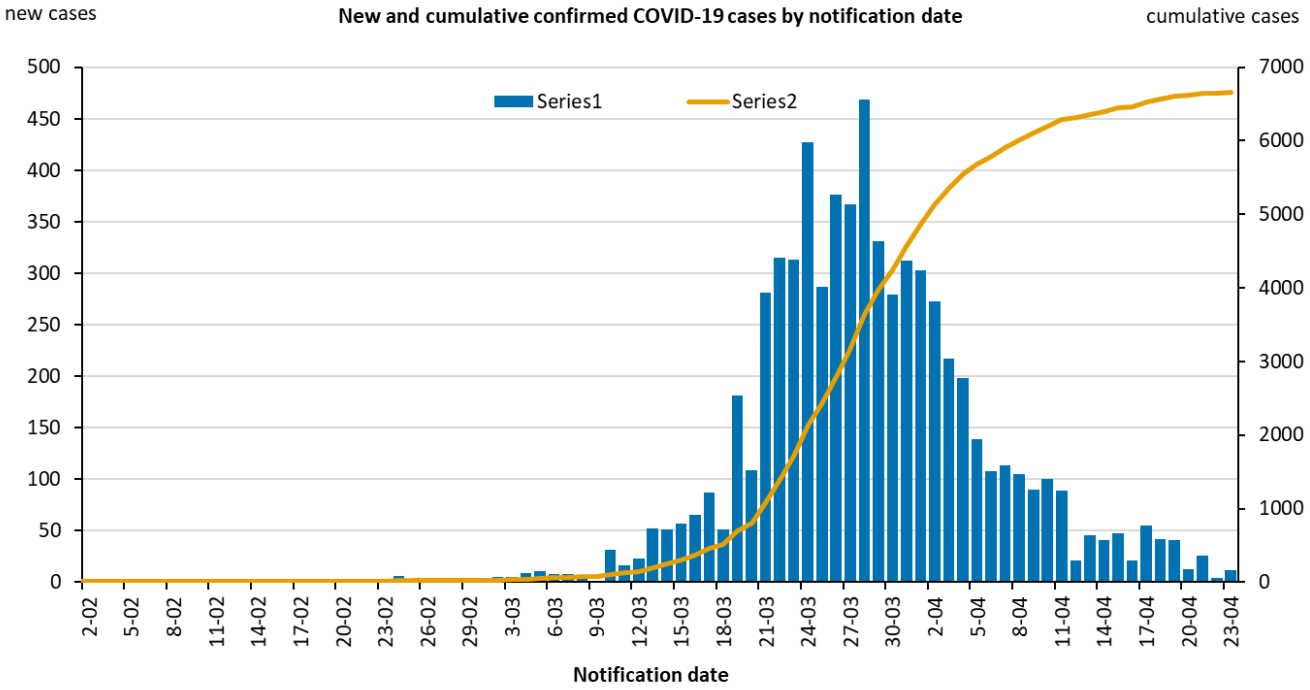
Australian Government

Coronavirus (COVID-19)

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

24 April 2020

Where we are now



As at 6am, 24 April
Number of new cases in last 24 hours = 13

Total number of cases continue to flatten

Estimates of Effective Reproduction Number (R_{eff}) (Previous)

Coronavirus (COVID-19)

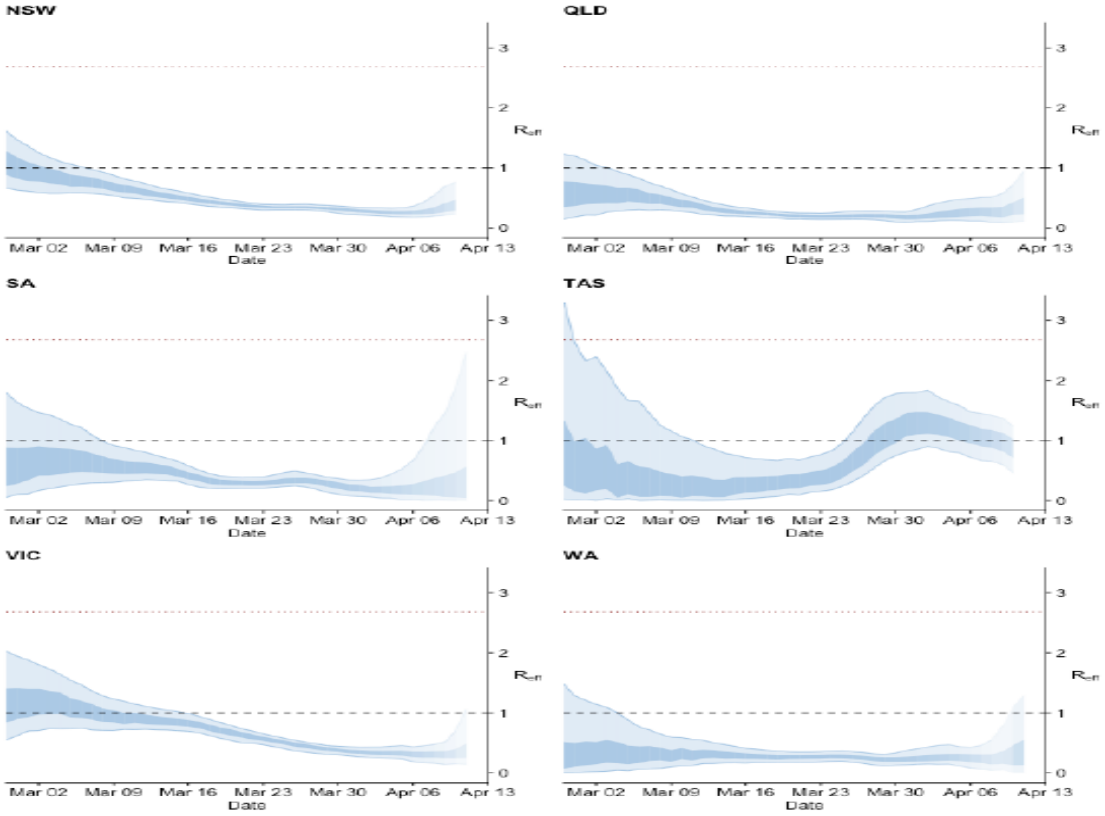


Figure: Time-varying estimate of the Reff of COVID-19 from 1 March to 10 April

- based on data up to and including 20 April, for states with sufficient local transmission (excludes ACT and NT)

Black dotted line = 1 .0
(target value for the R*eff* required for control)

Red dotted line = 2.68
R*eff* for early epidemic phase in Wuhan in absence of public health interventions and assuming the population was completely susceptible to infection

Light blue ribbon: R*eff* = 90% credible interval
Dark blue ribbon: R*eff* = 50% credible interval

Forecasting Model

Coronavirus (COVID-19)

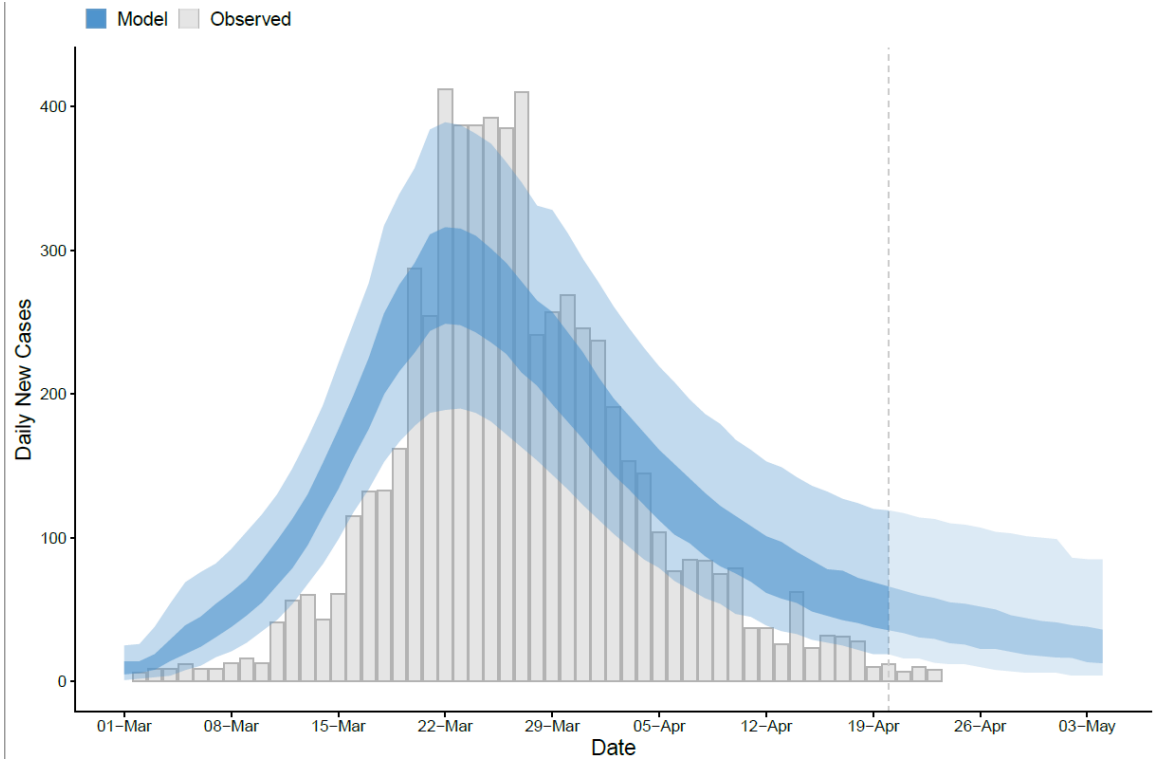


Figure: Time series of new daily confirmed cases of COVID-19 from 1 March to 20 April 2020 (grey bars) overlaid by daily case counts estimated from the forecasting model up to April 20 and projected forward from 21 April to 1 May.

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.

Updated modelling

Coronavirus (COVID-19)

- Updated modelling method to account for improved control measures for returned travellers (assume these are now less infectious than local cases).
- Using data up to 22 April, we can estimate R*eff* up to 10 April – don't know beyond 10 April yet.
- R*eff* remains < 1 except Tasmania (N-W outbreak).
- We can now see impact of distancing measures in March.
- The increasing trend for R*eff* for some states must be watched closely.
- While R*eff* remains <1 we should be CAUTIOUS. If R*eff* creeps above 1, it means increasing case numbers again.

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

Coronavirus (COVID-19)

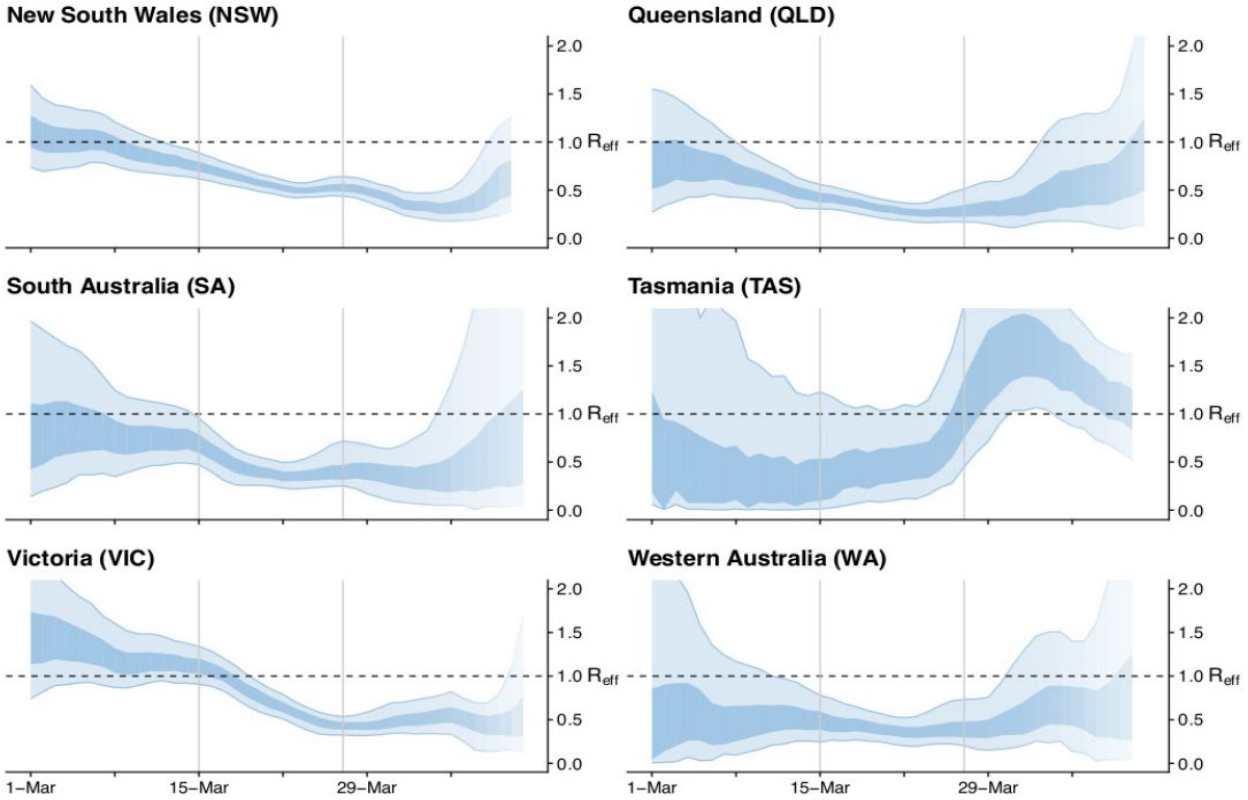


Figure: Sensitivity analysis -Time-varying estimate of the Reff of COVID-19 from 1 March to 10 April

- based on data up to and including 20 April, for states with sufficient local transmission (excludes ACT and NT)

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

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