Australian Government

Coronavirus (COVID-19)

Impact of COVID-19

Theoretical modelling of how the health system can respond

Purpose of modelling

Coronavirus (COVID-19)

- Theoretical scenarios to help plan our responses
- Working with University of Melbourne (Doherty Institute) pandemic modelling team – linked with international experts
- Uses international data, not Australian data

What we are showing today

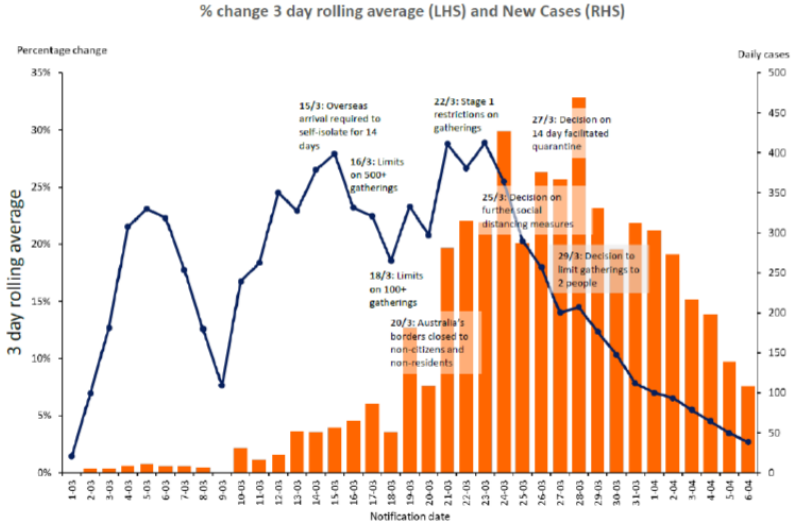
- **Not predictions** of what will actually occur in Australia
- Some early work to be published on health system capacity modelling – with a focus on ICU capacity
- **Capacity modelling** - proof that we have **tools that work** to manage a pandemic
- Also publishing regional risk assessment modelling

Where we are now

Coronavirus (COVID-19)

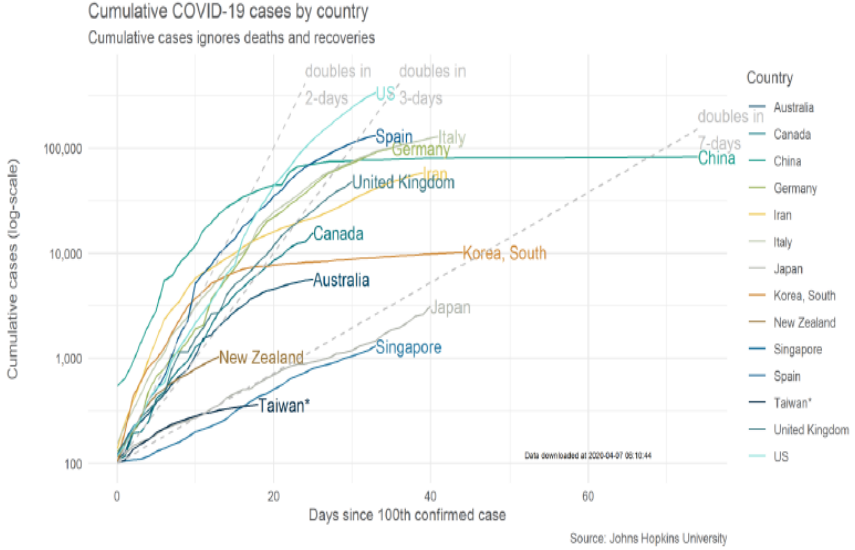
We are flattening the curve

Daily percentage change in confirmed COVID-19 cases by notification date in rolling 3 day averages
As at 1600 6 April 2020 (updated once per day)



Source: Data provided by Department of Health, Date annotations done by PM&C.
Note: Changes in social practices could take a number of days to flow through to reduced case numbers, given the WHO estimate the COVID-19 incubation period to range between 1 to 14 days.

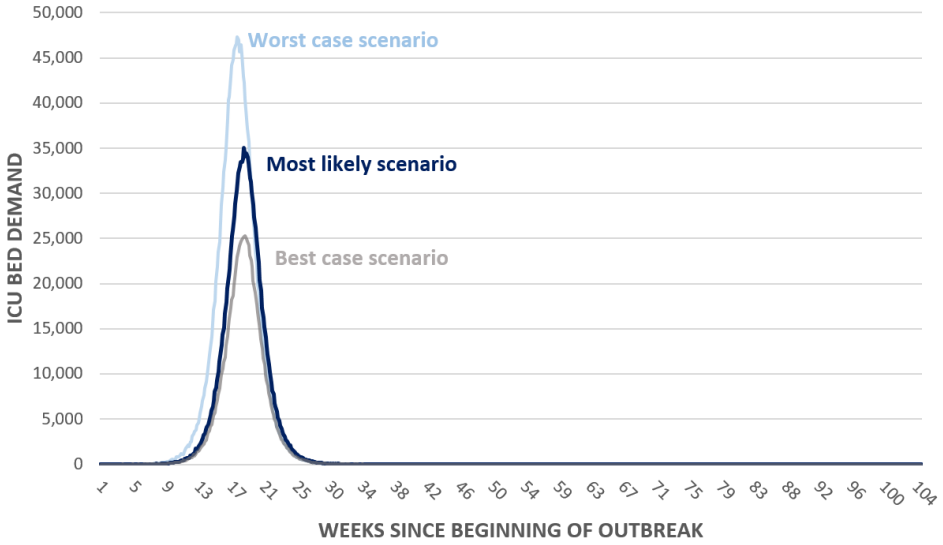
Cumulative cases count – log scale (post-100 cases): as at 0700hrs 7 April 2020



Modelled uncontrolled pandemic

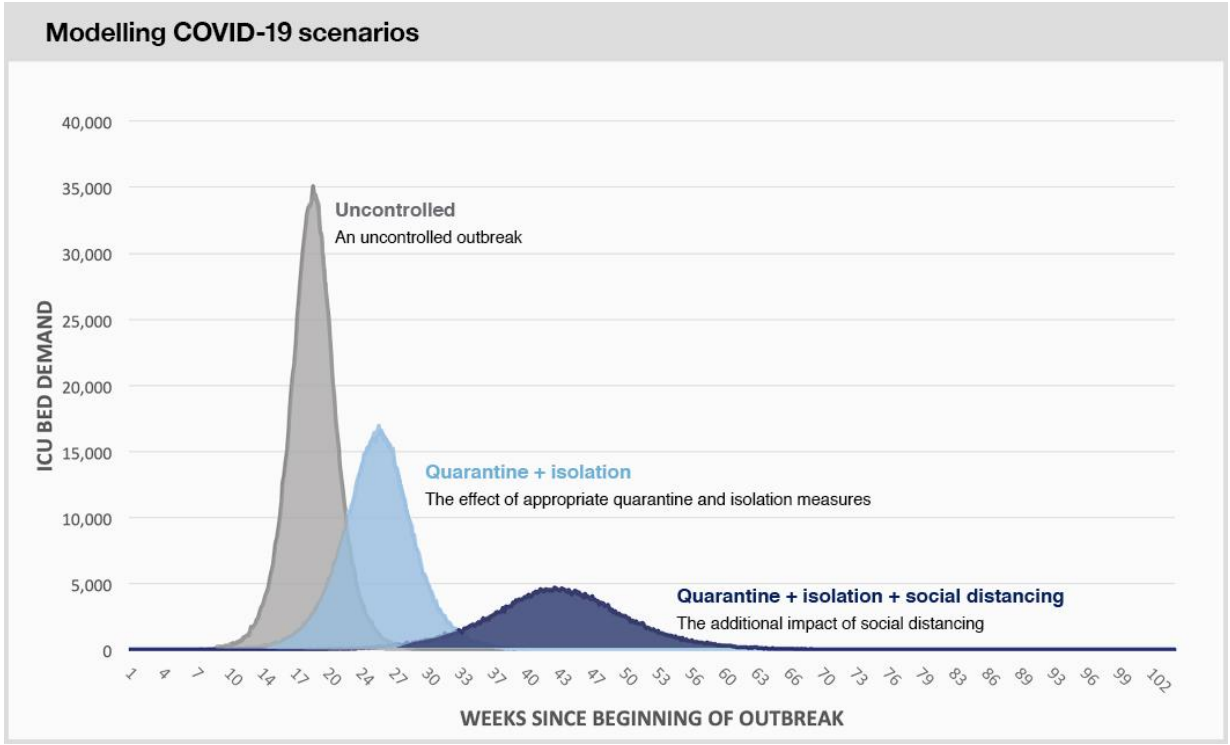
Coronavirus (COVID-19)

Scenario - widespread outbreak at the same time



- Artificial – not a prediction
- Doesn't reflect current state in Australia
- Assumes diffuse infection of 89% (>23 million)
- Impossible to meet ICU capacity

Modelled measures to flatten the curve*



*Not based on Australian case data.

Measures to flatten the curve – modelling comparison

Coronavirus (COVID-19)

	Scenario 1: no mitigation	Scenario 2: quarantine and isolation	Scenario 3: quarantine, isolation and social distancing (25%)	Scenario 4: quarantine, isolation and social distancing (33%)
Infection rate	89.1%	67.5%	37.7%	11.6%
Hospitalisation rate	5.4%	4%	2.2%	0.8%
Proportion who can access ICU beds	15%	30%	80%	100%

More realistic models and plans

- Focus of future modelling is based on real world Australian data
- Focal outbreaks, early indications that we are gaining control.
- Current case rate <0.025%, low ICU utilisation, death rate 0.7%, but ongoing community transmission
- Consideration of other variables:
    - Continued fall in returned travellers
    - Testing and public health capacity to quarantine and isolate
    - Impact of distancing and general hygiene measures
- We know we have tools that work and can scale them as needed – *models help*