

TRACKING THE SPREAD OF COVID-19

SECOND EDITION

ST.GEORGE ECONOMICS

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OVERVIEW

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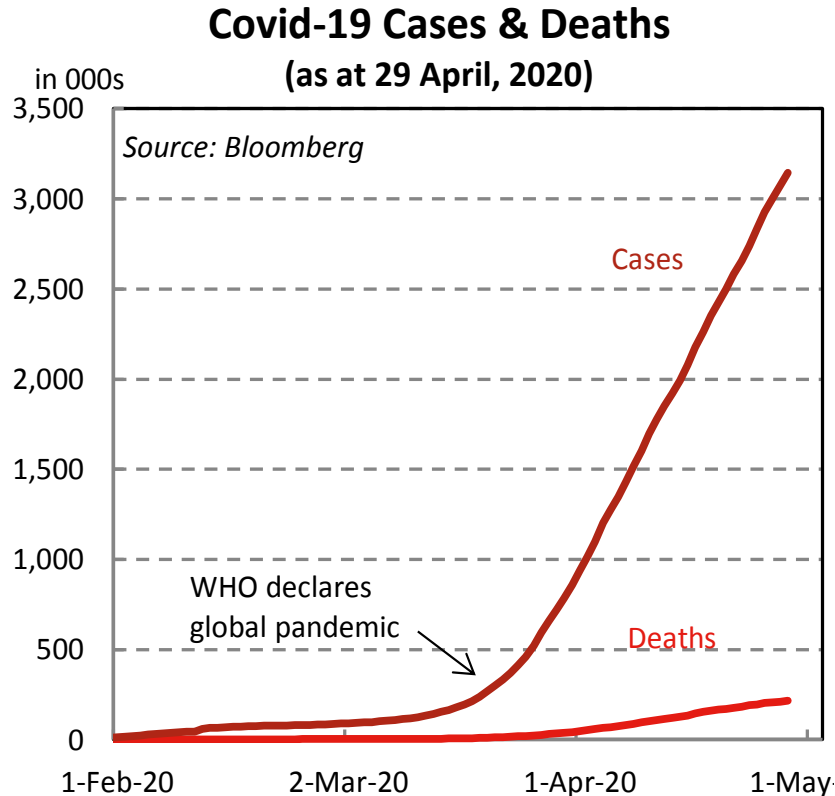
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OVERVIEW

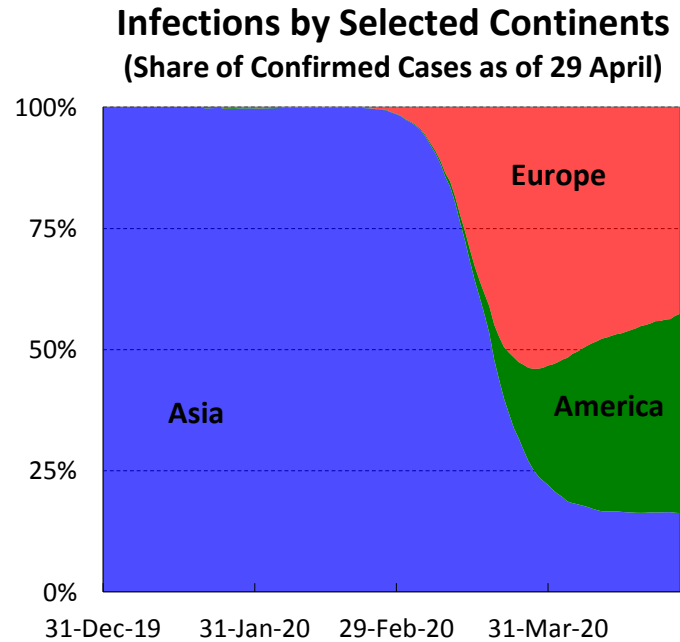
- The disease caused by the novel coronavirus (COVID-19) is spreading at different rates around the world.
- Most countries have implemented some form of containment measures. The level of these measures have varied by country, ranging from social distancing guidelines to widespread, strict lockdown orders.
- There have also been differences in the severity of cases, the quality and preparedness of the healthcare system and the availability of testing.
- Containment measures appear to be effective and are most effective when implemented earlier.
- The experiences of China, Australia and New Zealand show that containment measures are effective when they are very strict, very early, or both.
- However, there have been other approaches adopted. Sweden opted not to introduce strict laws, but instead issued guidelines which it believed would have a better chance of being followed for a longer period.
- Singapore did not implement a lockdown, but introduced a widespread testing regime from an early stage. After initial success, new cases have increased sharply over the past two weeks.
- Australia has so far experienced a much lower fatality rate and a lower rate of contagion than some other countries.
- The flattening of Australia's new daily infections curve has prompted some States to begin gradually relaxing some movement restrictions. The total number of active cases has been falling for some weeks.
- Australia is not aiming for total elimination of the virus, so the unwinding of restrictions could result in some increases in new daily cases and clusters of outbreaks.
- The virus could be part of our lives for some time until a vaccine becomes available.

GLOBAL CONFIRMED COVID-19 CASES AND DEATHS

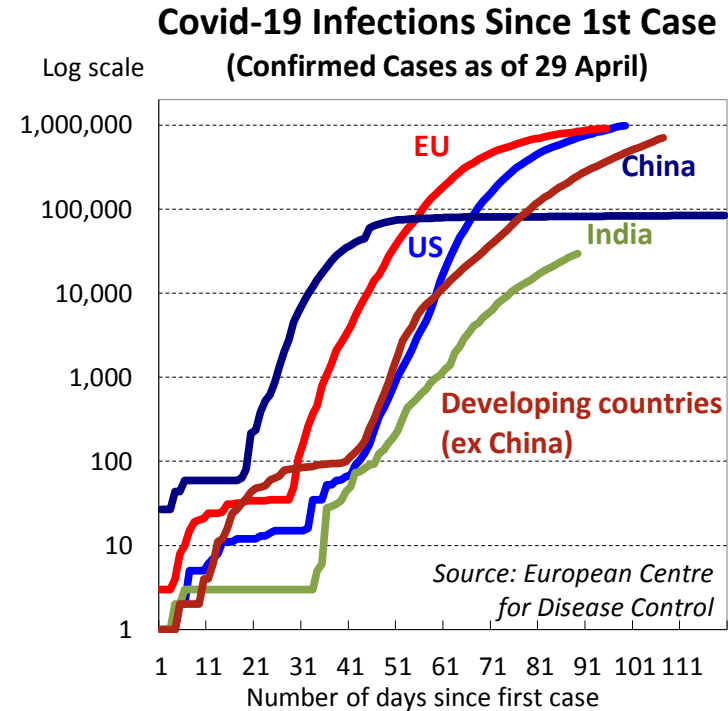


- The disease caused by the novel coronavirus (COVID-19) has spread at an exponential rate.
- The World Health Organisation (WHO) has published reported cases in over 213 countries as of April 28.
- There have been 3,149,179 confirmed cases globally and 217,193 deaths globally as at April 29, according to Bloomberg data that incorporates data from WHO as well as other timely sources.
- Both confirmed cases and deaths are showing an exponential rate of increase.
- Recent data suggest that large outbreaks in the developed world are passing their peaks while there are concerns infection rates are now growing rapidly in the developing world. The problem is that testing might not be as widely available in the poorer countries of the developing world, which means cases might not be visible in the data.
- Some countries that had controlled the first wave of infections are experiencing increased clusters of cases.
- For Australia, data from the Department of Health shows there are 6,738 confirmed infections and 88 deaths from COVID-19 as of 6:30am AEDT on April 29.

DEVELOPING ISSUES



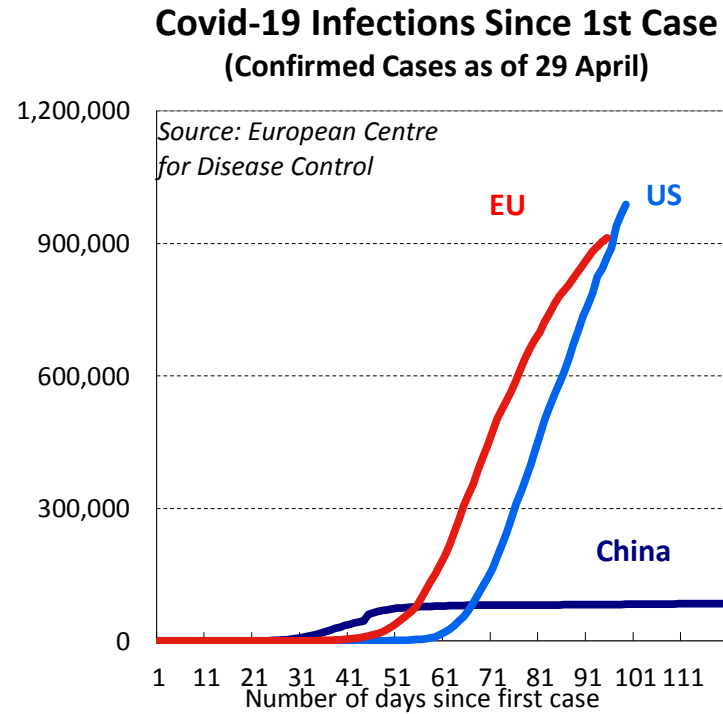
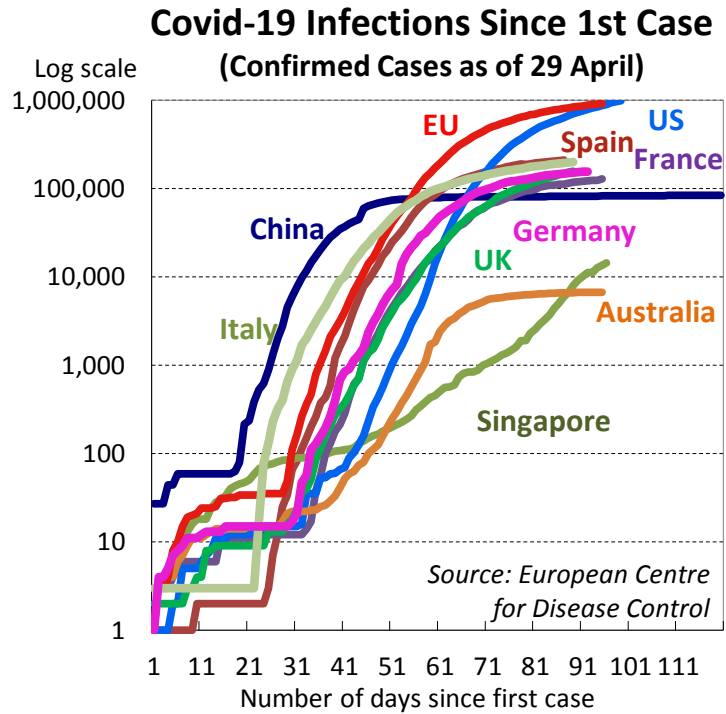
Source: European Centre for Disease Control



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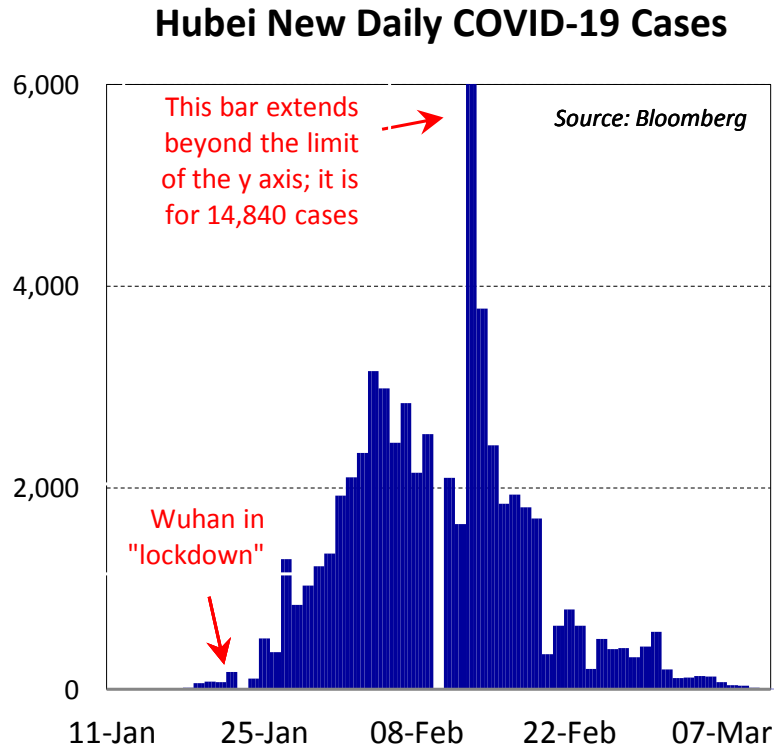
- The first reported cases of COVID-19 were reported in China, however, the disease has spread more widely in the EU and US.
- Recently, there have been signs that cases are ramping up in the developing world, whose healthcare systems and economies are much more vulnerable to a health crisis.

INFECTION RATE – “GO HARD, GO EARLY”



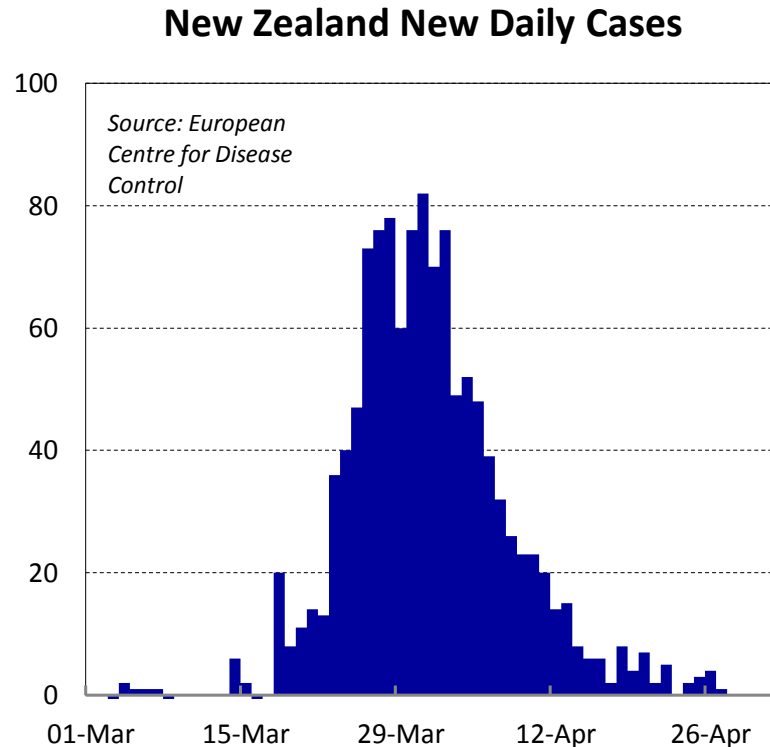
- Countries with stricter containment measures and those that acted sooner have had more success in flattening the curve of the virus. These countries also better managed testing, isolating and tracing. Australia, South Korea, Taiwan, Hong Kong and China are examples of countries that imposed strict social distancing measures and had more aggressive strategies around testing, isolating and tracing. Singapore had initial success by implementing an extensive testing and tracing regime.

CONTAINMENT MEASURES WORK



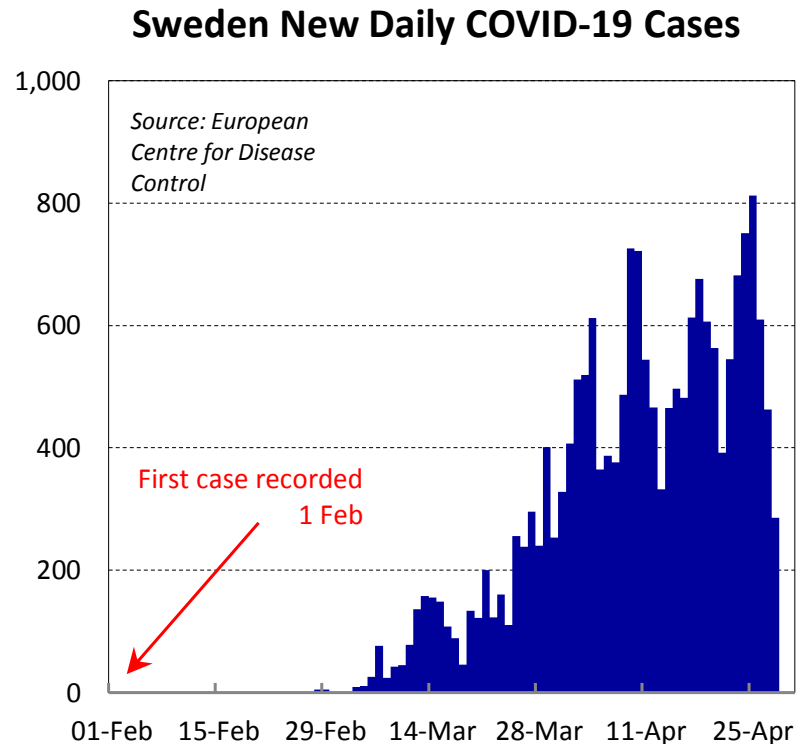
- Wuhan went into a full-scale “lockdown” on January 23, including the suspension of all public transport and flights in and out of the city. The rest of Hubei went into lockdown in a phased, city-by-city approach from January 24.
- Aside from an administrative change causing the number of cases to surge in mid February, Hubei’s daily new infections peaked on February 5, two weeks after lockdown.
- Travel restrictions were lifted in Hubei (excluding Wuhan) on March 24, 60 days after containment measures began.
- Other countries that have implemented relatively early, and strict social distancing measures are now also discussing the removal of lockdowns.
- Germany began the gradual removal of lockdown laws on April 15. The country effectively went into lockdown on March 13 and 14 when 14 of 16 Federal States closed schools and States began widening their measures to limit public activities.

NEW ZEALAND: GOING FOR ELIMINATION



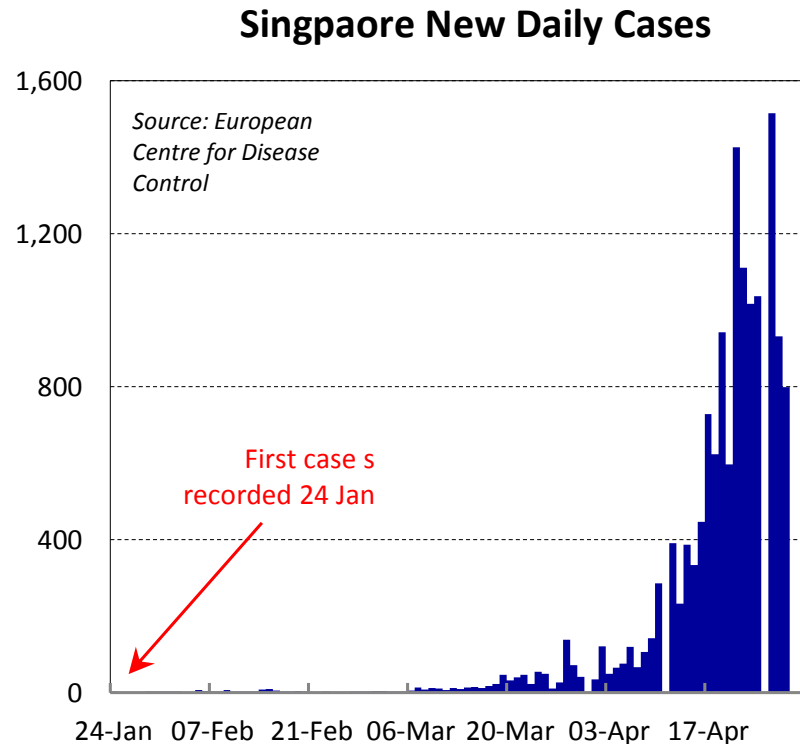
- New Zealand announced self-isolation requirements for new entrants to the country on March 14 and closed its borders to foreigners on March 19. On these dates, there were 6 and 28 confirmed cases, respectively.
- The country went into a “lockdown” on March 23 when it had recorded only 102 cases.
- These policy responses were among the fastest and most strict in countries outside China at the time.
- In addition, authorities launched a comprehensive testing regime. Resulting in the capacity to undertake 8,000 tests per day.
- Despite the relatively stricter measures, New Zealand has recorded similar new cases per capita as Australia between March and mid April.
- The Director-General of Health said on Monday that the country only had 1 case since April 1 where authorities did not know the source of the infection. By comparison, approximately 10% of Australia’s confirmed cases have an unknown source as of April 28.
- Some of the strictest lockdown measures in New Zealand began being unwound on April 28.

BUT NOT EVERY COUNTRY HAS “LOCKED DOWN”



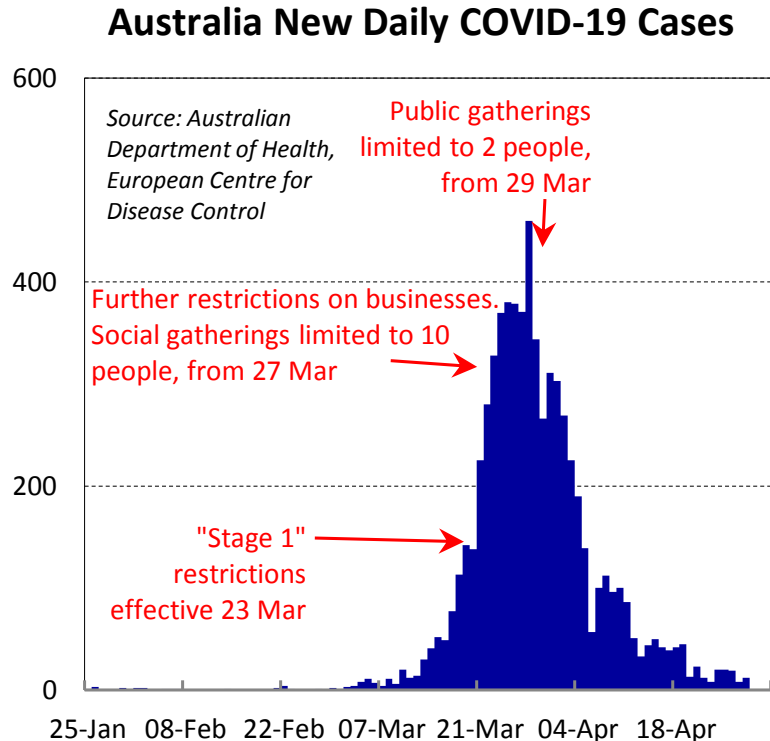
- Sweden had been touted as an outlier among developed nations for its lighter approach to mandatory lockdowns.
- Businesses (including gyms and shops) have been allowed to remain open and children under 16 can still go to school. Gatherings of up to 50 people are permitted.
- However, public health authorities have issued “strong guidelines” requesting that citizens “act responsibly” and abide by social distancing protocols where possible.
- Authorities opted for this model because of Sweden’s relatively high proportion of single-occupant households and the concept that it was more sustainable for the public to follow the more relaxed guidelines than strict laws.
- Sweden’s Deputy Prime Minister clarified that despite the lack of official laws, many Swedes were still following the recommended social-distancing protocols. For example, travel over Easter was 90% lower than in the previous year.
- Sweden has so far recorded the highest number of deaths due to the coronavirus in Scandinavia at 2,274 as of April 28 (Sweden also has the highest population).

SINGAPORE - THE SECOND WAVE



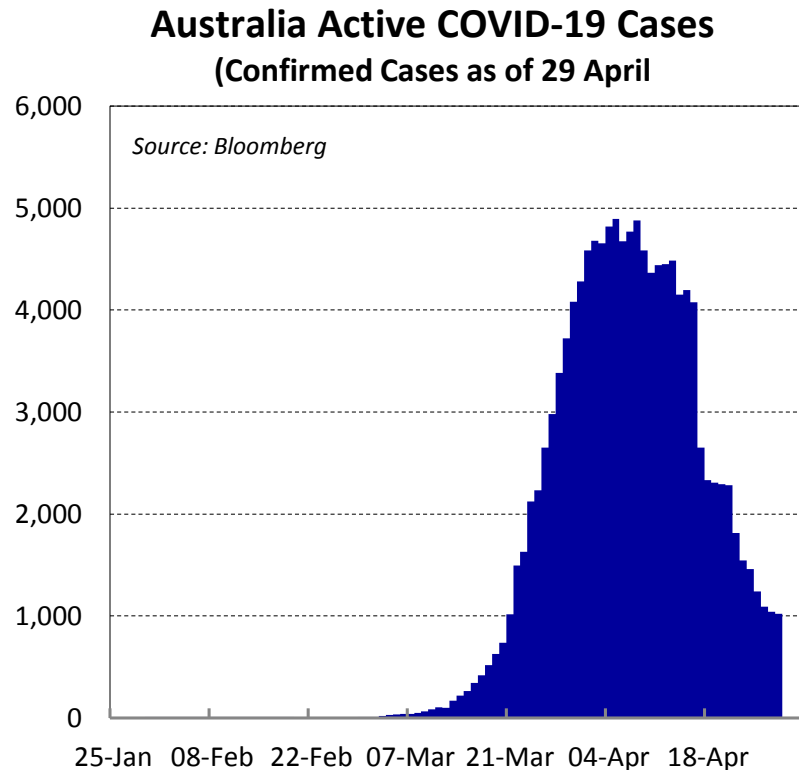
- As an international trade hub and entrepôt to Asia, Singapore recorded its first coronavirus cases relatively early.
- It introduced a rigorous testing and tracing regime shortly following the first recorded cases.
- Strict border screening was implemented, however, there was no implementation of the harsh lockdowns seen in other countries.
- It also introduced a tracing mobile app, similar to the one recently launched in Australia.
- Following a prolonged containment of new cases, an outbreak among migrant workers has caused a significant “second wave”.
- The number of total cases in Singapore has risen to 13,624 as at April 28, leaving it with the highest number of cases in South East Asia. Just 16 days ago, it had recorded a total of confirmed infections less than 2,000.

THE AUSTRALIAN STORY



- Australia's first reported case was on 25 January.
- Total confirmed infections passed 1,000 on 21 March.
- In response to the outbreak there has been a steadily tightening range of containment measures mandated at a State and Federal level.
- The border was closed to non-resident travellers from mainland China on February 1.
- The National Crisis Cabinet was formed on March 13, coinciding with limits of gatherings of more than 500 people except in some circumstances.
- The border was completely closed to non-resident travellers as of 9pm on March 20.
- "Stage 1" restrictions were introduced by the Federal government on March 23, including restrictions on pubs, gyms, restaurants and other facilities. These restrictions were intensified on March 27 and 29.
- Australia also benefits from its geographic isolation and space – it has one of the lowest densities in the Western world.
- The number of daily new cases appears to have peaked in late March. Given Australia is not aiming for the total elimination of the virus, authorities have warned that there may be temporary increases in the number of new daily cases when movement restrictions are gradually relaxed.

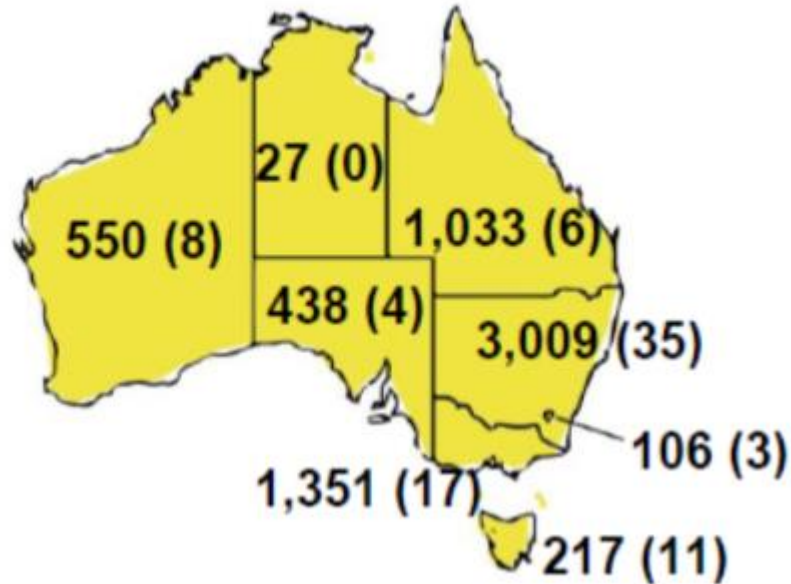
ACTIVE CASES



- Active cases consist of those which are not currently defined as closed (either recovered or where the patient has sadly died).
- They provide a more accurate picture of the current state of the spread of the virus than cumulative cases because cumulative cases include cases that may have already recovered and be back in the community.
- Australia's number of active cases has been falling since reaching a peak of almost 5,000 in late March.
- There were 1,022 active cases as of April 29.
- A declining number of active cases means there is less opportunity for the spread of the virus through the community.
- Active cases can only provide a meaningful measure if statistics on recovered and deceased patients are updated in a timely manner and if testing and tracing protocols are adequate.

AUSTRALIAN STATES & TERRITORIES - INFECTIONS

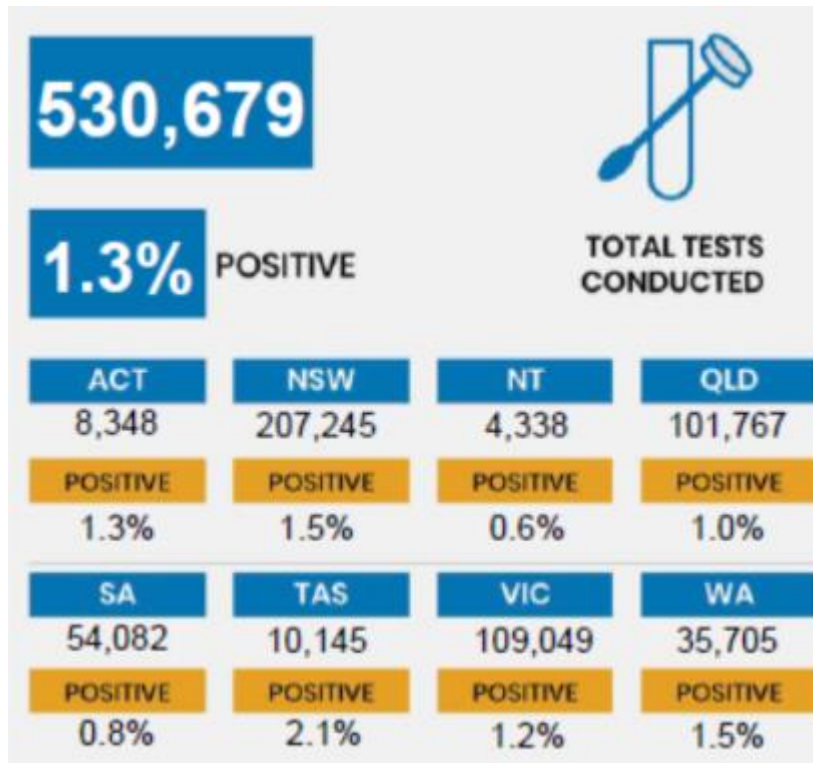
CASES (DEATHS) BY STATE AND TERRITORIES



Source: Department of Health, updated 28 April 2020

- All States and territories in Australia have recorded cases of COVID-19.
- New South Wales has recorded a majority of cases, in line with its status as the main entry point for international arrivals as well as being the most populous State.
- There have been clusters of outbreaks in smaller States and territories, however, these have so far been contained.
- Many large States have responded to the outbreak by closing their borders to non-residents and introducing strict social distancing measures.
- To offset some of the adverse economic impact of the restrictions on movement, economic support has been provided at the State and Federal level for affected businesses and households.

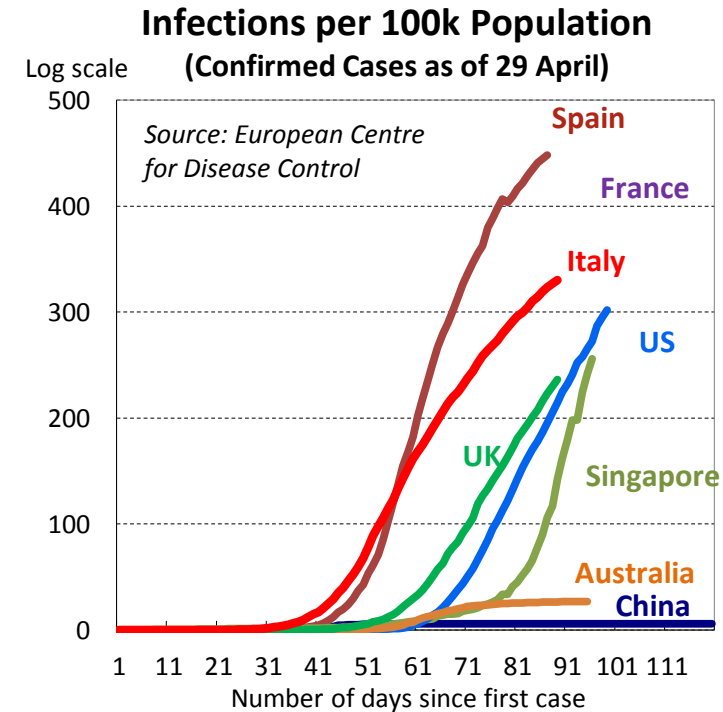
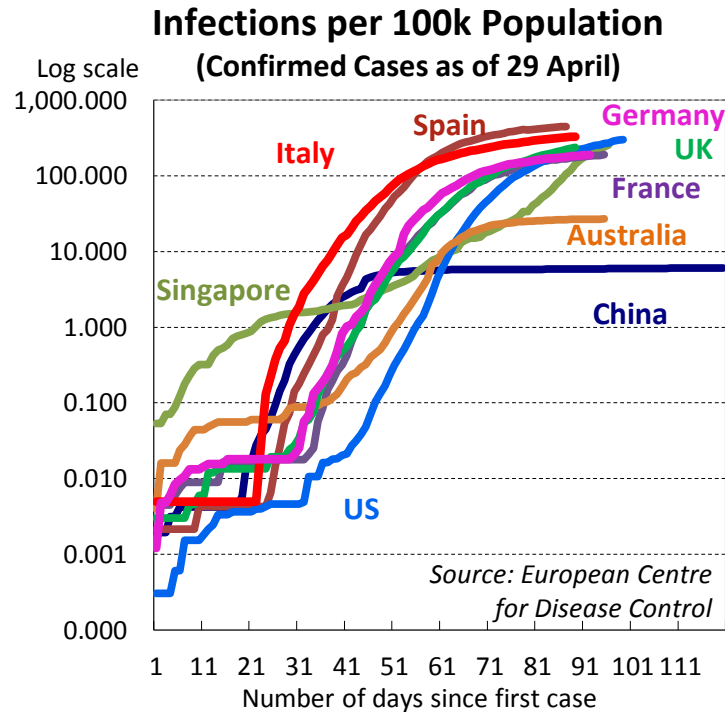
WHAT NOW?



Source: Department of Health, updated 28 April 2020

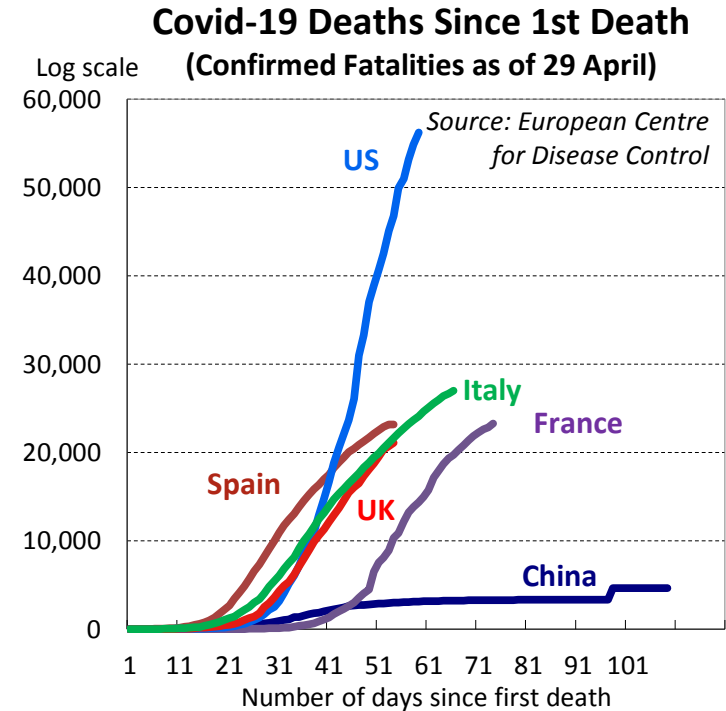
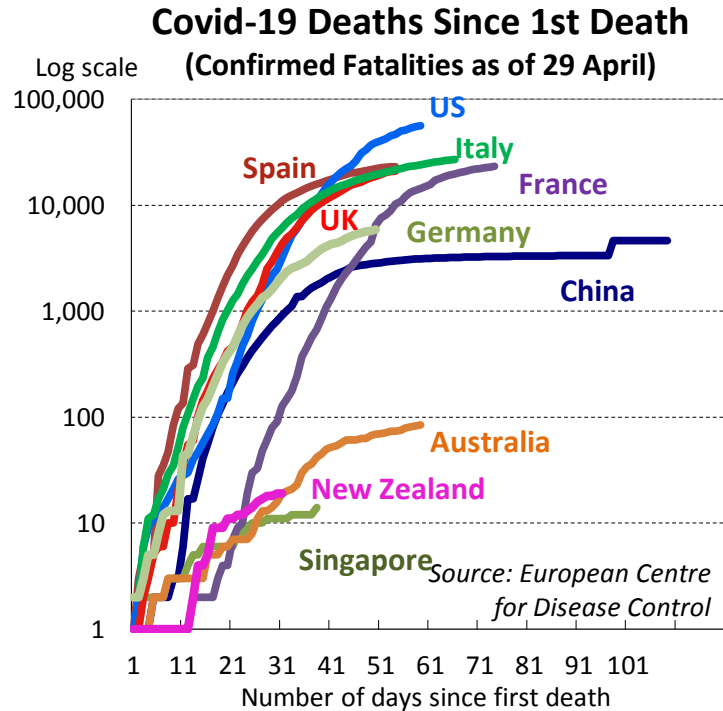
- Prime Minister Scott Morrison said on April 16 that there are three conditions to be met before restrictions can be meaningfully unwound:
 - More extensive testing (not just on suspected cases).
 - Enhanced case tracing (for e.g. the new tracing app).
 - The capability to respond locally to outbreaks (local lockdowns).
- The National Cabinet will review cases over the next few weeks to determine whether or not these conditions have been satisfied.
- QLD and WA have already taken steps to gradually relax some restrictions, including the ability to travel to visit family and WA has allowed auctions to proceed with fewer than 10 participants physically present.
- NSW announced this week it would be slightly relaxing some of its lockdowns from May 1, including allowing visits to family and friends of up to 2 adults and their children.
- Australia is not aiming for total elimination of the virus. New daily cases are likely to pick up and clusters of outbreaks could occur as restrictions are unwound.
- The virus is likely to be part of life for some time until a vaccine becomes available.

INCIDENCE RATES



- The incidence rate is the number of confirmed infections adjusted for the population.
- Adjusted for population, Australia's incidence rate puts it higher than for China, but lower than other parts of Asia, as well both the US and Europe.

FATALITY RATES



- The number of deaths is increasing at a far faster pace in European countries and the US than in China.
- Treatment requires capacity in the healthcare system, so slowing the spread of COVID-19 is critical to ensure there are enough hospital beds available.

FATALITY RATES BY COUNTRY

COVID-19 death rate - selected countries (Reported cases & deaths as of 29 April 2020)					
Country	Confirmed deaths	Confirmed cases	Recovered	Death rate - closed cases (%)	Death rate - confirmed cases (%)
Australia	88	6,740	5,630	1.5	1.3
Italy	27,359	201,505	68,941	28.4	13.6
US	58,365	1,011,600	115,398	33.6	5.8
China	4,633	82,856	77,602	5.6	5.6
South Korea	244	10,752	8,854	2.7	2.3
New Zealand	19	1,472	1,214	1.5	1.3

Source: Bloomberg

Note: Large discrepancies in the death rate calculated using closed cases exist between countries due to testing and data collected by Bloomberg

- The case fatality rate is the ratio of fatalities per closed case over a certain period of time. Differences in testing and tracing between countries, as well as the ongoing nature of the pandemic mean that transparent comparisons between countries is not yet possible.
- Nevertheless, there appears to be a large variance between countries.
- Using reported cases and deaths, Australia's mortality rate is much lower than in many other countries in the developed world.

NOTES ON THE USE OF LOGARITHMIC SCALE

- Please note that some charts in this pack use a log scale.
- A log scale is useful for showing rates of growth.
- In these charts, the distance between each tick on the vertical axis is the same, but number increases by a percentage each time (for example, increasing by 10 times per tick mark).
- This better illuminates data that is growing by an exponential rate, but it makes smaller numbers appear closer to larger ones on the scale. Likewise, what may appear to be a small increase in distance above a large number can actually be significant in absolute terms.

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