

COVID-19 Global Trends & Analyses: June Update 1

Period 23-31 May, 2020

Summary

- Between April 19 and May 8, **South Korea** reported fewer than 20 new daily cases and, on most days, single digit or zero cases. During that period, South Korea looked very much like Australia in recent weeks. Between May 8 and May 17, there was a spike of more than 200 cases linked to Seoul's nightclub district. Since May 27, there has been another, steeper spike of 216 cases in four days, most linked to an e-commerce warehouse near Seoul. The 79 new cases reported on May 28 were the highest for 8 weeks.
- In **Israel**, by May 9, the number of daily new cases was below 20 and remained so until May 27. In four days, Israel has reported 265 new cases. On May 29, 115 new cases were reported, which exceeds the threshold of 100 set by the prime minister in May that could put the country back under lockdown. The Ministry of Health said that the majority of new infections emanated from schools - 7% from middle schools and 35% from high schools. The Jerusalem Municipality announced on May 30 that 104 students, 15 teachers and three parents from the Gymnasia Rehavia School were diagnosed with coronavirus, with an overall infection rate of 18%.

Recommendation: Given the developments in South Korea and Israel and results from agent-based modelling conducted by the Burnet Institute, the Australian government should reconsider its policy of a period of short (i.e. three week) interval between each phase of easing restrictions. The easing of restrictions should not be based on arbitrary dates and instead on based on surveillance indicators (as per the Australian National Disease Surveillance Plan for COVID-19¹) and defined triggers (see Coghlan et al MJA 2020²).

An article by the Outbreak Observatory (hosted by the Johns Hopkins Centre for Health Security) suggests that in monitoring the impact of easing restrictions, health authorities should track **three** early warning indicators: (1) **Percent of tests that are positive**; (2) **Reported cases that are not already identified as contacts of known cases**; and (3) **New hospital admissions**.

- A review of a broad range of surveys around the world found that the proportion of individuals who tested positive for SARS-CoV-2, but who had no symptoms of COVID-19, is consistently high: from approximately 31% to 88%, with a mean of 56%.
 - A number of studies have found that asymptomatic patients have viral loads as high as those with symptoms.
 - A study in Wuhan found that symptomatic patients shed the virus for more than twice as long as asymptomatic patients: 19 days compared to eight.
 - A study in a nursing home in Washington State found that among 76 residents, 48 (63%) had positive RT-PCR results, with 27 (56%) essentially asymptomatic, although symptoms subsequently developed in 24 of these residents (within a median of 4 days) and they were reclassified as pre-symptomatic.
- The global cumulative number of coronavirus cases surpassed 6 million on May 30; on that same day the 125,473 new reported cases was the highest ever.

¹ <https://www.health.gov.au/sites/default/files/documents/2020/05/australian-national-disease-surveillance-plan-for-covid-19.pdf>

² <https://www.mja.com.au/journal/2020/strategic-framework-ease-community-wide-covid-19-suppression-measures>



- Of the new cases reported globally on May 30, 83% came from four geographic regions: the Americas (55%), South Asia (11%), the former Soviet Union (9%) and the Middle East (8%).
- An increasing number of serosurveys are reporting relatively low levels of immunity even in places highly impacted by COVID-19, and nowhere near levels that might confer herd immunity.
- In **Indonesia**, a serosurvey in Surabaya found that 10% of adults had antibodies to the virus. The details of the survey and the test used are not known.
- The Indonesian province of **Papua** that borders with PNG has the second highest per capita attack rate in the country.
- Data from a number of LMICs indicate that **more young people** are being affected by COVID-19 than in Europe, the US and China. In Brazil, 15 percent of deaths have been in people aged less than 50 years — a rate more than 10 times greater than in Italy or Spain. In Mexico, nearly 25% of fatalities have been between 25 and 49 years of age. In India, officials reported this month that nearly half of the dead were younger than 60.

Global trends^{3 4}

- The global cumulative number of coronavirus cases surpassed 6 million on May 30; on that same day the 125,473 new reported cases was the highest ever.
- Of the new cases reported globally on May 30, 83% came from the following geographic regions:
 - 55% in the Americas, led by the US, Brazil, Peru, Chile, Mexico and Canada.
 - 11% in the South Asian countries of India, Pakistan and Bangladesh.
 - 9% in former Soviet Union countries led by Russia, Belarus and Ukraine.
 - 8% in the Middle East, led by Iran, Saudi Arabia, Qatar and UAE.
- For the first time, **Brazil** reported the highest number of new cases (27,388) in the world. On the same day, the US reported 24,096 new cases.
- The country with the highest attack rate in the world (among countries that have reported more than 10,000 cases) is by far **Qatar** (1,921 per 100,000 or almost 2% of the population). Qatar is followed by Bahrain (637 per 100,000), Kuwait (614), Spain (612), Singapore (588), and the US (549).
- The global cumulative case-fatality ratio among reported cases remains at 6%.
- **Australia's** cumulative testing rate has risen to 5,608 per 100,000, which ranks #16 in the world. The highest rate is in UAE (21,631 per 100,000) followed by Bahrain (18,257) and Iceland (17,893).

³ <https://coronavirus.jhu.edu/data/new-cases>

⁴ <https://www.worldometers.info/coronavirus/#countries>



COVID-19 is affecting more young people in low and middle-income countries

In Brazil, 15 percent of deaths have been in people aged less than 50 years — a rate more than 10 times greater than in Italy or Spain⁵. In Rio de Janeiro state, more than two-thirds of hospitalisations are for people younger than 49 years of age. In Mexico, nearly 25% of fatalities have been between 25 and 49 years of age. In India, officials reported this month that nearly half of the dead were younger than 60.

“Young people are dying at a higher rate because they are coming into contact with the virus many times more, because of their working and living conditions,” said Ligia Bahia, a public health professor at the Federal University of Rio de Janeiro. “Doormen are still working. Housekeepers are still working. . . . Their viral load, their exposure, is greater.” This is exacerbated by an overwhelmed public health system.

Indonesia

Indonesia has now reported 25,773 cases and 1,573 deaths. However, its testing rate of 114 per 100,000 continues to be one of the lowest in the world. This compares with 5,608 per 100,000 in Australia. The testing positivity rate is a high 8.4%, compared to 0.5% in Australia.

The virus has spread to all 34 provinces. On May 30, Jakarta recorded 101 new confirmed cases, bringing the total tally to 7,229⁶. Meanwhile, East Java reported 119 new cases, South Kalimantan 74, Papua 56 and South Sulawesi 41. On a per capita basis, Papua province has the second most severe epidemic in the country and has reported 658 cases. This is equivalent to an attack rate of 18 per 100,000 compared with the national rate of 9 per 100,000. Other high burden provinces include South Kalimantan (21.7 per 100,000), South Sulawesi (16.6), and South Sumatra (12.8). Papua's high rate of transmission is a high risk for spread across its border to East Sepik, West Sepik and Western provinces of PNG.

In a disturbing glimpse at what could be advanced transmission, a random sample of 11,555 people in Surabaya, the country's second largest city, found last week that 10 percent of those tested had antibodies for the coronavirus⁷. Yet the entire province of East Java, which includes Surabaya, had 4,313 officially confirmed cases as of Thursday. As described in previous updates, there are concerns about the validity of coronavirus antibody tests. The type of test used in Surabaya and its predictive value positive are not known.

⁵ https://www.washingtonpost.com/world/the_americas/coronavirus-brazil-killing-young-developing-world/2020/05/22/f76d83e8-99e9-11ea-ad79-eef7cd734641_story.html

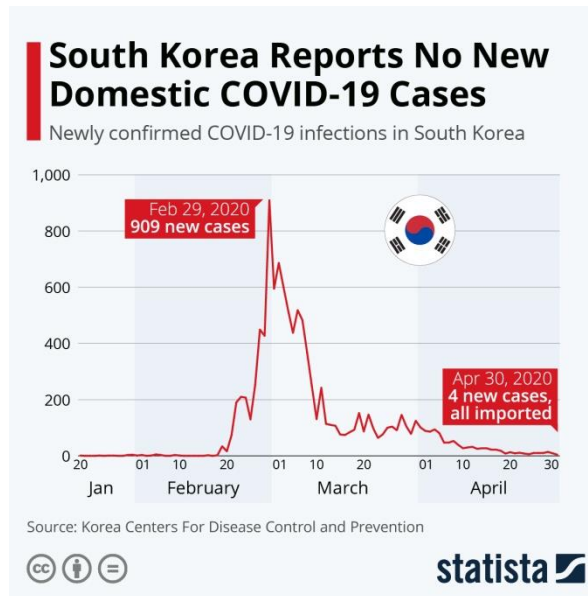
⁶ <https://www.thejakartapost.com/news/2020/03/23/indonesias-latest-covid-19-figures.html>

⁷ <https://www.nytimes.com/2020/05/28/world/asia/indonesia-coronavirus-surge.html>

Observations with policy implications for Australia

South Korea

South Korea successfully managed its initial wave of cases in March through aggressive testing, tracing and quarantine. By April 30, the country reported zero new domestic cases of COVID-19.



Between April 19 and May 8, South Korea reported fewer than 20 new daily cases and, on most days, single digit or zero cases. During that period, South Korea looked very much like Australia in recent weeks. Restrictions had been lifted across the country on May 6. Then between May 8 and May 17, there was a spike of more than 200 cases linked to Seoul's nightclub district. All bars and nightclubs in Seoul were subsequently closed. Since May 27, there has been another, steeper spike of 216 cases in four days, most linked to an e-commerce warehouse near Seoul. The 79 new cases reported on May 28 were the highest for 8 weeks.

The recent rise in cases is affecting the phased reopening of schools, only recently held up as evidence that South Korea, one of the first countries outside China to be affected, had contained the outbreak. More than 200 schools have closed and a further 800 schools that were due to open June 3 have delayed the resumption of classes over virus concerns, the education ministry said this week⁸.

The director of the Korean CDC, Jeong Eun-kyeong, said the country may need to return to social distancing restrictions that were eased in early May, which prompted large numbers of people to congregate at bars and restaurants. Jeong warned that increased activity was making it more difficult for health workers to track transmissions. "The number of people or locations we have to trace are increasing geometrically," she said. "We will do our best to trace contacts and implement preventive measures, but there's a limit to what we can do."

Since the most recent cluster of cases, strict lockdown measures have been re-imposed in Seoul. Museums, parks, and art galleries were all closed again on May 29 for two weeks. Companies are being urged to reintroduce flexible working hours among other measures.

⁸ <https://www.theguardian.com/world/2020/may/28/south-korea-faces-return-to-coronavirus-restrictions-after-spike-in-new-cases>



Israel

Israel was one of the so-called "first movers", along with Australia, New Zealand, Denmark, Greece and Austria⁹. Israel effectively contained its first wave through extensive testing, the controversial use of surveillance technology for tracing, and quarantine. By May 9, the number of daily new cases was below 20 and remained so until May 27. In the four days since, Israel has reported 265 new cases. On May 29, 115 new cases were reported, which exceeds the threshold of 100 set by Prime Minister Benjamin Netanyahu in May that could put the country back under lockdown¹⁰.

On May 4, Netanyahu said that restrictions would be restored if the Health Ministry saw any of the following three scenarios: More than 100 new patients per day; a doubling of the number of patients in 10 days; or 250 patients in a serious condition.

"We had a period of euphoria," outgoing Health Ministry D-G Moshe Bar Siman Tov said. "Now we have received a wake up call."

The Ministry of Health said that the majority of new infections emanated from schools - 7% from middle schools and 35% from high schools. The Jerusalem Municipality announced on May 30 that 104 students, 15 teachers and three parents from the Gymnasia Rehavia School were diagnosed with coronavirus. So far, according to the school, some 700 students and staff members have been tested. This means the infection rate at the school is just over 18%, and by May 31, it is expected that all students and staff members will be screened.

The health and education ministries are now considering the postponement of resuming in-person classes in colleges and universities, informal education programs, post-high school seminaries and yeshivas that were planning to start on May 31. On May 30, The Education Ministry said in total, some 587 students and teachers are in isolation and 17 schools and preschools will not open on Sunday (May 31).

Metrics for relaxing and reimposing restrictions

An article by the Outbreak Observatory (hosted by the Johns Hopkins Centre for Health Security) describes three main categories of metrics to guide the relaxation of restrictions. First, there has to be solid evidence that COVID-19 incidence is stable or declining; Second, there has to be sufficient healthcare capacity to treat COVID-19 patients, now and in the future; and Third, there must be sufficient public health capacities to implement case-based interventions—i.e., the ability to identify and quarantine exposed individuals, test them, isolate those who are infected, and then repeat the process for *their* contacts¹¹.

They propose specific metrics or indicators, and associated thresholds, that can measure longer-term trends in order to demonstrate sustainable health system capacity. Disease surveillance and reporting mechanisms provide data on disease incidence and mortality. Supply inventory and stockpile volume, patient census (including intensive care units [ICUs]), mechanical ventilator inventory, standards of patient care, and facility staffing provide evidence of healthcare system capacity. And testing volume (including percent of tests that are positive) and contact tracing capacity provide insight into public health system capacity. These baseline metrics provide a reliable overview of steady state conditions and longer-term trends of an epidemic that are valuable for making decisions regarding when and how to progress with efforts to ease social distancing.

In considering monitoring the impact of easing restrictions, in light of COVID-19's incubation period (2-14 days), it could potentially take several weeks before increased transmission becomes evident; however, by the time

⁹ <https://www.abc.net.au/news/2020-05-09/coronavirus-lessons-from-first-mover-countries/12230250>

¹⁰ <https://www.jpost.com/breaking-news/coronavirus-update-64-new-cases-284-dead-36-on-ventilators-629628>

¹¹ <https://www.outbreakobservatory.org/outbreakthursday-1/5/7/2020/early-warning-system-for-easing-social-distancing-restrictions>



increasing incidence is identified, transmission would likely already be widespread throughout the community. To mitigate this risk, governments need additional metrics that can provide *early* indication of changing disease trends, which could prompt course correction before widespread community transmission is established.

The "baseline" metrics described above tend to be later indicators of disease spread, but they do not necessarily provide a direct assessment of the current state of transmission that would enable health officials to evaluate in real time whether response is working or not. Monitoring *early warning* metrics could facilitate more timely changes than would be possible using the baseline metrics.

The authors have identified 3 categories of metrics that together could provide this insight, with a greater chance of detecting trends before the baseline metrics.

1. **Percent of tests that are positive.** Any shorter-term deviation from the expected trend in test positivity could signal a change in transmission dynamics that could initially be masked by daily variation in reported incidence. Indications of elevated percent positive tests should signal the need to allocate additional testing capacity to the affected area and expand the testing strategy to look for increased transmission.
2. **Reported cases that are not already identified as contacts of known cases.** If undetected chains of transmission (e.g., involving mild cases or asymptomatic infections) are ongoing in the community, it is impossible to effectively conduct contact tracing for those cases. Additionally, cases may not provide wholly accurate information, deliberately or unintentionally, regarding their contacts.

Therefore, in order to provide more real-time insight into undetected community transmission and into the effectiveness of contract tracing programs, health officials should monitor the percent of reported cases that are *not already* identified as contacts of known cases. It is likely that this value will never be zero; there will probably always be unknown exposures and cases without known epidemiological links. Increases in this value, however, could signal that the efficiency of contact tracing efforts is decreasing.

If contact tracing programs are working well, we would expect to see an increasing percentage of new cases that are already on known contact lists, and ideally are already under quarantine when they are identified as a case.

3. **Daily hospital admissions.** The third metric we should keep a close eye on is daily COVID-19 hospital admissions. Hospital admissions are tracked under hospital patient census for the baseline metrics, but that monitors hospital bed and ICU usage as a way to evaluate capacity to handle a surge in cases. Daily hospital admissions provide a more real-time assessment of the level of transmission in the community. An increase in hospital admissions could potentially be masked by an increase in hospital discharges, if patient census is the only metric utilised.

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