COVID-19 Global Trends & Analyses: June Update 2

Period 1-5 June

Summary

- The **WHO** has received reports of more than 100,000 new cases per day for nine days in a row compared with a daily average of around 80,000 cases in late April and early May.

- **Brazil** has reported the highest number of new cases in the world on seven of the past nine days, including more than 27,000 new cases on each of June 1 and 2.

- In the **United States**, 20 states now have an upward trajectory of new reported cases, up from 17 earlier this week.

- **India** has the seventh highest number of reported cumulative cases in the world.

- **Sweden** has the fifth highest per capita COVID-19 death rate in the world at 45**.**2 per 100,000, ten times higher than neighbouring Norway.

- Studies in the **US and UK** have found much higher COVID-19 associated death rates among Black men and women than other ethnic groups. Also, Indigenous Americans and UK residents of Indian, Bangladeshi and Pakistani ethnic origins have disproportionately high death rates.

- **Afghanistan** has reported more than 17,000 cases and has an attack rate of 44 per 100,000, which is higher than India, Pakistan, Bangladesh, and Indonesia. Other conflict-affected countries, **Yemen** and **South Sudan,** have escalating outbreaks.

- **Israel** has reported 424 more new cases since June 1, including a third day where the number of new cases exceeded the threshold of 100 established by the prime minister as triggering new restrictions. At least 300 students and school employees have tested positive for the coronavirus and 87 kindergartens and schools have been shuttered indefinitely because students or teachers have tested positive.

- **South Korea** has reported 161 new cases since June 1. Of the 402 new cases reported since 27 May, 120 have been related to an e-commerce warehouse near Seoul, 95 from various churches and religious gatherings, 15 related to a real estate agency, and 12 to a life insurance company.
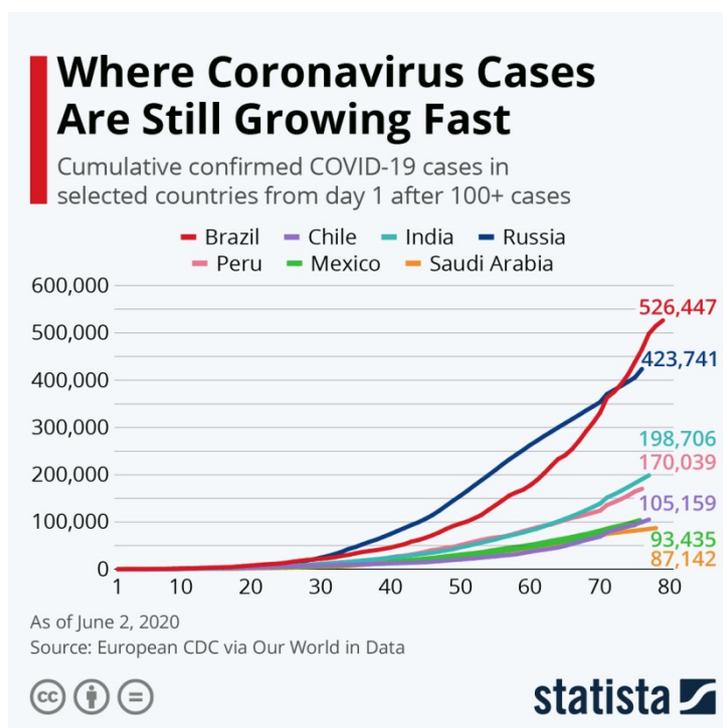
When deciding how and when lockdown restrictions will be lifted (or reimposed), many governments have said the R0 value, denoting how many people on average one infected person will themselves infect, is crucial. But researchers at the London School of Hygiene and Tropical Medicine says another metric is becoming increasingly important: K, the overdispersion parameter[1]

- **K quantifies the variance between the observed data and modelled estimates of R0**. Some infectious people might generate a lot of secondary cases ("superspreaders" or due to the exposure at certain place), for example, and other people may not generate many secondary cases at all. The general rule is that **the smaller the K value** the more transmission comes from a smaller number of infectious people. A K of 0.1 would suggest that the majority of secondary transmission may be caused by a very small fraction of individuals (80% of transmissions are caused by 10% of the total cases)

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[1] Endo A, Abbott S, Kucharski A. Estimating the overdispersion in COVID-19 transmission using outbreak sizes outside China. Wellcome Open Research, 2020. https://wellcomeopenresearch.org/articles/5-67

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Global trends[2] [3]

- The global total of reported cases has reached almost 6.7 million. The WHO has received reports of more than 100,000 cases per day for nine days in a row compared with a daily average of around 80,000 cases in late April and early May.

- Brazil has reported the highest number of new cases in the world on seven of the past nine days, including more than 27,000 new cases on each of June 1 and 2.

- In the US, 20 states now have an upward trajectory of new reported cases, up from 17 earlier this week.

- India now has the seventh highest number of cumulative cases reported at 226,000.

- Health authorities have tested 9.9 million people in Wuhan over the past 19 days and found just 300 to be positive (0.003%), all of whom had no symptoms. The city found no cases among 1,174 close contacts of those who tested positive[4].

- Sweden now has the fifth highest per capita COVID-19 death rate in the world at 45.2 per 100,000, ten times higher than neighbouring Norway. On 3 June, the country reported more deaths than Spain and Italy combined.

Where Coronavirus Cases Are Still Growing Fast

Cumulative confirmed COVID-19 cases in selected countries from day 1 after 100+ cases

Brazil — Chile — India — Russia
Peru — Mexico — Saudi Arabia

Brazil: 526,447
Russia: 423,741
India: 198,706
Peru: 170,039
Chile: 105,159
Mexico: 93,435
Saudi Arabia: 87,142

As of June 2, 2020
Source: European CDC via Our World in Data

statista

[2] https://coronavirus.jhu.edu/data/new-cases

[3] https://www.worldometers.info/coronavirus/#countries

[4] https://www.ksdk.com/amp/article/news/health/coronavirus/wuhan-tests-10-million-people-finds-few-infections/507-363496b8-6935-46f1-a77e-ea0a57a94ae1

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Covid-19 deaths by ethnicity in the US and UK

- A study published by APM Research Lab has found a much higher COVID-19 associated death rate among African Americans than other ethnic groups[5]. Using data from 40 states and the District of Columbia, which disaggregated data by ethnicity, they found the following:
  - One in 1,850 Black Americans has died (or 54.6 deaths per 100,000)
  - One in 4,000 Latino Americans has died (or 24.9 deaths per 100,000)
  - One in 4,200 Asian Americans has died (or 24.3 deaths per 100,000)
  - One in 4,400 White Americans has died (or 22.7 deaths per 100,000)
  - The nationwide death rate in Indigenous Americans could not be estimated due to paucity and variability of data.
  - However, in New Mexico, the Indigenous mortality rate is eight times as high as the White mortality rate. In Arizona, the Indigenous mortality rate is more than five times the rate for all other groups. With 315 Indigenous deaths between them, mostly members of the Navajo Nation, these two states alone account for more than two-thirds of all known Indigenous deaths.

- Black men and women are nearly twice as likely to die with coronavirus as white people in England and Wales, according to the Office for National Statistics (ONS)[6]. People from Indian, Bangladeshi and Pakistani communities also had a significantly higher risk of dying.

  - Taking into account age, location and some measures of deprivation, disadvantage and prior health, it found black people were 90% more likely to die with Covid-19 than white people.

  - Men and women from Indian, Bangladeshi and Pakistani communities had an increased risk of between 30% and 80%, the analysis found.

  - The ONS suggested some ethnic groups may be "over-represented in public-exposing occupations" and so more at risk of being infected while at work.

COVID-19 in conflict-affected populations

Afghanistan

- Afghanistan has reported more than 17,000 cases and 294 deaths. Between 600 and 800 new cases have been reported daily for the past 2 weeks with a test rate of 109 per 100,000, lower than India, Pakistan, Bangladesh and Indonesia.
- Increased movement of Afghans returning from Iran and Pakistan was recorded between March and April 2020. According to the International Organisation for Migration (IOM), more than 271,000 people have returned from Iran and Pakistan since January amidst the fight against the coronavirus pandemic[7].
- More than a third of confirmed coronavirus cases in the Afghan capital have been among doctors and other healthcare staff, according to Ministry of Health officials, in a sign that the war-torn country is struggling to deal with the pandemic[8].

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[5] https://www.apmresearchlab.org/covid/deaths-by-race

[6] https://www.bbc.com/news/uk-52574931

[7] https://economictimes.indiatimes.com/news/international/world-news/afghanistan-could-have-one-of-highest-covid-19-infection-rates-in-world-global-migration-agency/articleshow/75569818.cms?from=mdr

[8] https://www.aljazeera.com/news/2020/05/alarm-large-number-coronavirus-cases-afghan-medics-200507165515729.html

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- Constraints to the response in Afghanistan include a low capacity for testing, with a shortage of trained lab technicians and testing kits. Additionally, socio-economic structures prevent prolonged quarantine away from work.

Yemen

- Yemen has reported 419 cases and 95 deaths (CFR 22%) but its testing rate is the lowest in the world at 0.4 per 100,000.
- The latest projections reveal that in a best-case scenario, there is a strong probability that an estimated 16 million people will be infected, which is more than half of the country's population[9]. According to the UN Office for the Coordination of Humanitarian Affairs (UNOCHA), available resources thus far include 38 COVID-19 isolation units, 4 laboratories with testing capacity, 6,700 testing kits, more than 220,000 pieces of PPE, 154 ventilators and 520 intensive care unit (ICU) beds. However, these are not enough to meet the demand.
- In Yemen's temporary capital Aden, Médecins Sans Frontières (MSF) is running the only dedicated COVID-19 treatment centre in southern Yemen. The deputy director of MSF Yemen reported a case-fatality ratio of 39% (68 out of 173 patients) in the centre during May[10]. This high ratio was said to be due to patients presenting in the late stages of the disease. Government burial statistics also reveal that as many as 80 people have been dying in Aden per day in the past week, up from a pre-outbreak normal of ten.

South Sudan

- South Sudan has reported 1,317 cases and 14 deaths; both figures are probably underestimates. Both vice-presidents and the information minister have tested positive. The testing rate is 30 per 100,000 (compared to 6,020 in Australia). South Sudan has a population of 14 million people, but only four ventilators.
- Restrictions in the country were imposed well before the first case was diagnosed. In March, South Sudan suspended flights to and from countries affected by coronavirus and all schools and universities were suspended for a month.
- The UN's peacekeeping mission in South Sudan, UNMISS, "strongly encouraged" residents in March to leave the overcrowded Protection of Civilians (PoC) sites – a call repeated in May after two cases of the virus emerged in a camp in the capital, Juba[11]. However, conflict around the country – clashes left at least 200 people dead last month in eastern Jonglei state – means many residents don't feel safe going home, while others face returns to occupied properties or towns and villages still in ruins.

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[9] https://www.unocha.org/story/yemen-covid-19-through-eyes-health-care-worker

[10] https://www.sbs.com.au/news/doctors-fighting-the-coronavirus-catastrophe-in-yemen-are-begging-for-un-support

[11] https://www.thenewhumanitarian.org/analysis/2020/06/01/South-Sudan-coronavirus-UNMISS-conflict-peace

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Observations with policy implications for Australia
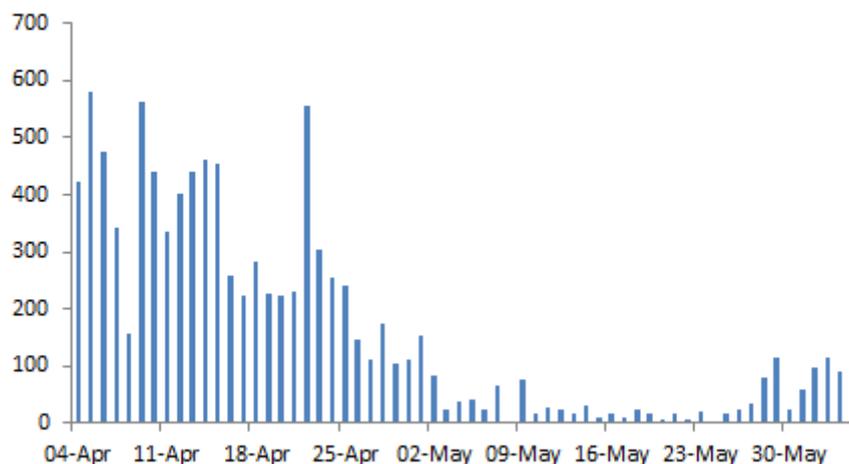
Update on Israel

Israel has reported 424 more new cases since June 1, including a third day where the number of new cases exceeded the threshold of 100 established by the prime minister as triggering new restrictions. The daily test positivity rate has increased from 0.5% one week ago to 2.5%. This is a metric recommended by the Outbreak Observatory at Johns Hopkins Centre for Health Security as an indicator of increased community transmission.

At least 300 students and school employees have tested positive for the coronavirus, according to the Ministry of Education. At least 87 kindergartens and schools have been shuttered indefinitely because students or teachers have tested positive. More than 13,000 students and teachers are in home quarantine by government order[12].

Schools first began to reopen in early May, with classes staggered in smaller groups or "capsules" of students to prevent a wide outbreak. By May 17, limitations on class size were lifted. The most significant outbreak appeared last week in the Gymnasia Rehavia, a historic middle and high school in Jerusalem. There, 116 students and 14 teachers were infected, according to the Ministry of Education, and the school closed.

On Thursday 4 June, the country's parliament, the Knesset closed after one member tested positive.

Daily new coronavirus cases, Israel, April 5 – June 4, 2020

Source: Israeli Ministry of Health

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[12] https://www.haaretz.com/israel-news/.premium-knesset-shuts-down-after-lawmaker-contracts-coronavirus-1.8895921

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Update on South Korea

South Korea has reported 161 new cases since June 1. Of the 402 new cases reported since 27 May, 120 have been related to the e-commerce warehouse near Seoul, 95 from various churches and religious gatherings, 15 related to a real estate agency, and 12 to a life insurance company[13]. All but one of the new cases has been in metropolitan Seoul. Mayors and governors in the greater capital area have shut thousands of nightclubs, hostess bars, karaoke rooms, churches and wedding halls to slow the spread of the virus. The Education Ministry couldn't immediately confirm how many schools had to delay their openings because of virus concerns. But it said that 519 schools so far have been forced to go back to remote learning.

Daily new cases by chain of transmission, South Korea, 1 April – 4 June, 2020

Source: Korea CDC
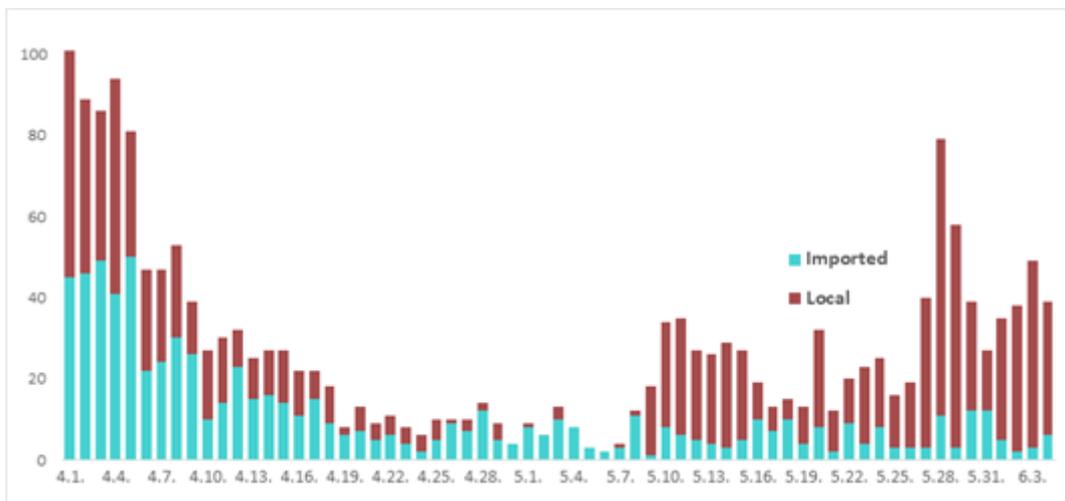
Update on metrics for relaxing and reimposing restrictions

When deciding how and when lockdown restrictions will be lifted, some governments have said the R0 value, denoting how many people on average one infected person will themselves infect, is crucial. But a researcher at the London School of Hygiene and Tropical Medicine (LSHTM) says another metric is becoming increasingly important: K[14].

K sheds light on the variation behind R0. "Some [infectious] people might generate a lot of secondary cases because of the event they attend, for example, and other people may not generate many secondary cases at all," said Dr. Adam Kucharski, an expert in the dynamics of infectious diseases at the LSHTM.

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[13] Korea CDC. https://www.cdc.go.kr/board/board.es?mid=a30402000000&bid=0030

[14] https://www.theguardian.com/world/2020/jun/01/k-number-what-is-coronavirus-metric-crucial-lockdown-eases

"K is the statistical value that tells us how much variation there is in that distribution…the general rule is that <u>the smaller the K value</u>, the more transmission comes from a smaller number of infectious people," said Kucharski.

"Once K is above about five or 10 it tells you most people are generating pretty similar numbers [of secondary cases], you are not getting these super-spreading events. Once K is below one, you have got the potential for super-spreading.". The distribution in transmission changes with addition or removal of control measures. Relaxation of lockdown can decrease the K and Increase the R as the chance for one Infection to spread Increases.

"It is unlikely that with lockdown measures in place you'd see a lot of super-spreading events simply because there aren't any opportunities for them," said Kucharski. "So if you were to analyse that data, you'd probably calculate a different K value because you have got those control measures changing the dynamics of interactions."

In the absence of public health measures, "the values that are coming out for Covid-19 seems to be between about 0.1 and 0.5," said Kucharski. That, he says, means that in the early stages of an outbreak about 10-20% of infections probably generate about 80% of the transmission.

Knowing the K value helps to inform what sort of public health measures may help to reduce R.

"If we can identify and reduce the situations that are disproportionately driving transmission, then that suggests that we could actually have potentially quite a lot less disruptive measures in place, but still keep the reproduction number low," said Kucharski.

But it could also be important for test-and-trace measures, he said. "If cases occur at random, it's very hard to track down and stop every chain of transmission. But if cases cluster together, and we can identify those clusters, testing and tracing directed at these situations could have a disproportionate effect on reducing transmission."

Authors

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