COVID-19 Global Trends and Analyses

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SUMMARY

COVID-19 GLOBAL TRENDS AND ANALYSES | 28 Mar – 30 Apr 2021

- The **global total** number of reported cases is 153 million and 3.2 million deaths. Cases are surging in every region, especially in Asia where almost every country is experiencing second, third and fourth waves. Cases are also surging in Latin America, Canada and North Africa. The standout exceptions to the upward global trend are the US, UK and Israel, where cases are in decline. All three countries have achieved high vaccination coverage rates.
- The **global seven-day rolling average** of daily global cases has risen from 361,000 on 19 February to 830,000 on 30 April, a greater than 100 per cent increase. While lagging behind cases, the seven-day average of daily deaths has increased from 8,294 on 12 March to 13,457 on 29 April.
- There is a downward trend in many **European** countries, most clearly in the UK. In addition, cases are declining in France, Russia, Italy, Poland, Ukraine, Czech Republic and Sweden. Portugal has reached fewer than 500 new daily cases. However, cases continue to increase in Germany, the Netherlands and Turkey, which has just instituted its first national lockdown.
- In the **US**, new daily cases have declined by 27 per cent during the past two weeks. Hospitalisations and deaths are also in decline. In **Canada**, the third wave seven-day rolling average has peaked at 8,767 cases a day, equivalent to its second wave peak. However, deaths have peaked at 50 per day compared with more than 160 during the second wave.
- The rate of new daily cases is soaring in many Latin American countries, especially in **South America**. While Brazil has the highest new case and death numbers, Uruguay, once lauded as a model for keeping the coronavirus under control, now has one of the highest death rates in the world. Daily tallies of deaths have reached new records in Argentina, Brazil, Colombia and Peru in recent days. Despite a high vaccination rate, **Chile** is experiencing a severe third wave.
- There have been more than 4,536,000 cases and 121,000 deaths reported in the **African continent**. Of the total cases, two million have been reported in Southern Africa, 1.4 million in North Africa, 601,000 in East Africa, 458,000 in West Africa and 154,000 in Central Africa. New cases have declined in most sub-Saharan African countries, including South Africa; however, cases are surging in Egypt, Tunisia, Kenya, Ethiopia and Cameroon.
- In the **Middle East**, cases have decreased steeply in Israel. In neighbouring West Bank and Gaza, new cases are also declining but remain at around 1,000 per day. Cases continue to surge in Iran, Iraq, Kuwait, Bahrain, and to a lesser extent Qatar and Saudi Arabia. Cases are declining in Jordan, Lebanon and the UAE.
- While **India** is experiencing the largest outbreak of any country in the world during the pandemic, almost every other country in Asia is in the midst of massive surges. In **South Asia**, Sri Lanka, Nepal, Pakistan and Bangladesh are having severe third waves. In **East and Southeast Asia**, Thailand, Malaysia, Cambodia, Mongolia and the Philippines are also experiencing severe second or third waves. Cambodia was basically spared from coronavirus transmission until February 2021 and is now in a national lockdown. Japan and South Korea are having fourth waves. In Asia, **only Singapore, Laos, Vietnam, China and Taiwan** are currently reporting low numbers of cases.

SUMMARY

COVID-19 GLOBAL TRENDS AND ANALYSES | 28 Mar – 30 Apr 2021

- In the Pacific region, **Timor-Leste** is reporting steadily increasing daily cases. **Papua New Guinea** is reporting a decline in daily cases but given the low rate of testing, it's not clear what exactly is happening. **Fiji** is experiencing community transmission for the first time in 12 months and most of the country is in lockdown.
- **Australia** has recorded few community cases during 2021. However, the number of cases in hotel quarantine has been increasing rapidly. Currently, there are 295 active COVID-19 cases in Australia, all but five in hotel quarantine. The main defence against reintroduction of the coronavirus into Australia is the quarantine system. However, there is no national standard and there are major differences in the way states and territories are implementing hotel quarantine. Since November, there have been 17 separate leaks in the five mainland state capital cities. On average, one in 106 infected returned travellers has led to a leak from hotel quarantine.

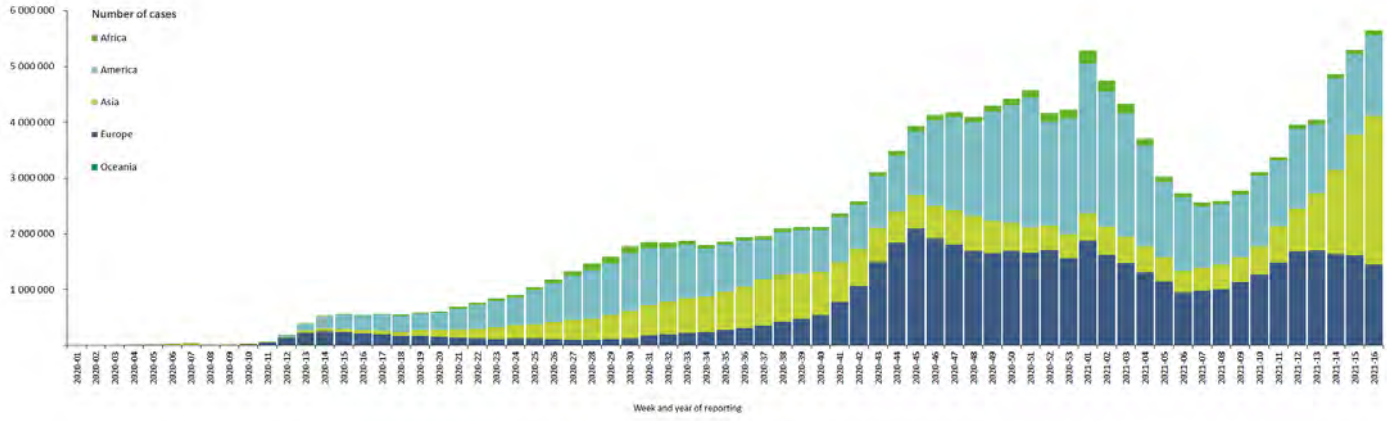
GLOBAL EPIDEMIOLOGY AND TRENDS

The global total number of reported cases is 153 million and 3.2 million deaths. Cases are surging in every region, especially in Asia, where almost every country is experiencing second, third and fourth waves. Cases are also surging in Latin America, Canada and North Africa. The standout exceptions to the upward global trend are the US, UK and Israel, where cases are in decline. All three countries have achieved high vaccination coverage rates.

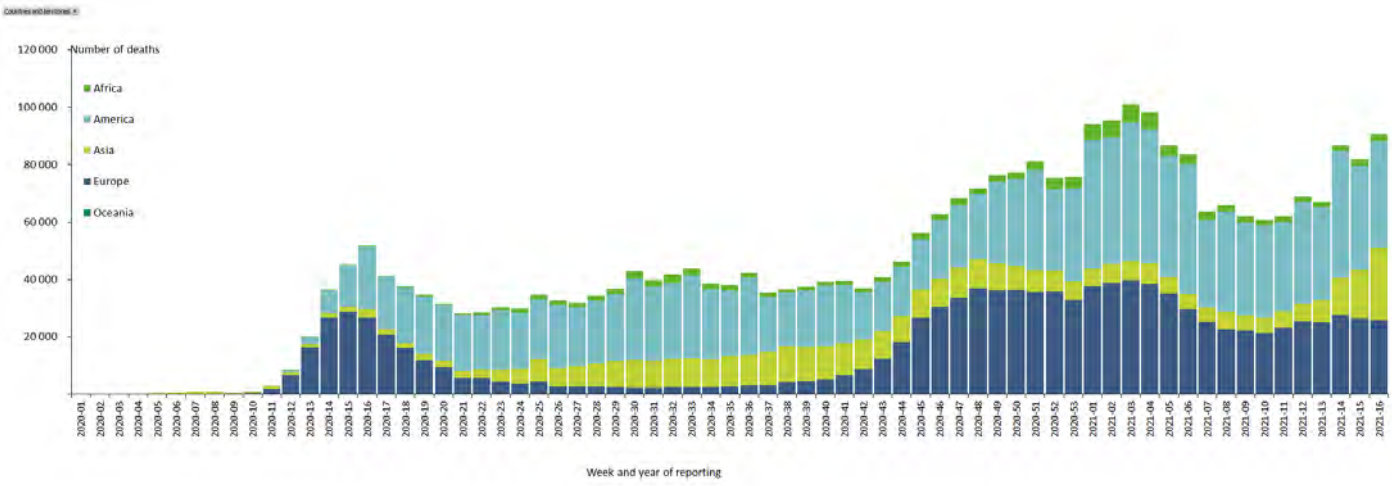
The global seven-day rolling average of daily cases has risen from 361,000 on 19 February to 830,000 on 29 April, a greater than 100 per cent increase. While lagging behind cases, the seven-day average of daily deaths has increased from 8,294 on 12 March to 13,457 on 29 April.

26 countries have now recorded more than one million cases, the most recent being Romania, Philippines and Iraq.

Distribution of weekly COVID-19 cases worldwide, as of 29 April 2021 (source European CDC)



Distribution of weekly COVID-19 deaths worldwide, as of 29 April 2021



European Region

- Europe has now reported 44.3 million cases, 30 per cent of the global total. The continent has recorded 1.009 million deaths, 32 per cent of the global total.
- There is a downward trend in many European countries, most clearly in the UK which has provided at least one vaccine dose to 51 per cent of their population. In addition, cases are declining in France, Russia, Italy, Poland, Ukraine, Czech Republic and Sweden. Portugal has reached fewer than 500 new daily cases. However, cases continue to increase in Germany, the Netherlands and Turkey.

Turkey | European Region

Turkey, with a population of 85 million, has reported 4.8 million cases (the fifth highest in the world) and more than 40,000 deaths. The country's third wave is much worse than its previous waves. The seven-day average of new daily cases has soared to more than 60,000 on 20 April, from 6,000 in late January. That's twice the highest peak in the second wave in December 2020. The average has declined to 37,000 on 1 May. Turkey has a relatively high cumulative testing rate of 518 per 1,000, comparable with Australia.

The Turkish President announced tighter measures against the coronavirus in late March, citing the rising number of high-risk cities across the country. He said a full weekend lockdown was to be in place during the holy Islamic month of Ramadan, and restaurants would only serve food for delivery and take-outs. A curfew from 9:00pm until 5:00am across the country will continue. On 29 April, the government announced a 17-day complete national lockdown.

Turkey has a relatively high vaccination coverage, having vaccinated 27 per 100 population with 11 per cent fully vaccinated. The country is rolling out both the CoronaVac (Sinovac) and Comirnaty (Pfizer/BioNTech) vaccines.

The United States and Canada

- The US has reported more than 33 million cases and 590,000 deaths. However nationally, new daily cases have declined by 27 per cent during the past two weeks. Hospitalisations and deaths are also in decline. Nevertheless, the states of Michigan and Minnesota and some counties in Washington, Oregon and Texas are still reporting new case rates of more than 100 per 100,000. More than 43 per cent of the population have received at least one dose of a vaccine and 30 per cent are fully vaccinated.
- In Canada, the third wave seven-day rolling average has peaked at 8,767 cases a day, equivalent to its second wave peak. However, deaths have peaked at 50 per day compared with more than 160 during the second wave. Canada has provided at least one vaccine dose to 34 per cent of the population and 2.8 per cent are fully vaccinated.

Canada | North America

With a population of 38 million, Canada has reported 1,224,000 cases and more than 24,000 deaths. The cumulative incidence rate is 32 per 1,000, compared to 99 per 1,000 in the US and 1.2 per 1,000 in Australia. Canada is experiencing a third wave comparable with its second wave in the northern winter. The seven-day rolling average of new daily cases increased from 2,685 on 15 February to 8,767 on 17 April; it has since declined to just under 8,000. The national test positivity rate on 17 April was 3.9 per cent. The surge of new cases is most pronounced in Ontario, Alberta, Quebec and British Columbia provinces.

Three explanations have been offered for this explosive outbreak -- the rapid spread of the B.1.1.7 and P1 variants; the premature easing of restrictions in some provinces; and the increased vulnerability of young people to infection and severe disease. In British Columbia, the P1 variant, which was first discovered in Brazil, has spread quickly, and in recent days, the province has recorded its highest case load since the pandemic began more than a year ago. In British

Columbia, a large outbreak took place at Canada's most famous ski resort, Whistler. With 872 confirmed cases of P1, the province is now the centre of the world's largest sequenced outbreak of the variant outside Brazil – and nearly a quarter of those cases have been linked to Whistler. Very high proportions of cases infected by the B.1.17 variant have been reported in all provinces.

The latest wave appears to be affecting young people a lot more severely, with patients as young as 20 being admitted to ICU. This is most clearly the case in Ontario where in April almost one-half of ICU patients have been under the age of 60. The vulnerability of young people is exemplified by 21 players and five members of the coaching staff of Vancouver's ice hockey team having been infected with the P1 variant.

Latin America

- The rate of new daily cases is soaring in many countries, especially in South America. While Brazil has the highest new case and death numbers, Uruguay, once lauded as a model for keeping the coronavirus under control, now has one of the highest death rates in the world.
- Daily tallies of deaths have reached new records in Argentina, Brazil, Colombia and Peru in recent days.

Chile | Latin America

Chile's vaccination campaign against the coronavirus has been one of the world's fastest and most extensive, but a recent surge in infections has sparked concern beyond its borders. 78 per cent of the South American country's total population has now received at least one dose, and 35 per cent two doses of a COVID-19 vaccine, reflecting one of the highest vaccination rates in the world. Chile ranks fourth in the world for doses per 100 people, after Seychelles, Israel and the UK.

With a population of 19.2 million, Chile has reported 1.2 million cases and more than 26,000 deaths. The country is experiencing a third wave although it never really controlled the second. From a peak seven-day rolling average of 4,205 on 25 January, the rate only dropped to 3,321 four weeks later before it began to rise again to a new all-time peak of 9,151 on 9 April. In the last week of April, the seven-day rolling average was 6,660.

Health experts say the country's latest surge in cases has, in part, been driven by more virulent strains of the virus -- especially the P1 variant, a relaxation of public health measures, increased mobility and poor adherence to simple precautions — such as physical distancing and wearing a mask. In December, borders were opened to international travellers and shops, restaurants and some holiday resorts were opened in a bid to boost the country's pandemic-stricken economy.

There have also been questions raised in Brazil about vaccine efficacy, given Chile's widespread use of CoronaVac, the coronavirus vaccine manufactured by Chinese firm Sinovac. Brazilian trials found the vaccine to be just over 50 per cent effective while Turkish researchers have reported efficacy as high as 83.5 per cent. A study published by the University of Chile in early April reported that CoronaVac was 56.5 per cent effective two weeks after the second doses were administered in the country. Crucially, however, they also reported that one dose was only 3 per cent effective. But 29 per cent of Chilean adults have been fully vaccinated. Both Chile and the United Arab Emirates are both considering implementing a third dose of CoronaVac.

The Chilean Government has extended a state of emergency until the end of June, closed its borders to foreign nationals, introduced a nationwide night-time curfew from 9:00pm to 5:00am, restrictions on interstate travel and, in an effort to reduce gatherings of people, the new restrictions temporarily ban the retail sale of some items, such as clothing and cosmetics.

African Region

- There have been more than 4,536,000 cases and 121,000 deaths reported in the African continent. Of the total cases, two million have been reported in Southern Africa, 1.4 million in North Africa (Egypt, Libya, Tunisia, Morocco and Algeria), 601,000 in East Africa (Ethiopia and Kenya have been most affected), 458,000 in West Africa and 154,000 in Central Africa.
- New cases have declined in most sub-Saharan African countries, including South Africa; however, cases are surging in Egypt, Tunisia, Kenya, Ethiopia and Cameroon.
- The vaccination rollout in Africa has been very slow. As of 30 April, only one per cent of the African population had received at least one dose and just 0.35 per cent has been fully vaccinated. The highest vaccination rate is in Seychelles at 75 per cent followed by Morocco at 14.6 per cent.
- Seven African countries (Burundi, Tanzania, Central African Republic, Chad, Eritrea, Madagascar and Burkina Faso) have not administered any vaccines.

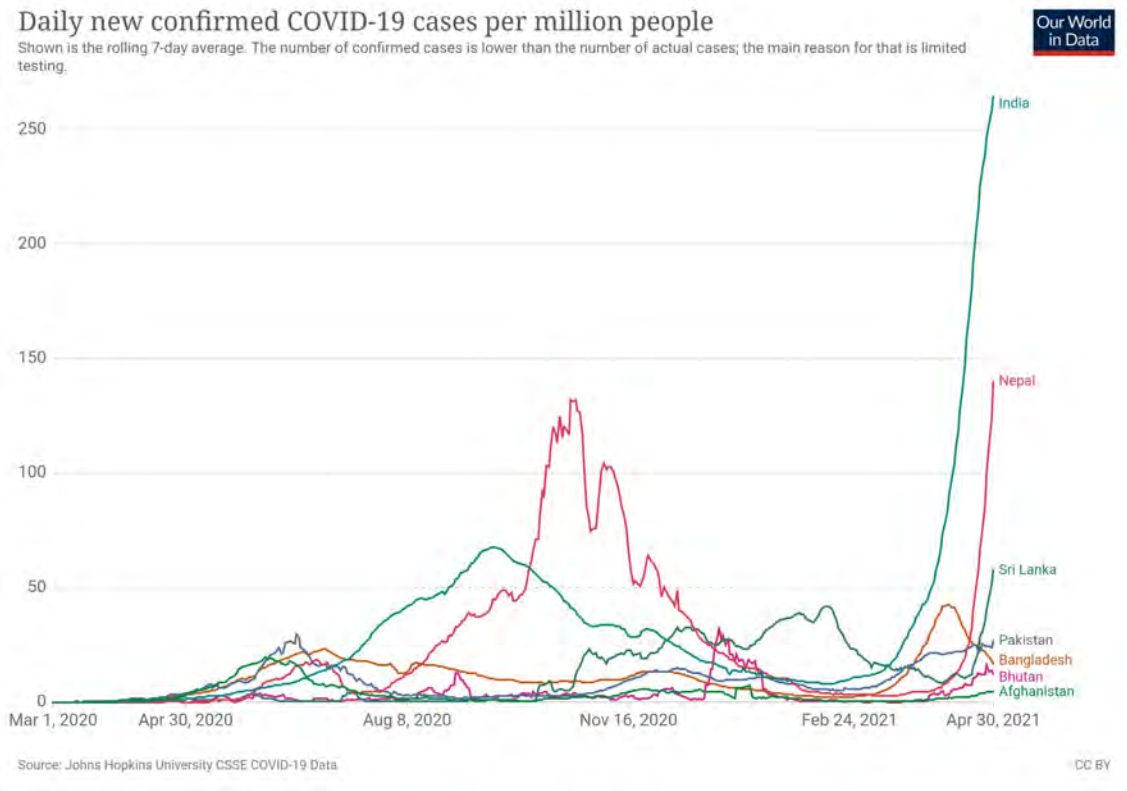
Middle East Region

- In **Israel**, cases have decreased steeply, and double-digit daily cases are now being reported. In neighbouring **West Bank and Gaza**, new cases are also declining but remain at around 1,000 per day. Israel has provided at least one vaccine dose to 128 per 100 people and 56 per cent are fully vaccinated. West Bank and Gaza have vaccinated just 4.1 per 100.
- Cases continue to surge in Iran, Iraq, Kuwait, Bahrain and to a lesser extent Qatar and Saudi Arabia.
- Cases are declining in Jordan, Lebanon and UAE.

Asia-Pacific Region

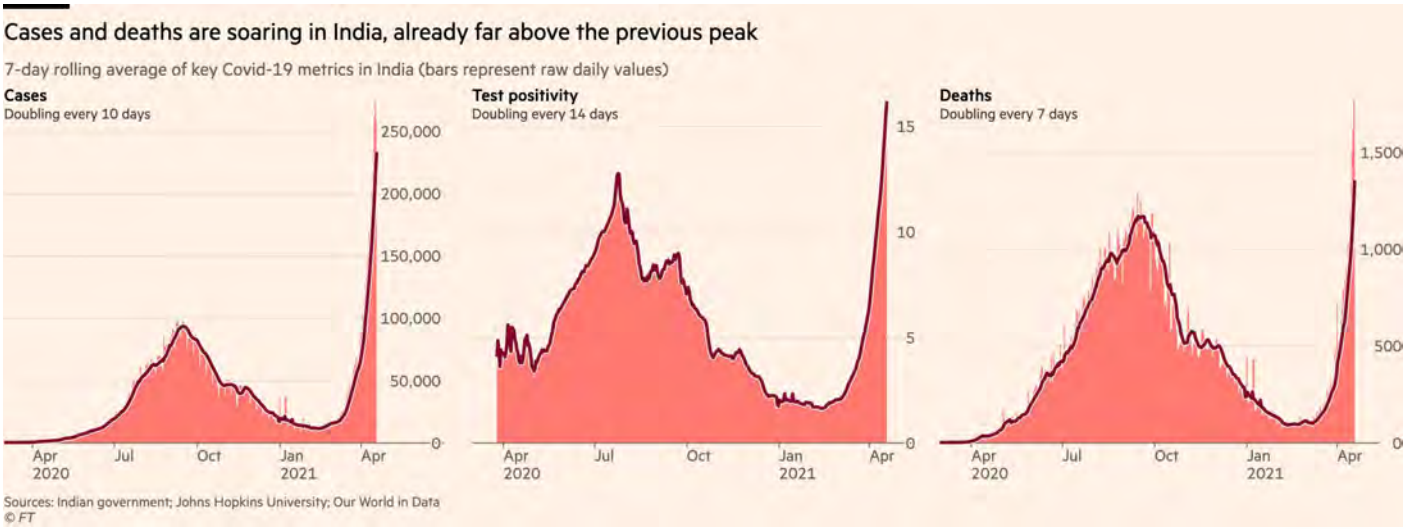
- Almost every country in Asia is in the midst of massive surges of cases, with **India** experiencing the largest outbreak of any country in the world.
- South Asia, Sri Lanka, Nepal, Pakistan and Bangladesh are all having severe third waves.
- East and Southeast Asia, Thailand, Malaysia, Cambodia, Mongolia and the Philippines are also experiencing severe second or third waves.
- Cambodia was basically spared from coronavirus transmission until February 2021 and is now in a national lockdown. Japan and South Korea are having fourth waves.
- In Asia, only Singapore, Laos, Vietnam, China and Taiwan are currently reporting low numbers of cases.
- In the **Pacific region**, Timor-Leste is reporting steadily increasing daily cases. Papua New Guinea is reporting a decline in daily cases but given the low rate of testing, the situation remains unclear. Fiji is experiencing community transmission for the first time in 12 months and most of the country is in lockdown.

Population rate of new COVID-19 cases in South Asia

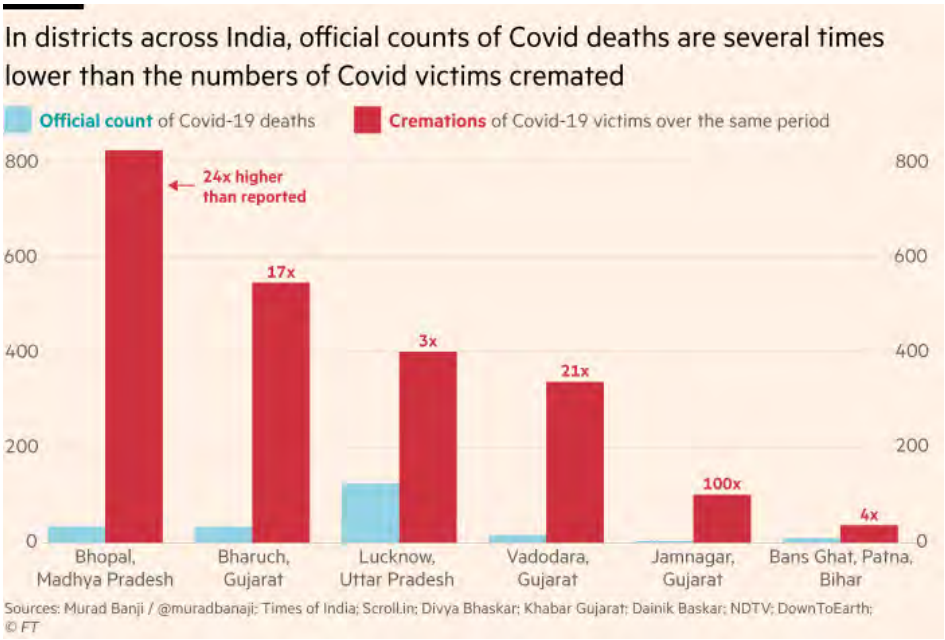


India | Asia-Pacific Region

India has reported 19.6 million cases -- the second highest in the world -- and more than 215,000 deaths, which ranks fourth in the world after the US, Brazil and Mexico. India is experiencing an exponential second wave, much worse than its first wave. The seven-day rolling average of new daily cases has increased from a low of just fewer than 11,000 on 11 February to more than 365,000 on 30 April -- an increase of more than 3,000 per cent. The figure on 30 April is the highest daily number in any country since the beginning of the pandemic. While Mumbai was the initial epicentre of this outbreak, Delhi has now surpassed it in new daily cases. On 18 April the test positivity rate in the previous 24 hours had reached 30 per cent in Delhi from 24.6 per cent the previous day.



While India's overall case fatality ratio of 1.16 per cent is low compared to the global CFR of 2.12 per cent, there are indications that the real number of deaths is much higher than the official figures. For example, local news reports for seven districts across the states of Gujarat, Uttar Pradesh, Madhya Pradesh and Bihar show that while at least 1,833 people are known to have died of COVID-19 during one week, based mainly on cremations, only 228 have been officially reported. In the Jamnagar district in Gujarat, 100 people died of COVID-19 but only one death was reported.



Due to the surge in cases, there has been huge stress on the country's fragile health infrastructure, with many areas reporting shortages of ICU beds and oxygen cylinders in several states, including Delhi. Reports claim that Delhi, with a population of 20 million, had fewer than 100 ICU beds available on 18 April. The Government is seeking to add 6,000 new beds with oxygen in schools, train stations, a sports complex, the Commonwealth Games Village and a large spiritual campus. Delhi has instituted a weekend curfew and the weekend closure of non-essential stores but is resisting a broader lockdown. Hospitals and doctors in Maharashtra, as well as other regions including Gujarat, reported that healthcare facilities were overwhelmed with a surge in admissions of COVID-19 patients.

Government officials have tended to publicly blame poor adherence to precautions by the population as the main reason for the new surge in cases. Others blame the situation on the near-complete lack of regulation and its implementation wherever regulations did exist across workplaces and other public spaces. Experts have warned that huge, mostly maskless and tightly packed crowds at political rallies in poll-bound states, mass religious festivals and at other public places were fuelling the new wave of infections. This is exemplified by the annual Kumbh Mela festival in the northern Indian city of Haridwar, which has been taking place since 11 March. Haridwar's Chief Medical Officer reported that more than 1,600 cases had been confirmed among devotees between 10 and 14 April.

Another factor cited as contributing to this latest surge is the rapid spread of the B.1.1.7 variant in India and the emergence of a new variant, B.1.617. The B.1.1.7 variant has become the predominant strain in some states, such as Punjab where 81 per cent of samples sent for genomic testing were B.1.1.7. Nationally, the Ministry of Health and Family Welfare reported that 771 variants of concern have been detected in a total of 10,787 positive samples shared by States. These include 736 samples (6.8%) positive for viruses of the UK (B.1.1.7) lineage.

In late March, India's National Centre for Disease Control, a division of the Ministry of Health and Family Welfare, announced that a new variant – dubbed a "double mutant" – had been identified in samples of saliva taken from people in Maharashtra, Delhi and Punjab (See Volume 2). The Ministry says this new variant has not been found in sufficient numbers to account for the increase in COVID-19 cases across the country. In 15-20 per cent of samples from the Indian

state of Maharashtra (the state accounting for 62 per cent of cases in the country) the new, double mutation in key areas of the virus was detected.

The World Health Organization (WHO) said the lineage of B.1.617 was first identified in India last December, although an earlier version was spotted in October 2020. The WHO has described it as a "variant of interest", suggesting it may have mutations that would make the virus more transmissible, cause more severe disease or evade vaccine immunity. However, more genome sequencing and clinical data are needed.

As has been reported in other countries, the second wave is affecting young people more than the first wave. The Chief Minister of India's capital, New Delhi has said that 65 per cent of new COVID-19 patients were under 45.

Despite an impressive 147 million vaccine doses having been administered, barely 11 per cent of the population has received at least one dose and only 1.8 per cent is currently protected with two doses of the vaccine. A 22-member India Task Force on Immunisation has cautioned that monthly vaccine supplies for the inoculation campaign at the current production capacity of 70 to 80 million doses per month would “fall short by half” for the target of 150 million doses per month. The group recommended urgent attention be given to three critical elements — alternative sources for imported raw materials that are already in short supply, expansion of fill-finish facilities by bringing in other manufacturers, and provision of financial support to manufacturers to ramp up production.

The Lancet COVID-19 Commission India Task Force released a report on 14 April recommending the following urgent steps to manage India’s second wave:

- Accelerated vaccination: expanding coverage, expand to younger age groups and those with risk factors for severe disease, procure a broader mix of vaccines, increase manufacturing capacity, address vaccine hesitancy and report on adverse events.
- Public campaigns on masks and safe behaviour.
- Community-led decentralised testing, tracing, isolating and community monitoring.
- Scaled-up testing and genome sequencing.
- Health systems strengthening of supply chain, facility infrastructure, workforce training, and health care worker support.
- Restrictions and closures:
    - Ban mass gatherings.
    - Quarantine international travellers, no domestic restrictions.
    - Schools: vaccinate teachers and prepare for staged opening in July 2021.
    - Localised restrictions or closures rather than a national lockdown – micro-containment zones in high-case load areas.

Mongolia | Asia-Pacific Region

With a population of 3.3 million, Mongolia has reported more than 37,000 cases and 115 deaths. Its per capita incidence of 10.8 per 1,000 is higher than Indonesia and the Philippines. In the whole of 2020, the country recorded fewer than 1,000 cases but has experienced a major surge since the beginning of 2021. The seven-day rolling average of daily cases has risen from 21 on the 1 January to 1,223 on 27 April. Local transmissions of the virus have been reported in the capital city and 18 of all 21 provinces of the country.

The Mongolian Prime Minister announced in early April that the Government had decided to impose a nationwide lockdown to curb the steep surge in local COVID-19 cases, mostly in the capital Ulan Bator. Residents are encouraged to shop in their neighbourhoods and no more than five people are allowed in any social gathering. Public transport will operate only for employees of essential businesses under limited timetable and restrictions will apply to movement of private vehicles. The Prime Minister also announced a one-time financial assistance of 300,000 Mongolian Tugriks (US$105) will be provided to every citizen of the country during the lockdown.

Mongolia has been rolling out vaccines relatively quickly and has administered at least one dose to 37 per cent of its people, and 11 per cent have received two doses, which ranks third highest in the Asian region after Bhutan and Singapore.

Thailand and Cambodia | Asia-Pacific Region

These two SE Asian nations had controlled the coronavirus effectively through 2020. However, since February both countries have reported steep new waves of cases. In **Thailand**, the seven-day rolling average of daily cases has increased from 53 on 2 April to 2,151 on 28 April. The country has now reported more than 65,600 cases and 203 deaths. In **Cambodia**, the seven-day rolling average has increased from one on 1 February to 651 on 30 April. It has now reported 13,402 cases and 93 deaths.

Thailand's latest wave of infections supposedly originated in Bangkok's nightlife district where bar and club owners flouted rules limiting the number of customers. The area is popular with Government officials and the wealthy, and eight cabinet ministers have gone into isolation. Officials ordered the closure of hundreds of bars and nightclubs, but critics say the Government has been inconsistent in its efforts to bring the outbreak under control. The Prime Minister stopped short of banning travel between provinces for the Thai New Year holiday.

Dozens of provinces have imposed their own restrictions on travellers coming from Bangkok and other affected areas, prompting many Thais to cancel their trips. But many others set off over the weekend. During earlier outbreaks, the Government often acted quickly to require face masks, ban foreign tourists, impose quarantine restrictions and lock down hard-hit areas.

Thailand has been lax in testing (116 per 1,000 compared with 638 per 1,000 in Australia) and slow to vaccinate. So far, it has procured about 2.2 million doses and given at least one dose to 1.9 per cent of its people; only 0.4 per cent have been fully vaccinated. Vaccine production is not expected to begin in earnest until June, when a manufacturer in Thailand is scheduled to begin producing 10 million doses a month of the AstraZeneca vaccine.

Cambodia's surge has been linked four Chinese nationals who are alleged to have bribed security guards to leave hotel quarantine before the end of their mandated 14-day stay. In the week of 15 April, the Government ordered all residents of Phnom Penh, the capital, and a neighbouring district to stay at home unless they needed to buy food or seek medical treatment. Like Thailand, the lockdown comes in the middle of the Khmer New Year, a three-day national holiday, which began on 14 April, and usually sees thousands of Cambodians travel to their home provinces to celebrate.

Like Thailand, this outbreak is being fuelled by rapid spread of the B.1.17 variant. Causing further alarm, the virus has spread into the garment industry, which provides work to millions of people and is a crucial part of the economy. So far, at least 50 infections have been detected at Din Han factory in Phnom Penh, Cambodia's capital, and advocates fear that more workers are vulnerable.

Cambodia is rolling out vaccines at a much faster rate than Thailand. It has provided at least one dose to 13 per cent of its people and 5 per cent are fully vaccinated. Cambodia has received AstraZeneca manufactured in India from the COVAX facility and China has donated more than 500,000 doses of Sinopharm.

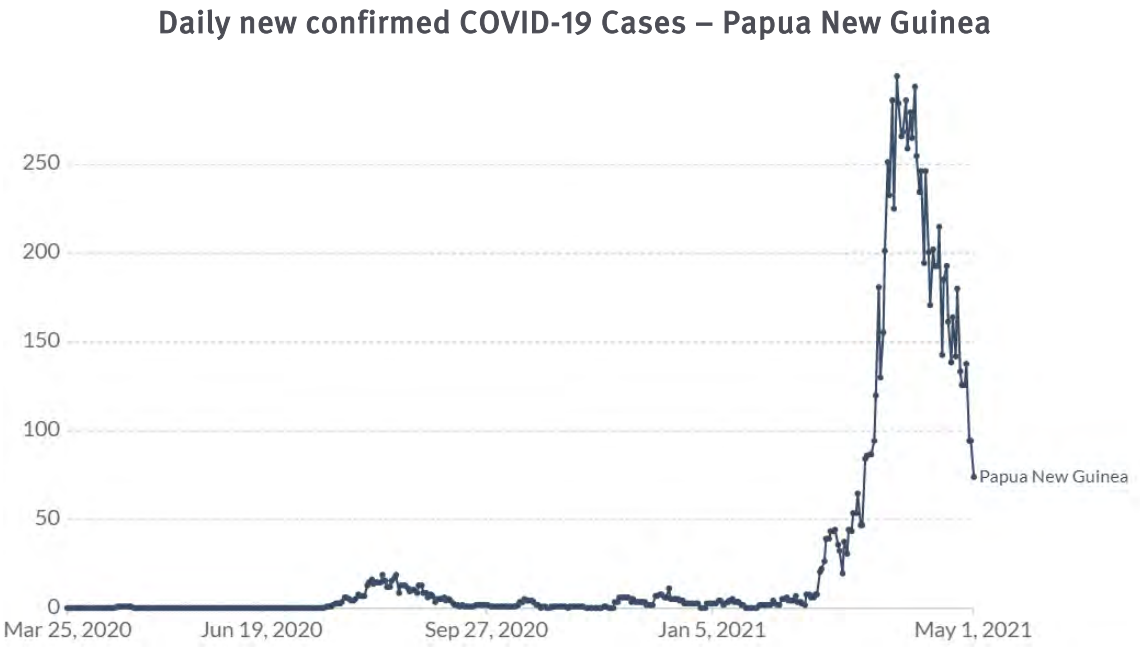
Papua New Guinea | Asia-Pacific Region

As of 30 April, PNG had reported more than 11,000 cases and 107 deaths. The cumulative test rate is 10.2 per 1,000 compared with more than 600 per 1,000 in Australia. The seven-day rolling average of new daily cases has been in decline for the past two weeks, from a peak of 277 on 3 April to 82 on 30 April. Every province has reported COVID-19 cases and nine have reported deaths. The provinces most affected in the past two weeks have been National Capital District, Eastern Highlands, Milne Bay and Western.

Given the low testing rate and high positivity rates in sentinel populations, for example 8 per cent among pregnant women in Port Moresby, the reported rates under-represent the true extent of spread. Some have suggested that at least

80,000 people have been infected. PNG's vaccine rollout began slowly four weeks ago, with a first batch of 8,400 AstraZeneca doses sent from Australia. In the past weeks, 132,000 AstraZeneca vaccines from India, sent through the COVAX facility, arrived in PNG. A further 588,000 doses of AstraZeneca are expected by June; however, delays in production by the Serum Institute of India and the surging cases in India may delay that shipment.

One major impediment to controlling coronavirus in PNG is misinformation. Many Papua New Guineans get their information from Facebook, and much of it is incorrect. Social media has been overwhelmed with half-truths, misinformation, and false statements dressed up in intellectual language. This has extended to misinformation about the safety and efficacy of COVID-19 vaccines and vaccine hesitancy is high, although it hasn't been quantified.



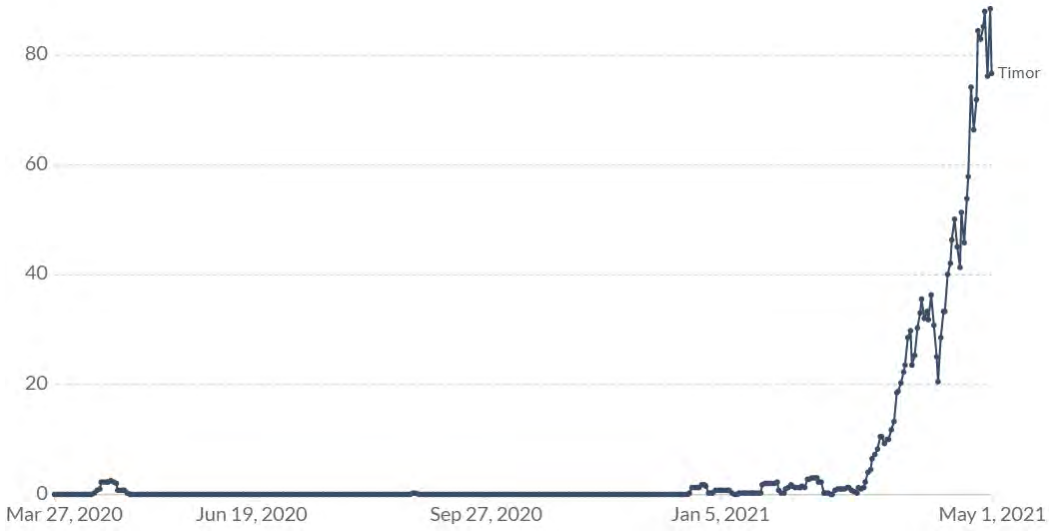
Timor-Leste | Asia-Pacific Region

While new cases are declining in PNG, they continue to increase in Timor-Leste. The country has reported 2,276 cases and three deaths. The seven-day rolling average has increased from one on 7 March to 88 on 28 April. The testing rate of 67 per 1,000 is higher than PNG but still relatively low. Cases have been reported in all municipalities and 96 per cent of cases have been reported since January. The sharp increase of COVID-19 cases over the past two months stands in stark contrast to 2020, during which Timor-Leste recorded just 44 cases and zero deaths.

The recent flooding in Dili and much of the countryside has complicated efforts to contain the virus and to roll out vaccines. Authorities have extended restrictions aimed at stemming the spread of COVID-19 in Dili through 2 May. Officials continue to restrict almost all travel, including air and maritime transport, from Dili. Exemptions are possible for safety, public health, or humanitarian reasons. All gatherings, including religious services remain banned, though exceptions are likely for aid efforts following Tropical Cyclone Seroja.

On 5 April, Timor-Leste received its first shipment of 24,000 doses of AstraZeneca vaccine out of a total COVAX allocation of 100,800. As of 21 April, the country had administered 2,629 doses equivalent to 0.2 per cent of the population.

Daily new confirmed COVID-19 Cases – Timor-Leste



Australia | Asia-Pacific Region

Australia has recorded few community cases during 2021. However, the number of cases in hotel quarantine has been increasing rapidly. Currently, there are 295 active COVID-19 cases in Australia, all but five in hotel quarantine. The main defence against reintroduction of the coronavirus into Australia is the quarantine system. However, there is no national standard and there are major differences in the way states and territories are implementing hotel quarantine. Since November, there have been **17 separate leaks in the five mainland state capital cities**. On average, one in 106 infected returned travellers have led to a leak from hotel quarantine.

Australia has administered at least one dose of COVID-19 vaccines to eight per 100 people, ranking #79 in the world. The number of people fully vaccinated has not been published. After the Australian Technical Advisory Group on Immunisation recommended that people under the age of 50 should not receive the AstraZeneca vaccine, the rollout is focusing on people over 50. Since that decision, the seven day moving average of daily number of people vaccinated has declined from 62,000 on 10 April to 45,800 on 1 May.

However, the main threat to renewed community transmission remains the inconsistent implementation of hotel quarantine systems. The following table shows the rate of quarantine leaks by state. This table does not include the recent hotel quarantine leak in Perth, which resulted in the infection of a security guard and two of his house mates.

BREACHES AND ARRIVALS

27 Oct 2020 to 22 Apr 2021

STATE	BREACHES	CASES	1 in X	ARRIVALS	1 in X	POS %
NSW	7	764	**1 in 109**	57,467	**1 in 8,210**	1.33%
VIC	3	109	**1 in 36**	11,661	**1 in 3,887**	0.93%
QLD	3	325	**1 in 108**	29,015	**1 in 9,672**	1.12%
WA	2	210	**1 in 105**	21,870	**1 in 10,935**	0.96%
SA	1	173	**1 in 173**	11,107	**1 in 11,107**	1.56%
NT	0	106	-	8,652	-	1.23%
ACT	0	9	-	435	-	2.07%
TAS	0	4	-	148	-	2.70%
AUS	16	1,700	**1 in 106**	140,355	**1 in 8,772**	0.01%

Pacific Islands Update | Asia-Pacific Region

Pacific Island Countries and Territories (PICTs, excluding PNG), are marked by low case numbers in most countries. This is mostly due to strict border control measures, including mandatory quarantine. As of 12 April, across 21 PICTs (excluding PNG), a total of 27,097 confirmed cases have been reported including 286 deaths. Among these, 69 per cent were in French Polynesia and 28 per cent were in Guam.

Eleven PICT have reported zero cases (American Samoa, Cook Islands, Kiribati, Federated States of Micronesia, Nauru, Niue, Palau, Pitcairn Islands, Tokelau, Tonga and Tuvalu). An additional four have reported less than 70 cases (Marshall Islands, n=4; Samoa, n=4; Solomon Islands, n=19; and Vanuatu, n=4).

In the last two weeks, Fiji reported their first community-acquired transmission in 12 months. In the last seven days, Vanuatu reported that a deceased person found washed ashore on a beach was infected with COVID-19; the deceased person was a Filipino vessel worker who was reported missing from their vessel on the same day. The case led to restrictions in movement from the capital, Port Vila, while investigations were conducted.

WHO has reported that a total of 43,210 COVID-19 vaccination doses have been distributed in PICTs (excluding PNG) and 16,654 individuals are fully vaccinated. Among countries with available data, vaccination coverage (as a percentage of the total population) is highest in the American-affiliated states of Palau (49%), Guam (28%) and American Samoa (30%).

	Total Cases
American Samoa	0
Cook Islands	0
Fiji	116
French Polynesia	18,652
Guam	7,625
Kiribati	0
Marshall Islands	4
Micronesia (Federated States of)	0
Nauru	0
New Caledonia	121
Niue	0
Northern Mariana Islands (Commonwealth of)	160
Palau	0
Papua New Guinea	10,997
Pitcairn Islands	0
Samoa	4
Solomon Islands	19
Tokelau	0
Tonga	0
Tuvalu	0
Vanuatu	4
Wallis and Futuna	441

On 18 April 2021, **Fiji** reported its first locally acquired case for the first time in over 12 months. As of 30 April, 117 cases and two deaths had been reported. A soldier providing security at a border quarantine facility in Nadi returned a positive test, however the mode of transmission has not been reported. The soldier then infected a hotel maid, who infected several members of her family and attendees at a funeral. The solder also infected another soldier working at the facility, who then infected his wife. Testing conducted at the Doherty Institute confirmed that initial cases in the cluster were the B.1.617 variant, originally detected in India. Between 18-28 April, a total of 28 locally acquired cases have been reported in Nadi, Suva, Lautoka. A 14-day lockdown has been implemented in Suva and containment zones have been established in Nadi and Lautoka. Domestic and international flights have been cancelled until at least 2 May, and all non-essential businesses have been closed. All confirmed cases have been isolated in hospital and all close contacts have been quarantined in government-designated quarantine facilities.

SNAPSHOTS | DIAGNOSIS, EPIDEMIOLOGY AND OUTCOMES

Understanding how Victoria gained control of its second COVID-19 wave

The state of Victoria suffered a substantial second wave of locally transmitted cases, reaching around 600 notifications per day, predominantly in metropolitan Melbourne during the winter of 2020. In a pre-print paper, researchers developed a model that analysed the effects of various factors on coronavirus transmission. It incorporated age and geography of the state, calibrating it to data on case notifications, deaths and health service needs according to the nine health service clusters.

They achieved a good fit to epidemiological indicators, at both the state level and for individual clusters, through a combination of time-varying processes that included changes to case detection rates, population mobility, school closures, seasonal factors, physical distancing and use of face coverings. Estimates of the risk of hospitalisation and death among persons with disease that were needed to achieve this close fit were markedly higher than international estimates, likely reflecting the concentration of the epidemic in groups at particular risk of adverse outcomes, such as aged care residential facilities.

They estimated that physical distancing behaviours and face coverings were both important in achieving control of Victoria's second wave, with face coverings estimated to have reduced transmission and infection risk by **around 31 to 46 per cent.** Physical distancing behaviour was estimated to have reduced risk of transmission/infection by around **6 to 28 per cent** although the smaller changes in reported adherence to this intervention (compared with mask wearing) following the introduction of Stage 3 and Stage 4 restrictions meant that this had a lesser impact on the epidemic profile.

The **effect of not mandating** face coverings was projected to be dramatic, with case numbers in the thousands for several months under the counterfactual of face coverings usage remaining at the baseline level of 13 per cent rather than >90 per cent adherence achieved after mandating. Consistent with findings from elsewhere, without reductions in contacts outside the home and mandating the use of masks, there would have been no reasonable prospect of driving transmission to zero within a time period tolerable to the community, given the starting point of the epidemiological situation in late July. The small effect of school closures was also consistent with findings from overseas.

SARS-CoV-2 and Surface (Fomite) Transmission for Indoor Community Environments | CDC Science Brief

This US CDC brief states that because of the many factors affecting the efficiency of environmental transmission, the relative risk of fomite transmission of SARS-CoV-2 is considered low compared with direct contact, droplet transmission, or airborne transmission. Although experimental studies have detected viable virus up to 72 hours from various non-porous surfaces, there have been very few reports of COVID-19 cases potentially attributed to fomite transmission and they were based on circumstantial evidence. One extensive review concluded that on the basis of currently available data, the levels of viral RNA or live virus transiently remaining on surfaces are unlikely to cause infection, especially outside of settings with known active cases.

Quantitative microbial risk assessment studies suggest that the risk of SARS-CoV-2 infection via the fomite transmission route is low, and that each contact with a contaminated surface has less than a 1 in 10,000 chance of causing an infection. Both cleaning (use of soap or detergent) and disinfection (use of a product or process designed to inactivate SARS-CoV-2) can reduce the risk of fomite transmission. However, no reported studies have investigated the efficacy of surface cleaning (with soap or detergent not containing a registered disinfectant). Surface disinfection has been shown to be effective for preventing secondary transmission of SARS-CoV-2 between an infected person and other people within households. However, there is little scientific support for routine use of disinfectants in community settings, whether indoor or outdoor, to prevent SARS-CoV-2 transmission from fomites.

The CDC Brief concluded that people can be infected with SARS-CoV-2 through contact with surfaces. However, based on available epidemiological data and studies of environmental transmission factors, surface transmission is not a major route by which the virus spreads, and the risk is considered to be low. The principal mode by which people are infected is through exposure to respiratory droplets carrying infectious virus. In most situations, cleaning surfaces using soap or detergent, and not disinfecting, is enough to reduce risk. Disinfection is recommended in indoor community settings where there has been a suspected or confirmed case of COVID-19 within the last 24 hours. The risk of fomite transmission can be reduced by wearing masks consistently and correctly, practicing hand hygiene, cleaning, and taking other measures to maintain healthy facilities.

Epidemiologic Evidence for Airborne Transmission of SARS-CoV-2 during Church Singing, Sydney, 2020

In an early release paper in the US CDC's Emerging Infectious Diseases Bulletin, researchers investigated a cluster of 12 cases of COVID-19 in the congregation of the Our Lady of Lebanon Church in western Sydney in mid-2020. On 18 July 2020, the Western Sydney Public Health Unit was notified of a positive SARS-COV-2 test result for an 18-year-old man. He reported symptom onset on 16 July and was tested on 17 July. He was a church chorister and, during his infectious period, had sung at four one-hour services, one each on 15 and 16 July and two on 17 July.

The case-patient had sung from a choir loft, elevated 3.5 m above the congregation, which he entered before and left after the service. He denied touching objects in the church or mixing with the general congregation. Video recordings of the services corroborated this history. The public health unit identified 508 close contacts across the four services, of which 434 (85%) were recorded as having a test within 17 days after exposure. Most contacts were tested 2–7 days after exposure. They detected 12 secondary case-patients, yielding an overall secondary attack rate (SAR) of 2.4 per cent across the four services. These case-patients formed a single genomic cluster. There were no deaths, although three case-patients were hospitalised, including two who required intensive care.

They were able to locate the exact location of ten of the 12 secondary case-patients by using video recordings. The remaining two case-patients described the section and row in which they sat. All secondary case-patients sat within a 70° wide section, below and 1–15 m from the primary case-patient. The primary case-patient faced away from this area and used a microphone. The church had a high conical roof, and the ventilation system at the apex was not in operation during the services. The doors and windows were largely closed, except as persons entered and exited, and the wall fans were off, meaning there was minimal ventilation.

The authors concluded that transmission during this outbreak is best explained by airborne spread, potentially the result of by three factors. First, singing has been demonstrated to generate more respiratory aerosol particles and droplets than talking. Second, minimal ventilation might have enabled respiratory particles to accumulate in the air, and convection currents might have carried particles toward the pews where secondary case-patients were seated. Third, the primary case-patient was likely near the peak of infectiousness on the basis of low Ct values and symptom onset occurring around the exposure dates. Guidelines for places of worship were tightened after this cluster was detected, including increasing the distance required around a singer to 5m, and promoting better use of natural and artificial ventilation.

Ten scientific reasons in support of airborne transmission of SARS-CoV-2

The authors of a Comment piece in *The Lancet* lay out ten streams of evidence that they claim collectively support the hypothesis that SARS-CoV-2 is transmitted primarily by the airborne route.

1. They look at the characteristics of indoor superspreading events, such as in cruise ships, choir practices and meatworks; e.g., long-range transmission and over-dispersion of the basic reproduction number, which are consistent with airborne spread of SARS-CoV-2 and cannot be adequately explained by droplets or fomites.
2. Long-range transmission of SARS-CoV-2 between people in adjacent rooms but never in each other's presence has been documented in quarantine hotels, such as in New Zealand.
3. Asymptomatic or pre-symptomatic transmission of SARS-CoV-2 from people who are not coughing or sneezing is a key way SARS-CoV-2 has spread around the world and direct measurements show that speaking produces thousands of aerosol particles and few large droplets.
4. Transmission of SARS-CoV-2 is higher indoors than outdoors and is substantially reduced by indoor ventilation. Both observations support a predominantly airborne route of transmission.
5. Infections have been documented in health-care settings, where there have been strict contact-and-droplet precautions and use of personal protective equipment (PPE) designed to protect against droplet but not aerosol exposure.
6. Viable SARS-CoV-2 has been identified in air samples from rooms occupied by COVID-19 patients in the absence of aerosol-generating health-care procedures. Although other studies have failed to capture viable SARS-CoV-2 in air samples, the authors point out that sampling of airborne virus is technically challenging and has never been achieved with measles and tuberculosis, two primarily airborne diseases.
7. SARS-CoV-2 has been identified in air filters and building ducts in hospitals with COVID-19 patients; such locations could be reached only by aerosols.
8. Studies involving infected caged ferrets that were connected to separately caged uninfected ferrets via an air duct have shown transmission of SARS-CoV-2 that can be adequately explained only by aerosols.
9. No study to their knowledge has provided strong or consistent evidence to refute the hypothesis of airborne SARS-CoV-2 transmission. They explain the fact that some people avoid infection while being in a room with an infected person because of the high variability of viral load in infected individuals.
10. There is limited evidence to support other dominant routes of transmission, i.e., respiratory droplet or fomites. Ease of infection between people in close proximity to each other has been cited as proof of respiratory droplet transmission of SARS-CoV-2. However, close-proximity transmission in most cases, along with distant infection for a few when sharing air, is more likely to be explained by dilution of exhaled aerosols with distance from an infected person.

They conclude by saying that it is a scientific error to use lack of direct evidence of SARS-CoV-2 in some air samples to cast doubt on airborne transmission while overlooking the quality and strength of the overall evidence base.

Update on post-acute sequelae of SARS-CoV-2 (Long COVID-19)

A study of post-acute sequelae of SARS-CoV-2 (PASC), published as a pre-print, followed a cohort of 99 patients diagnosed and treated for COVID-19 at St Vincent's Hospital in Sydney. In this cohort, 32 per cent reported persistent symptoms and 19 per cent had fatigue, dyspnoea or chest tightness at median 240 days after initial infection. There was no significant improvement in symptoms or measures of health-related quality of life between 4- and 8-month assessments. In multivariable analysis, female gender (OR 3.2) and acute COVID-19 hospitalisation (OR 3.8) were independently associated with PASC at eight months. Only 80 per cent of patients reported full recovery at 8 months.

In another study in *Nature Medicine*, the authors looked at the prevalence and risk factors for PASC and whether it is possible to predict a protracted course early in the disease. They analysed data from 4,182 incident cases of COVID-19 in which individuals self-reported their symptoms prospectively in the COVID Symptom Study app in the UK, US and

Sweden. Contributors to the app are prompted to provide daily information on their health status and symptoms, as well as results of any available COVID-19 test. The overall median symptom duration was 11 days (interquartile range 6–19) days. A total of 558 (13.3%) participants reported symptoms lasting ≥28 days, 189 (4.5%) for ≥8 weeks and 95 (2.3%) for ≥12 weeks. The proportions were comparable in all three countries.

PASC was characterised by symptoms of fatigue, headache, dyspnoea and anosmia (loss of smell) and was more likely with increasing age and body mass index and female sex. Experiencing more than five symptoms and requiring hospital assessment during the first week of illness was associated with PASC (OR 3.53). Asthma was the only pre-existing condition associated with PASC at 28 days (OR 2.14).

Unprompted additional symptoms were more commonly reported by individuals with PASC at 28 days (81%) compared to patients that had a short duration of acute symptoms (45%). These included cardiac symptoms (for example, palpitations and tachycardia), concentration or memory issues, tinnitus and earache and peripheral neuropathy symptoms (pins and needles and numbness). Most of these additional symptoms were reported for the first time 3–4 weeks after symptom onset.

A report In the *Briti*sh Medical Journal, based on two unpublished studies available as preprints, suggests that middle aged women have a higher risk of experiencing a range of debilitating ongoing symptoms, such as fatigue, breathlessness, muscle pain, anxiety, depression, and "brain fog" after hospital treatment for COVID-19.

One study in the UK reported on assessments of 1,077 patients undertaken a median of five months after discharge. At follow-up **only 29 per cent felt fully recovered**, 20 per cent had a new disability, and 19 per cent experienced a health-related change in occupation. Factors associated with failure to recover were female, middle-age, white ethnicity, two or more co-morbidities, and more severe acute illness. The magnitude of the persistent health burden was substantial and weakly related to acute severity. Four clusters were identified with different severities of mental and physical health impairment: (1) Very severe (17%), (2) Severe (21%), (3) Moderate with cognitive impairment (17%), and (4) Mild (46%). Persistent systemic inflammation determined by C-reactive protein was related to cluster severity, but not acute illness severity.

A smaller second study, from the International Severe Acute Respiratory and Emerging Infections Consortium (ISARIC), of post-acute COVID-19 patients in Italy, Russia and China found that women under 50 were five times less likely to report feeling recovered several months after diagnosis, twice as likely to report worse fatigue, seven times more likely to become more breathless, and more likely to have greater disability than men of the same age who had been admitted to hospital with COVID-19. The most common symptoms reported were fatigue, followed by breathlessness.

The BMJ report speculated that sex-based differences in the immune response may be responsible for the higher prevalence of PASC symptoms in women, noting that autoimmune diseases were more prevalent in women than in men at age 40-60. It also noted that higher levels of C reactive protein, a marker of systemic inflammation, seen in patients with the most severe PASC symptoms, are also seen in a number of immune and chronic inflammatory conditions.

COVID-19 spread uncontrolled through the US prison system

In the United States, which has the highest COVID-19 infections globally, nine in 100 people have been infected. In US prisons, the rate is 34 per 100 -- more than three times higher than the general population. In some states the rates are a lot higher. For example, in Michigan, 76 per cent of prisoners have been infected -- almost nine times the rate in the general population of the state. Over the past year, around 1,400 new Infections and seven new deaths have occurred inside the corrections system every day. The cramped, often unsanitary settings of correctional institutions have been ideal for incubating and transmitting disease. Social distancing is not an option. Testing was not a priority inside prisons early in the pandemic.

The virus moved quickly through many institutions, leaving inmates desperate for ways to avoid getting sick. At Pickaway Correctional Institution in Ohio, which housed about 1,900 inmates, they tried to turn bedsheets into tents to separate

themselves; four in five inmates were infected anyway. At an immigration detention centre in Farmville, Virginia, nearly every detainee — 339 in all — was infected. And at the Fresno County Jail in California, where most inmates are held on charges for which they have not yet been convicted, more than 3,800 were infected.

By April 2021, one-third of inmates in state prisons are known to have had the virus. In federal facilities, at least 39 per cent of prisoners are known to have been infected. The true count is most likely higher because of a dearth of testing. In addition to the 525,000 prisoners that have been infected, 138,000 corrections officers have been infected and 261 have died.

Many prisons were slow to institute protective measures such as masks, hand sanitiser, testing and contact tracing. But civil rights groups say the most significant impediment to containing the virus has been the crowding that has become prevalent in U.S. prisons. Since the 1980s, the nation's prison population has increased by more than 500 per cent, and about 1.4 million people are now behind bars.

Pandemic threatens lost decade for development

The COVID-19 pandemic has reversed development gains for millions in poor countries, creating an even more sharply unequal world, according to a new UN report released on 25 March. The Inter-agency Task Force on Financing pointed out that some 114 million jobs have been lost globally -- four times more than during the global financial crisis -- and about 120 million people have been plunged back into extreme poverty. While an historic US$16 trillion in stimulus and recovery funds released by governments worldwide have helped to stave off the worst effects, less than 20 per cent of it was spent in developing countries. In the world's poorest countries, the Sustainable Development Goals (SDGs) could be pushed back another 10 years, warns the report.

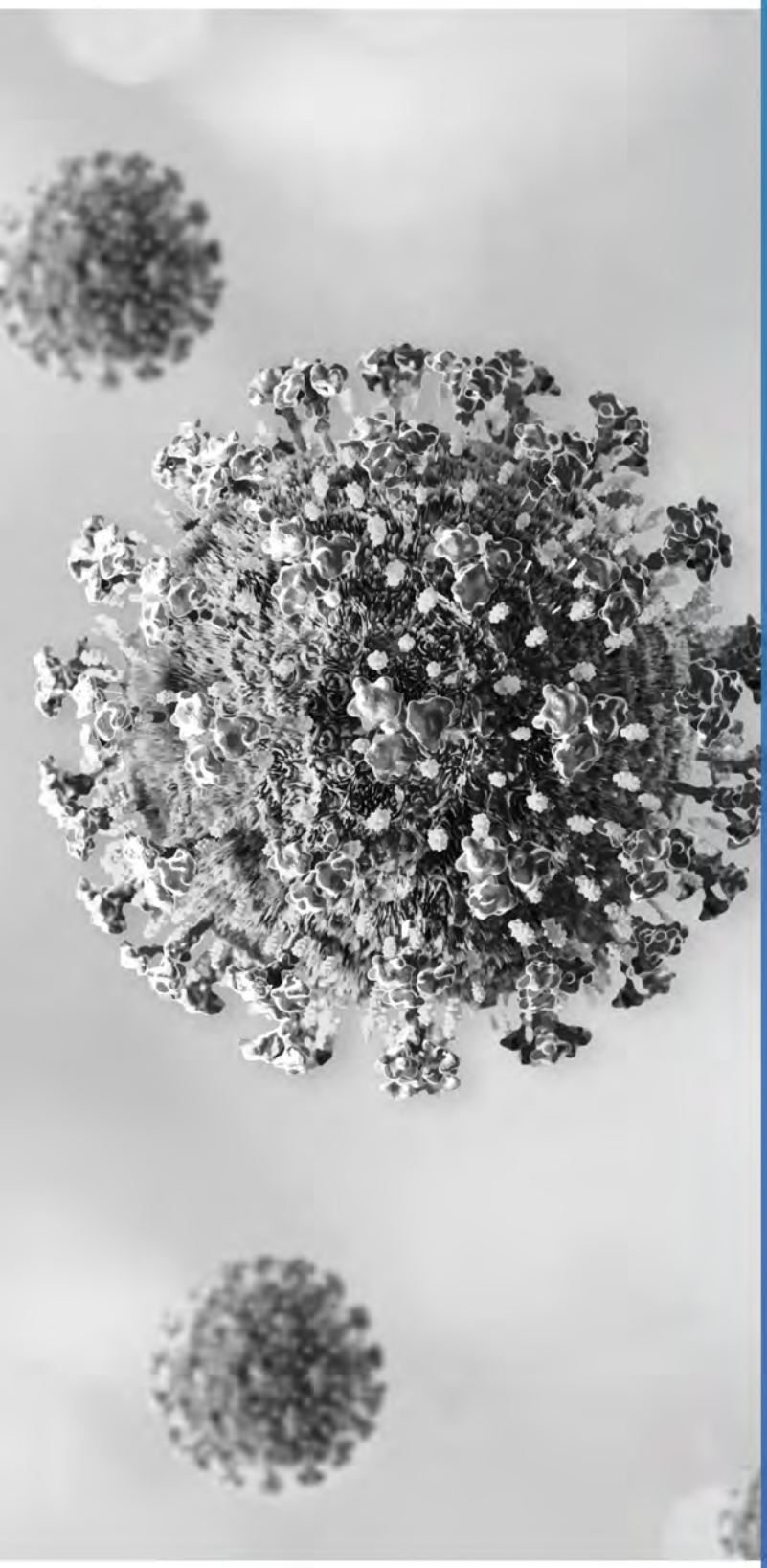
The United Nations projects a modest recovery of 4.7 per cent for the global economy in 2021, which will barely off-set the contraction of -4.3 per cent in 2020. The baseline outlook is also highly susceptible to downside risks amidst a high degree of uncertainty – including on access to vaccines, the spread of the virus and its more infectious variants, the impact of policy support measures, and debt sustainability. South Asian economies faced the worst economic declines, with GDP per capita growth contracting by nearly 10 per cent in 2020. Small Island Developing States, including Pacific Island countries that have largely been spared by the spread of the virus, face particularly bleak recovery prospects due to their reliance on global tourism and travel.

The most vulnerable segments of societies have been disproportionately affected, with the total number of people living in extreme poverty expected to increase by 80-90 million people, particularly affecting women and girls. Disrupted labour markets have disproportionately harmed labour-intensive service sectors that typically employ large shares of low-skilled workers, disproportionately affecting women. Furthermore, lockdown measures to prevent the further spread of COVID-19 have taken a disproportionate toll on sectors with high rates of female employment, with school closures further magnifying the outsized impact of the pandemic on working mothers.

Employment in contact intensive sectors, such as accommodation and food service activities, experienced a year-on-year decline of 20.3 per cent. Women are over-represented in these sectors in most countries. In other sectors, such as manufacturing or wholesale and retail trade, accelerating automation and digitalisation – coupled with a protracted decline in investment in manufacturing – threaten to make many job losses permanent.

Recommendations for Governments

- Reject vaccine nationalism.
- Step up contributions to the COVAX facility to close 2021 funding gap.
- Meet the 0.7 per cent Official Development Assistance commitment
- Provide fresh concessional financing for developing countries,
- Provide liquidity and debt relief for developing countries to fight COVID-19 and its repercussions.



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