

Dec | 17

COVID-19

Situation Report 494

i. Background

In December, China notified the World Health Organization (WHO) of several cases of human respiratory illness, which appeared to be linked to an open seafood and livestock market in the city of Wuhan. The infecting agent has since been identified as a novel coronavirus, previously known as 2019-nCoV and now called SAR-CoV-2; The new name of the disease has also been termed COVID-19, as of 11th February 2020. Although the virus is presumed zoonotic in origin, person-to-person spread is evident. Screening of travellers, travel bans and quarantine measures are being implemented in many countries. Despite these precautions, it is anticipated that more cases will be seen both inside China and internationally. The WHO declared the outbreak of COVID-19 constitutes a Public Health Emergency of International Concern on 30 January. On 11 March, 2020, WHO declared the coronavirus outbreak a pandemic as the global death toll rose above 4,600 and the number of confirmed cases topped 125,000. This report aims to update Global Risk Assessment, Global Epidemiology, Quarantine Orders, Travel Ban/Advisory by countries, WHO's and CDC's Guidance and Protocols and Scientific publication on a daily basis. **New updates in the tables are bolded.**

ii. Global Risk Assessment

Table 1. Risk assessment of COVID-19 by WHO regions (Updated as of 17 December 2021, 1400H SGT)

Environmental Risk	Transmissibility	Severity of Disease	Availability of Treatment/ Vaccination [#]	Overall Risk [%]
Global (n=198 countries)				
<p>High</p> <p>Globally, 191 (96.5%) countries (excluding territories*) have reported the outbreak.</p> <p>Using an incidence >20 cases/100,000 people over the past 14-days as cut-off for a surge in cases, the number of countries reporting a surge in cases in each region are as follows: Combined WPRO and SEARO (12 countries), EURO (49 countries), EMRO (8 countries), Americas (29 countries), and Africa (9 countries).</p> <p>Only 4 (2%) countries/territories have no reported restrictions on inbound arrivals, while 152 (82%) countries/territories have partially reopened their borders – require arrivals to produce a negative COVID-19 test result and/or undergo self-quarantine upon arrival. 43 (23%) countries/territories are totally closed to international arrivals. [1]</p> <p>On October 7, the Centers for Disease Control and Prevention (CDC) confirmed airborne transmission of SARS-CoV-2. [2]</p> <p>The U.S. CDC has revised its guidance on COVID-19 quarantine period from 14 days to 7-10 days, based one's test results and symptoms. Individuals without symptoms only need quarantine for 10 days without testing; those tested negative can quarantine for 7 days. [14]</p> <p>The US Centers for Disease Control and Prevention (CDC) on 10 Feb announced that fully vaccinated people did not need to quarantine if they received their last dose within three months and 14 days after their last shot, the time it takes to develop immunity. [16]</p>	<p>Based on CDC data, median R_0 is estimated to be 5.8 (95% CI 4.4–7.7), but the estimated effective reproduction number in 178 countries ranged from 0.16 to 4.3.[§]</p>	<p>Case fatality rate is currently at 1.96% globally. Most cases present as flu-like illness.</p>	<p>Limited</p> <p>The number of countries that have commenced mass vaccination in each region are as follows: Combined WPRO and SEARO (33 countries), EURO (53 countries), EMRO (21 countries), Americas (35 countries), and Africa (46 countries).^{&}</p> <p>International clinical trials published on 2 September confirm that cheap, widely available steroid drugs can help seriously ill patients survive Covid-19. The World Health Organization issued new treatment guidance, strongly recommending steroids to treat severely and critically ill patients, but not to those with mild disease. [4]</p> <p>Researchers have found all regimens of anticoagulants to be far superior to no anticoagulants in COVID-19 patients. More specifically, patients on both a “therapeutic” or full dose and those on a “prophylactic” or lower dose, showed about a 50% higher chance of survival and roughly a 30% lower chance of intubation, than those not on anticoagulants. It was observed that therapeutic and prophylactic subcutaneous low-molecular weight heparin and therapeutic oral apixaban may lead to better results. [3]</p> <p>A new strain known as B.1.525 containing the same E484K mutation found in the Brazilian and South African variants has been detected in Britain [18].</p> <p>As of 6 July, the WHO recommended using arthritis drugs Actemra (tocilizumab) and Kevzara (sarilumab) with corticosteroids for severe and critical COVID-19 patients. [27]</p>	<p>High</p>

			<p>On 4 Aug, the WHO called for a moratorium on COVID-19 vaccine boosters until at least the end of September, to enable that at least 10% of the population of every country was vaccinated. [28]</p> <p>On 3 Sept, emergency use of the Soberana 2 vaccine was authorized in Cuba for minors between the ages of two and 18. [31]</p> <p>On 8 Sep, World Health Organization called for a moratorium on using coronavirus booster shots until the end of the year or longer especially among healthy people who are fully vaccinated. [32]</p> <p>On 29 October, the US Food and Drug Administration (FDA) approved Pfizer's Covid-19 vaccine for emergency use in children aged five to 11 which was later signed off by the CDC on 2 November. [34]</p> <p>On 26 November 2021, WHO designated the variant B.1.1.529 a variant of concern, named Omicron. This variant has several mutations which may impact how it behaves in terms of its transmissibility or the severity of illness it causes. [37]</p>	
Western Pacific Region and South-East Asia Region (n=41 countries)				
<p>Moderate</p> <p>35 (85.4%) countries have reported outbreaks; but only 12 (29.3%) countries are reporting a surge in cases.</p> <p>14 (34.2%) countries have either a constant decreasing change in incidence or no case in the last 14 days.</p> <p>Highest incidence over the past 14 days were reported from Laos, Malaysia, Maldives, South Korea and Vietnam, and highest case numbers were reported from India, Malaysia, South Korea, Thailand and Vietnam.</p> <p>At least 16 countries have closed their borders, 24 countries have opened their borders partially conditionally, and none is allowing free travel.</p>	<p>As of Dec 14, the estimated effective reproduction no. of 25 countries ranged from 0.7-1.1. [§]</p>	<p>Case fatality rate is 1.56%.</p>	<p>High</p> <p>33 countries have commenced vaccination as of 17 December 2021. Coverage was available for the following: i) at least 1 dose was at 51-80% for 21 countries; >80% for 7 countries ii) full vaccination was at 51-80% for 15 countries; >80% for 6 countries. ^{&}</p> <p>Indonesia has approved Russian drug Avifavir for emergency use. [22]</p> <p>China has approved the use of 3 traditional chinese medicines, Qingfei Paidu Formula, Huashi Baidu Formula and Xuanfei Baidu Formula, for COVID-19 treatment. [20]</p> <p>As of 4 June, India has approved a combination of monoclonal antibodies, bamlanivimab and etesevimab for</p>	<p>High</p>

			<p>restricted use in emergency situations in hospital settings in adults [24].</p> <p>As of 8 Oct 2021, Philippines authorized the emergency use of Ronapreve as a treatment against mild and moderate COVID-19 for patients aged 12 and above [33].</p>	
European Region (n=53 countries)				
<p>High</p> <p>52 (98.1%) countries have reported with outbreaks; 49 (92.5%) countries are reporting a surge in cases.</p> <p>2 (3.8%) countries have either a constant decreasing change in incidence or no case in the last 14 days.</p> <p>Highest incidence over the past 14 days were reported from Andorra, Czechia, Denmark, San Marino and Slovakia, and highest case numbers were reported from France, Germany, Poland, Russia, and United Kingdom.</p> <p>At least 5 countries have closed their borders, 47 countries have opened their borders partially conditionally, and only 1 country is allowing free travel.</p>	<p>As of Dec 14, the estimated effective reproduction no. of 52 countries ranged from 0.16-1.3.[§]</p>	<p>Case fatality rate is 1.72%.</p>	<p>High</p> <p>53 countries have commenced vaccination as of 17 December 2021. Coverage was available for the following i) at least 1 dose was at 51-80% for 30 countries; >80% for 6 countries; ii) full vaccination was at 51-80% for 31 countries; >80% for 3 countries.^{&}</p> <p>On February 28, France authorized its first ever use of synthetic monoclonal antibody, bamlanivab by Eli Lilly, for use on severe COVID-19 patients. [19]</p> <p>As of February 14, Italy authorized the use of the two monoclonal antibodies of companies Eli Lilly and Regeneron aimed mainly at more serious patients with COVID-19 [17].</p> <p>On 12 November, the European Commission (EC) has authorized Regeneron-Roche's antibody cocktail, Ronapreve, for treatment of adults and adolescents who do not required oxygen supposed and are at high risk of severe diseases in the EU. [35]</p> <p>On 10 December, the French National Authority for Health (HAS) authorised the use of AstraZeneca's antibody cocktail, Evusheld, for high-risk individuals with resistance to COVID-19 vaccines to prevent severe COVID-19 manifestation, and is not recommended for patients with two or more risk factors such as diabetes and obesity. [38]</p>	High

Eastern Mediterranean Region (n=22 countries)				
<p>Moderate</p> <p>22 (100%) countries have reported with outbreak; 8 (36.4%) countries are reporting a surge in cases.</p> <p>0 (0%) country has either a constant decreasing change in incidence or no case in the last 14 days.</p> <p>Highest incidence over the past 14 days were reported from Jordan, Lebanon, Libya, Palestine, and Qatar, and highest case numbers were reported from Egypt, Iran, Iraq, Jordan and Lebanon.</p> <p>At least 4 countries have closed their borders, 17 countries have opened their borders partially conditionally, and only 1 country is allowing free travel.</p>	<p>As of Dec 14, the estimated effective reproduction no. of 21 countries ranged from 0.77-1.5.[§]</p>	<p>Case fatality rate is 1.84%.</p>	<p>High</p> <p>21 countries have commenced vaccination as of 17 December 2021. Coverage was available for the following: i) at least 1 dose was at 51-80% for 6 countries; >80% for 3 countries; ii) full vaccination was at 51-80% for 7 countries; >80% for 1 country.^{&}</p> <p>As of June 25, the Abu Dhabi Stem Cell Centre has treated more than 2,000 COVID-19 patients using UAECell19. 1,200 have fully recovered. [6]</p> <p>As of April, an Israeli firm is using placenta pluristem cells to treat COVID-19 patients on a compassionate use basis. [5]</p> <p>As of June 4, UAE authorised the emergency use of Sotrovimab, a kind of monoclonal antibody drug [25].</p> <p>As of 19 November, Bahrain approved AstraZeneca's drug Evusheld for emergency use amongst immunodeficient adults, those taking immunosuppressants, or exposed to increased risk of infections due to their occupations. [36]</p>	<p>High</p>
Region of the Americas (n=35 countries)				
<p>High</p> <p>35 (100%) countries have reported with outbreak; 29 (82.9%) countries are reporting a surge in cases.</p> <p>0 (0%) country has either a constant decreasing change in incidence or no case in the last 14 days.</p> <p>Highest incidence over the past 14 days were reported from Barbados, Bolivia, Dominica, Trinidad and Tobago, and USA, and highest case numbers were reported from Argentina, Brazil, Canada, Mexico and USA.</p> <p>At least 9 countries have closed their borders, 24 countries have opened their borders partially conditionally, and 2 countries are allowing free travel.</p>	<p>As of Dec 14, the estimated effective reproduction no. of 35 countries ranged from 0.59-1.2.[§]</p>	<p>Case fatality rate is 2.40%.</p>	<p>High</p> <p>35 countries have commenced vaccination as of 17 December 2021. Coverage was available for the following: i) at least 1 dose was at 51-80% for 18 countries; >80% for 4 countries ii) full vaccination was at 51-80% for 13 countries; >80% for 2 countries.^{&}</p> <p>With the increase of multiple variants of COVID-19, the U.S. FDA will limit the use of monoclonal antibody treatments developed by Regeneron and Eli Lilly due to concerns the medications are not effective against these new strains. Eli Lilly's bamlanivimab will not be distributed to California, Arizona and Nevada, where those variants are more common. [21]</p> <p>FDA has issued EUA to Eli Lilly's combination antibody therapy of</p>	<p>High</p>

		<p>bamlanivimab and etesevimab to treat mild to moderate COVID-19 patients who are at risk of serious illness or hospitalization. [15]</p> <p>The Food and Drug Administration has allowed the combination use of baricitinib and Remdesivir under emergency use authorization. The EUA covers dosing of patients (above the age of two) who are on supplemental oxygen, receiving invasive mechanical ventilation or extracorporeal membrane oxygenation. [12]</p> <p>Health Canada has approved bamlanivimab, for the treatment of COVID-19 in patients 12 years and older with mild to moderate symptoms who are at risk of severe disease progression. [11]</p> <p>FDA has allowed emergency use of Eli Lilly & Co's bamlanivimab for non-hospitalized patients at risk of serious illness due to age or other conditions. [10]</p> <p>FDA has issued emergency authorisation for convalescent plasma to treat COVID-19. [9]</p> <p>RLF-100 (aviptadil) by NeuroRx and Relief Therapeutics was approved for emergency use in COVID-19 patients who are too ill to participate in the trial. [8]</p> <p>As of October 22, remdesivir is the first and only FDA-approved COVID-19 treatment in the U.S. [7].</p> <p>FDA has issued emergency authorisation for sotrovimab to treat mild-to-moderate Covid-19 adults and paediatric patients (12 years old and older weighing at least 40kg) who are at risk of severe disease progression. [23]</p> <p>As of 25 June, US FDA has issued emergency authorisation for Actemra/RoActemra (tocilizumab) to treat hospitalized adults and pediatric patients receiving corticosteroids and requiring supplemental oxygen, breathing support or ECMO. [26]</p>
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			<p>As of 5 Aug, FDA has expanded the use of antibody cocktail, REGEN-COV, updating its emergency use authorisation (EUA) to include those at high risk of developing severe COVID-19 who have been exposed to the virus. [29]</p> <p>As of Aug 11, Brazil has issued emergency authorisation to Celltrion's regdanvimab for high-risk patients with mild and moderate Covid-19. [30]</p>	
African Region (n=47 countries)				
<p>Moderate</p> <p>47 (100%) countries have reported with outbreak; 9 (19.6%) countries are reporting a surge in cases.</p> <p>1 (2.1%) country has either a constant decreasing change in incidence or no case in the last 14 days.</p> <p>Highest incidence over the past 14 days were reported from Botswana, Eswatini, Seychelles, South Africa, and Zimbabwe, and highest case numbers were reported from Eswatini, Mozambique, Nigeria, South Africa and Zimbabwe.</p> <p>At least 9 countries have closed their borders, 38 countries have opened their borders partially conditionally, and no country is allowing free travel.</p>	<p>As of Dec 14, the estimated effective reproduction no. of 45 countries ranged from 0.39-4.3.[§]</p>	<p>Case fatality rate is 2.33%.</p>	<p>High</p> <p>46 countries have commenced vaccination as of 17 December 2021. Coverage was available for the following: i) at least 1 dose was at 51-80% for 3 countries; >80% for 1 country; ii) full vaccination was at 50-80% for 1 country; >80% for 1 country.^{&}</p> <p>Ethiopia has approved the use of Dexamethasone treatment for seriously ill COVID-19 patients. [13]</p>	<p>High</p>

*Only WHO member states are included. 30 territories that have reported cases (with the exception of Palestine) are excluded from the tabulation of total countries affected/imported/local cases and case fatality rate. Refer to WHO situation reports or table 4 for information.

[§] <https://epiforecasts.io/covid/posts/global/>

[^]Differences between R0 and effective R can be found here <https://www.coronavirustoday.com/r-number-refers-either-basic-or-effective-reproduction-number>

[&] <https://www.bloomberg.com/graphics/covid-vaccine-tracker-global-distribution/>; High vaccine coverage defined as >70% population with full vaccination

[%] In view of the reduction in case fatality rate and effective reproduction number with increasing vaccination, the two metric are no longer conferred a risk level in our risk assessment matrix; overall risk of each region is compiled using risk of the environment and availability of treatment only.

iii. Global Epidemiology

Table 2. Summary of COVID-19 cases & fatalities globally (Updated as of 17 December 2021, 1400H SGT)

No. of Countries/Territories with Cases	Total Global Cases	Total Cases Outside Mainland China	Total Deaths	Case-Fatality Rate (%) [overall]	Case-Fatality Rate (%) [outside China]	R ₀
222	273,241,846	273,141,770	5,353,148	1.96%	1.96%	5.8 (95% CI 4.4–7.7) [^]

[^]Based on early release as of 10th April, 2020: https://wwwnc.cdc.gov/eid/article/26/7/20-0282_article

Table 3. Comparison with other viruses

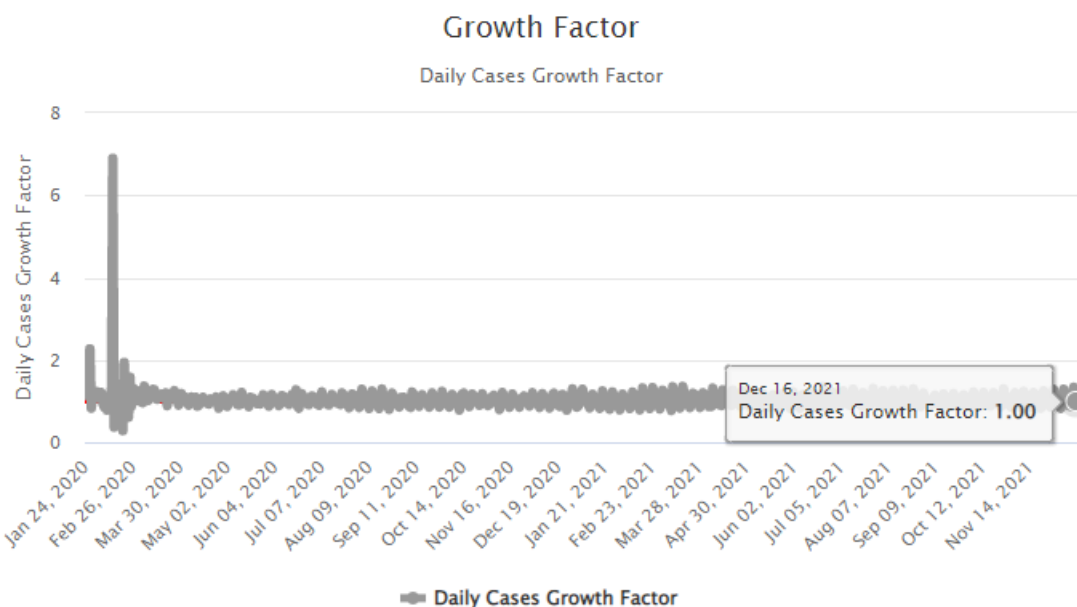
Virus	Incubation Period (Days)	Case Fatality Rate (%)	R ₀
SARS-CoV-2	Median = 5.1 [§] (2-14) or up to 24*	1.96	5.8 (95% CI 4.4–7.7) [^]
SARS-CoV	2-7	9.6	2.0
MERS-CoV	5 (2-14)	34	<1 (higher in health care setting)
Swine Flu	1-4	0.02	1.2-1.6

*Data on 1099 patients from 552 hospitals in 31 provinces of China

[^]https://wwwnc.cdc.gov/eid/article/26/7/20-0282_article

[§]Data on 181 cases outside china

Figure 1. Growth Factor of Daily New Cases (Mainland China+ Other countries)



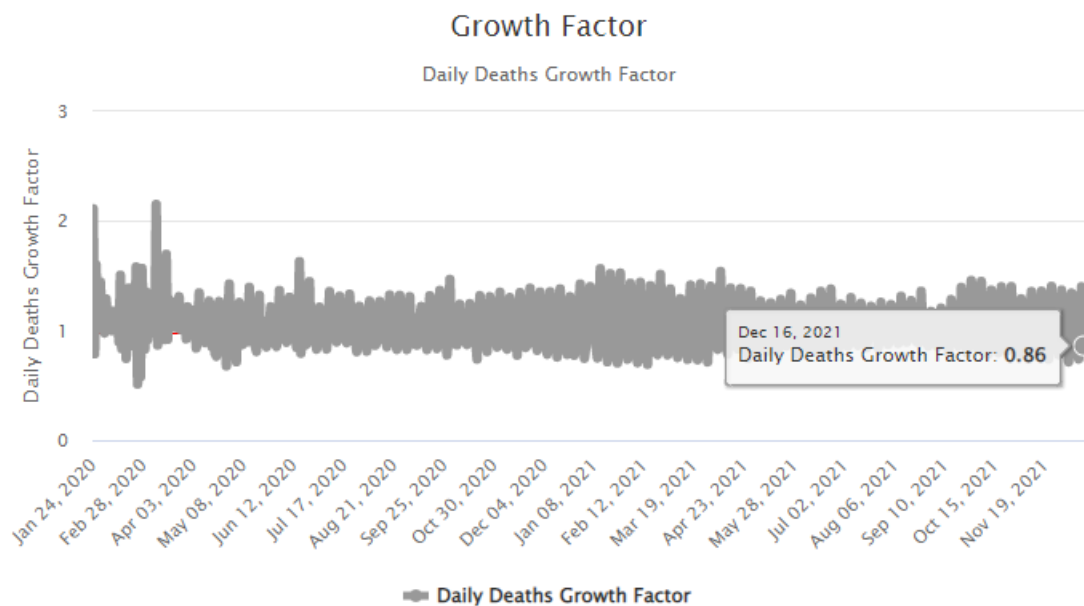
Growth Factor = every day's cases/cases on previous day. A growth factor above 1 indicates an increase, whereas one between 0 and 1 is a sign of decline, with the quantity eventually becoming zero. A growth factor below 1 (or above 1 but trending downward) is a positive sign, whereas a growth factor constantly above 1 is the sign of exponential growth.

*Huge jump in cases on Feb. 12 is attributed to the change in diagnostic criteria in China.

Figure 2. Growth Factor excluding mainland China



Figure 3. Growth Factor of Novel Coronavirus Daily Deaths (Mainland China + Other Countries)



Growth Factor = every day's cases/cases on previous day. A growth factor above 1 indicates an increase, whereas one between 0 and 1 is a sign of decline, with the quantity eventually becoming zero. A growth factor below 1 (or above 1 but trending downward) is a positive sign, whereas a growth factor constantly above 1 is the sign of exponential growth.

Source: <https://www.worldometers.info/coronavirus/coronavirus-cases/>

Case Breakdown by Countries

Live update of COVID-19 global cases can be found at

<https://storymaps.arcgis.com/stories/a1746ada9bff48c09ef76e5a788b5910>

Table 4. Breakdown of COVID-19 confirmed cases and deaths from 11 – 17 December 2021
(Updated as of 17 December 2021, 1400H SGT)

No.	Country	Total Cases	Change in Cases	Total Deaths	Change in Deaths	Total Recovered	Region
1	USA	51,435,652	+899,861	824,520	+9,251	40,406,796	Americas
2	UK	11,097,851	+436,870	146,937	+802	9,658,375	EURO
3	France	8,460,712	+354,927	121,171	+1,003	7,430,011	EURO
4	Germany	6,709,218	+353,330	108,154	+3,144	5,679,400	EURO
5	Russia	10,131,646	+205,840	294,024	+8,020	8,876,788	EURO
6	South Africa	3,255,816	+162,364	90,262	+202	2,954,919	Africa
7	Spain	5,422,168	+148,990	88,667	+346	4,965,069	EURO
8	Italy	5,308,180	+143,400	135,301	+750	4,854,949	EURO
9	Poland	3,903,445	+143,397	90,306	+2,949	3,361,528	EURO
10	Turkey	9,118,424	+134,017	79,863	+1,261	8,712,929	EURO
11	Vietnam	1,493,237	+125,804	28,857	+1,671	1,064,461	WPRO
12	Netherlands	2,936,761	+108,106	20,310	+391	2,314,162	EURO
13	Czechia	2,378,728	+80,287	34,923	+794	2,100,324	EURO
14	Belgium	1,990,160	+75,633	27,763	+300	1,466,281	EURO
15	Switzerland	1,160,120	+63,644	11,932	+179	910,462	EURO
16	Ukraine	3,588,147	+55,790	92,313	+2,412	3,284,815	EURO
17	Denmark	589,274	+53,079	3,051	+68	494,150	EURO
18	India	34,726,049	+51,305	476,869	+2,134	34,162,765	SEARO
19	S. Korea	551,551	+47,945	4,591	+461	448,809	WPRO
20	Hungary	1,213,318	+37,280	37,376	+1,113	1,016,089	EURO
21	Slovakia	794,166	+36,674	15,730	+551	681,741	EURO
22	Canada	1,857,999	+34,989	30,012	+136	1,784,078	Americas
23	Norway	339,008	+33,640	1,202	+67	88,952	EURO
24	Greece	1,022,141	+32,327	19,651	+669	943,142	EURO
25	Zimbabwe	186,304	+30,487	4,771	+48	132,137	Africa
26	Portugal	1,211,130	+29,836	18,717	+107	1,122,741	EURO
27	Ireland	640,548	+29,693	5,835	+47	501,578	EURO
28	Jordan	1,027,844	+29,352	12,118	+239	951,537	EMRO
29	Malaysia	2,707,402	+28,937	31,026	+239	2,620,147	WPRO
30	Brazil	22,204,941	+27,882	617,521	+1,017	21,414,318	Americas
31	Argentina	5,376,642	+25,775	116,874	+155	5,225,452	Americas
32	Austria	1,242,333	+24,897	13,386	+375	1,174,915	EURO
33	Thailand	2,185,497	+24,717	21,325	+215	2,120,691	SEARO
34	Croatia	666,162	+21,956	11,825	+380	630,255	EURO
35	Georgia	901,202	+21,834	12,918	+336	849,090	EURO
36	Sweden	1,246,755	+20,700	15,191	+39	1,171,165	EURO
37	Iran	6,165,454	+17,582	130,946	+422	5,990,898	EMRO

38	Australia	242,766	+17,123	2,134	+52	216,658	WPRO
39	Mexico	3,927,265	+15,551	297,356	+1,170	3,281,944	Americas
40	Colombia	5,101,466	+13,458	129,295	+326	4,942,391	Americas
41	Bolivia	560,684	+12,792	19,391	+115	508,522	Americas
42	Finland	211,239	+11,982	1,446	+40	46,000	EURO
43	Lithuania	497,643	+11,419	7,059	+139	463,060	EURO
44	Lebanon	696,168	+11,006	8,900	+86	644,080	EMRO
45	Peru	2,260,180	+10,509	202,076	+549	N/A	Americas
46	Bulgaria	721,819	+10,455	29,933	+551	596,796	EURO
47	Belarus	679,873	+10,242	5,338	+111	671,001	EURO
48	Laos	94,554	+10,051	262	+38	7,339	WPRO
49	Chile	1,787,676	+9,306	38,773	+173	1,691,683	Americas
50	Serbia	1,279,445	+9,038	12,306	+231	1,238,118	EURO
51	Slovenia	445,218	+8,852	5,452	+87	419,890	EURO
52	Eswatini	57,842	+7,505	1,255	+7	46,590	Africa
53	Sri Lanka	577,724	+7,052	14,698	+143	546,498	SEARO
54	Azerbaijan	608,060	+7,032	8,149	+111	582,243	EURO
55	Egypt	372,599	+5,965	21,234	+315	310,049	EMRO
56	Nigeria	221,071	+5,907	2,983	+3	211,345	Africa
57	Romania	1,796,230	+5,659	58,019	+585	1,721,785	EURO
58	Ecuador	535,414	+5,288	33,586	+92	443,880	Americas
59	Latvia	264,965	+4,957	4,419	+70	250,477	EURO
60	Trinidad and Tobago	83,130	+4,791	2,503	+167	65,966	Americas
61	Israel	1,353,281	+4,481	8,230	+20	1,338,654	EURO
62	DRC	63,388	+4,180	1,126	+11	50,930	Africa
63	Mozambique	156,729	+4,143	1,948	+7	150,206	Africa
64	Cyprus	143,510	+4,142	616	+9	124,370	EURO
65	Namibia	134,154	+3,924	3,579	+4	126,206	Africa
66	Venezuela	440,398	+3,796	5,265	+42	428,645	Americas
67	Botswana	199,864	+3,774	2,425	+4	192,452	Africa
68	Estonia	230,514	+3,656	1,869	+31	215,358	EURO
69	Kazakhstan	981,981	+3,619	12,903	+75	951,686	EURO
70	Libya	380,464	+3,591	5,583	+54	367,936	EMRO
71	Réunion	67,237	+3,374	393	+2	62,026	Non
72	Bosnia and Herzegovina	283,784	+3,315	13,091	+209	192,218	EURO
73	Singapore	274,972	+2,993	808	+29	269,783	WPRO
74	Iraq	2,089,669	+2,967	24,030	+87	2,058,306	EMRO
75	Moldova	371,410	+2,913	9,450	+135	356,606	EURO
76	Kenya	258,557	+2,761	5,350	+11	249,154	Africa
77	Luxembourg	95,759	+2,699	897	+8	88,892	EURO
78	Zambia	213,139	+2,577	3,673	+5	206,800	Africa
79	Myanmar	527,714	+2,311	19,201	+44	504,482	SEARO
80	Palestine	435,473	+2,256	4,590	+28	426,890	EMRO
81	Panama	482,230	+2,140	7,397	+15	471,139	Americas
82	Pakistan	1,290,491	+2,125	28,863	+51	1,252,157	EMRO

83	North Macedonia	220,467	+2,105	7,778	+83	207,238	EURO
84	Albania	204,928	+2,065	3,156	+28	196,298	EURO
85	Lesotho	23,903	+2,065	665	+2	13,928	Africa
86	Bangladesh	1,580,559	+2,009	28,041	+25	1,545,114	SEARO
87	Guatemala	623,195	+1,867	16,061	+41	606,378	Americas
88	Ethiopia	374,402	+1,691	6,855	+36	350,697	Africa
89	Uruguay	403,582	+1,685	6,149	+9	394,934	Americas
90	Uzbekistan	196,739	+1,641	1,453	+25	193,478	EURO
91	Nepal	825,176	+1,622	11,567	+18	808,083	SEARO
92	Mongolia	386,520	+1,608	2,041	+13	313,256	WPRO
93	Dominican Republic	411,014	+1,524	4,220	+6	405,155	Americas
94	Algeria	213,745	+1,521	6,171	+45	147,069	Africa
95	Tunisia	720,518	+1,512	25,450	+34	693,471	EMRO
96	El Salvador	121,267	+1,464	3,802	+11	104,989	Americas
97	Armenia	343,157	+1,389	7,874	+127	327,029	EURO
98	Malawi	63,408	+1,320	2,311	+4	59,040	Africa
99	Channel Islands	21,457	+1,298	108	+1	19,440	Non
100	Indonesia	4,259,857	+1,297	143,979	+61	4,111,045	SEARO
101	Andorra	20,549	+1,277	134	+1	18,285	EURO
102	Montenegro	160,457	+1,243	2,367	+27	156,078	EURO
103	Martinique	46,700	+1,199	749	+31	104	Non
104	Qatar	246,024	+1,157	614	+3	242,980	EMRO
105	Morocco	952,189	+1,097	14,802	+8	936,045	EMRO
106	Philippines	2,837,016	+1,020	50,496	+560	2,776,425	WPRO
107	Madagascar	45,794	+994	980	+8	43,393	Africa
108	Iceland	20,044	+992	36	+1	18,530	EURO
109	Japan	1,729,401	+991	18,378	+7	1,709,967	WPRO
110	Maldives	93,629	+875	259	+4	91,346	SEARO
111	Malta	41,059	+790	471	+3	38,644	EURO
112	UAE	743,352	+785	2,151	+2	738,260	EMRO
113	Sudan	45,112	+706	3,252	+46	36,009	EMRO
114	New Zealand	13,317	+696	49	+5	11,165	WPRO
115	Ghana	131,911	+665	1,255	+27	129,683	Africa
116	Burundi	21,143	+620	38	0	773	Africa
117	Mali	18,938	+609	634	+12	15,606	Africa
118	China	100,076	+559	4,636	0	93,884	WPRO
119	Syria	49,565	+557	2,833	+35	30,865	EMRO
120	Isle of Man	12,895	+549	67	0	12,020	Non
121	Costa Rica	568,428	+522	7,336	+8	559,496	Americas
122	Paraguay	464,096	+516	16,523	+31	446,822	Americas
123	Rwanda	101,030	+513	1,344	0	45,522	Africa
124	Barbados	27,071	+506	255	+9	25,229	Americas
125	Uganda	128,300	+504	3,271	+8	97,927	Africa
126	Cuba	963,885	+457	8,313	+2	955,199	Americas
127	Saudi Arabia	550,542	+454	8,858	+8	539,793	EMRO
128	Mauritius	22,815	+422	680	+225	21,261	Africa

129	San Marino	6,600	+383	94	0	5,978	EURO
130	Burkina Faso	16,672	+338	296	+6	15,926	Africa
131	Jamaica	91,927	+326	2,433	+17	63,624	Americas
132	Guyana	38,728	+326	1,026	+12	36,962	Americas
133	French Guiana	46,690	+325	335	+4	11,254	Non
134	Liechtenstein	5,503	+317	68	+3	5,108	Non
135	Kyrgyzstan	184,123	+313	2,779	+15	179,205	EURO
136	Angola	65,648	+302	1,737	+1	63,635	Africa
137	Bahrain	278,257	+293	1,394	0	276,458	EMRO
138	Kuwait	413,891	+283	2,466	0	411,000	EMRO
139	Monaco	4,283	+277	36	0	3,990	EURO
140	Faeroe Islands	4,477	+265	13	0	4,040	Non
141	Mauritania	39,964	+260	852	+6	38,629	Africa
142	Seychelles	24,047	+241	131	+2	23,574	Africa
143	Belize	31,217	+226	589	+3	30,022	Americas
144	Gibraltar	7,683	+220	100	0	7,268	Non
145	CAR	11,961	+219	101	0	6,859	Africa
146	South Sudan	13,049	+207	133	0	12,576	Africa
147	Cayman Islands	8,036	+197	9	0	4,572	Non
148	Honduras	378,735	+188	10,428	+9	123,190	Americas
149	Aruba	16,716	+185	178	+2	16,307	Non
150	Suriname	51,323	+174	1,179	+3	48,873	Americas
151	Tanzania	26,483	+174	734	0	N/A	Africa
152	Haiti	25,907	+163	765	+7	22,583	Americas
153	Greenland	1,937	+163	0	0	1,728	Non
154	Guadeloupe	55,441	+157	749	+1	2,250	Non
155	Curaçao	17,693	+153	183	+3	17,322	Non
156	Afghanistan	157,725	+140	7,332	+11	145,507	EMRO
157	Ivory Coast	61,998	+135	706	0	61,044	Africa
158	Papua New Guinea	35,966	+131	587	+14	35,162	WPRO
159	Gabon	37,681	+130	285	+4	35,090	Africa
160	Eritrea	7,713	+130	65	+3	7,509	Africa
161	Anguilla	1,592	+123	4	0	1,521	Non
162	Congo	19,179	+113	365	+6	12,421	Africa
163	Cameroon	107,662	+113	1,836	+13	105,307	Africa
164	Bahamas	22,971	+112	713	+8	21,666	Americas
165	Togo	26,466	+109	244	+1	25,959	Africa
166	Oman	304,783	+104	4,113	0	300,122	EMRO
167	New Caledonia	12,445	+102	280	0	11,979	Non
168	Mayotte	21,139	+96	185	0	2,964	Non
169	Cambodia	120,405	+93	3,001	+27	116,771	WPRO
170	Dominica	6,286	+78	42	0	5,874	Americas
171	St. Vincent Grenadines	5,723	+78	77	+1	5,111	Americas
172	Brunei	15,376	+75	98	0	15,058	WPRO
173	British Virgin Islands	2,886	+70	39	+1	N/A	Non

174	Taiwan	16,771	+67	849	+1	15,717	WPRO
175	Caribbean Netherlands	3,175	+66	22	0	3,030	Non
176	Nicaragua	17,391	+63	210	0	4,225	Americas
177	Senegal	74,115	+61	1,886	0	72,185	Africa
178	Saint Lucia	13,127	+60	285	+2	12,756	Americas
179	Cabo Verde	38,541	+59	351	0	38,092	Africa
180	Bermuda	5,815	+55	106	0	5,647	Non
181	Niger	7,185	+54	271	+6	6,879	Africa
182	Comoros	4,606	+50	151	0	4,400	Africa
183	Gambia	10,045	+47	342	0	9,645	Africa
184	Sint Maarten	4,664	+40	75	0	4,543	Non
185	Turks and Caicos	3,158	+39	25	0	3,074	Non
186	Yemen	10,086	+39	1,973	+16	6,958	EMRO
187	Fiji	52,604	+37	697	0	51,162	WPRO
188	Saint Martin	4,008	+35	56	0	1,399	Non
189	Hong Kong	12,507	+28	213	0	12,180	WPRO
190	Antigua and Barbuda	4,178	+27	117	0	4,033	Americas
191	Somalia	23,074	+23	1,333	+2	12,817	EMRO
192	St. Barth	1,621	+18	6	0	N/A	Non
193	Equatorial Guinea	13,617	+18	175	0	13,406	Africa
194	Guinea	30,814	+16	388	0	29,776	Africa
195	Sierra Leone	6,434	+14	121	0	N/A	Africa
196	Djibouti	13,526	+12	189	+1	13,304	EMRO
197	Liberia	5,844	+12	287	0	5,535	Africa
198	Benin	24,907	+10	161	0	24,705	Africa
199	Guinea-Bissau	6,455	+10	149	0	6,287	Africa
200	French Polynesia	46,342	+8	636	0	N/A	Non
201	Saint Kitts and Nevis	2,798	+6	28	0	2,765	Americas
202	Saint Pierre Miquelon	96	+5	0	0	74	Non
203	Grenada	5,915	+5	200	0	5,665	Americas
204	Bhutan	2,652	+4	3	0	2,630	SEARO
205	Sao Tome and Principe	3,735	+2	57	0	3,676	Africa
206	Timor-Leste	19,830	+1	122	0	19,704	SEARO
207	Chad	5,701	0	181	0	4,874	Africa
208	Wallis and Futuna	454	0	7	0	438	Non
209	Tajikistan	17,095	0	124	0	16,966	EURO
210	Macao	77	0	0	0	77	WPRO
211	Montserrat	44	0	1	0	43	Non
212	Falkland Islands	83	0	0	0	N/A	Non
213	Tonga	1	0	0	0	1	WPRO
214	Vanuatu	6	0	1	0	5	WPRO
215	Diamond Princess	712	0	13	0	699	NA
216	Palau	8	0	0	0	8	WPRO

217	Vatican City	27	0	0	0	27	Non
218	Samoa	3	0	0	0	3	WPRO
219	Solomon Islands	20	0	0	0	20	WPRO
220	Western Sahara	10	0	1	0	8	Non
221	MS Zaandam	9	0	2	0	7	NA
222	Marshall Islands	4	0	0	0	4	WPRO
223	Saint Helena	2	0	0	0	2	Non
224	Micronesia	1	0	0	0	1	WPRO
	Total	273,241,846	4,501,380	5,353,148	50,186	243,606,533	

Figure 4. Areas with reported confirmed cases of COVID-19 (6 – 12 December 2021)

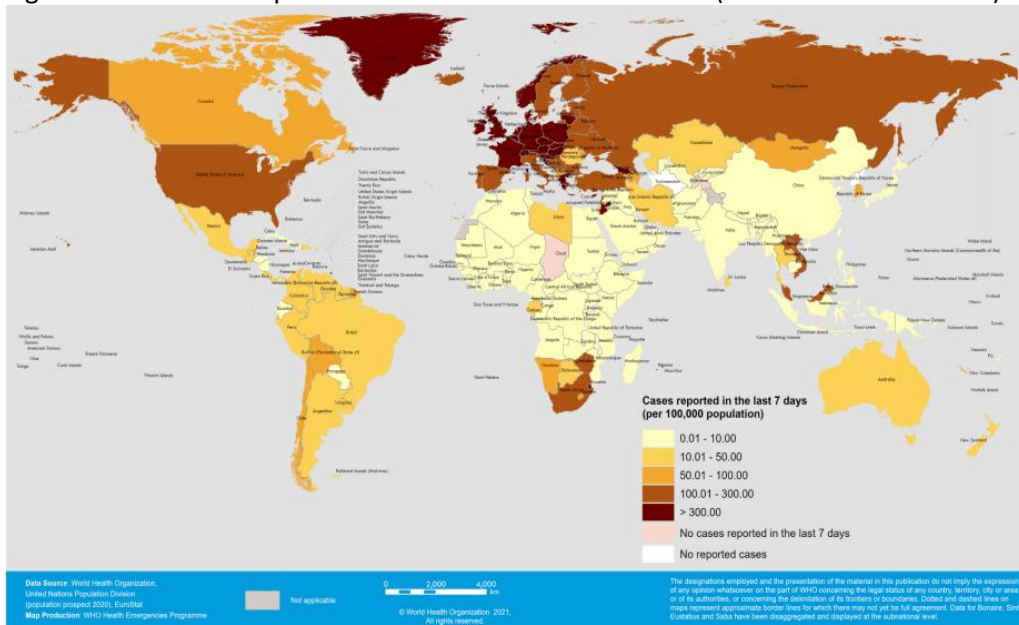
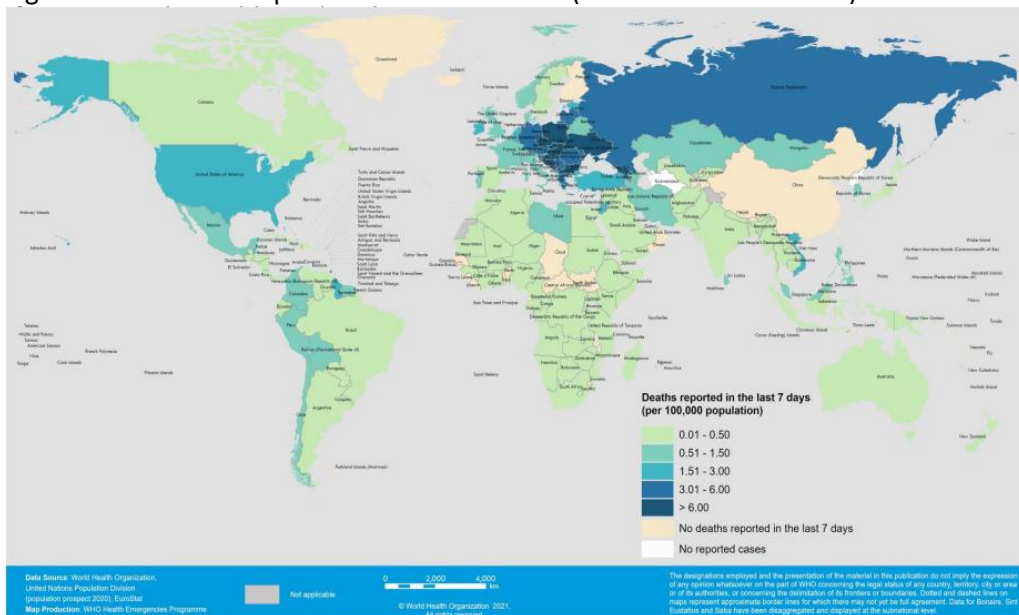


Figure 5. Areas with reported COVID-19 deaths (6 – 12 December 2021)



Source: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>

Table 6. Breakdown of COVID-19 omicron confirmed and probable cases
(Updated as of 17 December 2021, 1500H SGT)

Location	Cases	Cases
	<i>confirmed</i>	<i>probable</i>
United Kingdom	11,708	-
Denmark	9,009	-
Norway	1,792	-
South Africa	1,134	77,844
Canada	488	-
United States	421	985
France	310	-
Australia	236	-
South Korea	151	-
Belgium	131	-
Switzerland	129	-
Netherlands	123	-
Germany	116	213
Israel	90	150
India	88	-
Botswana	84	-
Austria	71	-
Portugal	69	-
Spain	60	-
Sweden	51	-
Zimbabwe	50	-
Ghana	40	-
Iceland	40	-
Ireland	39	-
Japan	32	-
Chile	29	-
Italy	27	-
Gibraltar	26	-
Finland	20	-
Namibia	18	-
Greece	17	-
Mozambique	17	2
Bermuda	16	-
Brazil	16	-
Russia	16	-
Singapore	16	-
Hong Kong	15	-
Latvia	14	-
Nigeria	11	-
Romania	11	-
Zambia	11	-
Czechia	9	-
Lebanon	8	16
Senegal	7	-
Uganda	7	-

Location	Cases	Cases
	<i>confirmed</i>	<i>probable</i>
Estonia	6	105
Rwanda	6	-
Turkey	6	-
Cuba	5	-
Montenegro	5	-
Jordan	4	-
Slovenia	4	-
Croatia	3	-
Cyprus	3	-
Kenya	3	-
Malawi	3	-
Mexico	3	-
Nepal	3	-
Palestinian Territory	3	-
Slovakia	3	-
Taiwan	3	-
Thailand	3	-
Argentina	2	-
Bangladesh	2	-
China	2	-
Fiji	2	-
Hungary	2	-
Liechtenstein	2	-
Lithuania	2	-
Malaysia	2	18
Mauritius	2	-
Oman	2	-
Philippines	2	-
Reunion	2	-
Sri Lanka	2	-
Algeria	1	-
Bahrain	1	-
Cambodia	1	-
Ecuador	1	-
Indonesia	1	5
Kuwait	1	-
Luxembourg	1	-
Maldives	1	-
Morocco	1	-
New Zealand	1	-
Pakistan	1	-
Poland	1	-
Saudi Arabia	1	-
Sierra Leone	1	-
Trinidad and Tobago	1	-

Tunisia	1	-
United Arab Emirates	1	-
Total (worldwide)	26,882	79,338

Source: https://newsnodes.com/omicron_tracker

Table 7. COVID-19 cases and deaths reported by states/UT in India between 11 – 17 December 2021
(Updated as of 17 December 2021, 1500H SGT)

Name of State / UT	Total Diagnosed Cases	Change from previous week	Total Active Cases	Change from previous week	Total Recovered	Change from previous week	Total Deaths	Change from previous week
Andaman and Nicobar Islands	7700	+6	3	-3	7568	+9	129	0
Andhra Pradesh	2075419	+1009	1814	-223	2059131	+1218	14474	+14
Arunachal Pradesh	55320	+21	33	+3	55007	+18	280	0
Assam	619168	+980	2446	-97	610581	+1065	6141	+12
Bihar	726351	+75	84	+34	714174	+38	12093	+3
Chandigarh	65673	+57	77	+14	64520	+43	1076	0
Chhattisgarh	1007327	+212	359	+7	993373	+204	13595	+1
Dadra and Nagar Haveli and Daman and Diu	10688	+4	5	+4	10679	0	4	0
Delhi	1441935	+366	475	+89	1416360	+277	25100	0
Goa	179601	+263	392	-56	175724	+316	3485	+3
Gujarat	828367	+424	580	+121	817687	+298	10100	+5
Haryana	772114	+175	234	-2	761820	+172	10060	+5
Himachal Pradesh	228170	+365	526	-146	223779	+505	3865	+6
Jammu and Kashmir	339404	+1014	1435	-261	333461	+1256	4508	+19
Jharkhand	349485	+93	132	+2	344211	+90	5142	+1
Karnataka	3001554	+2083	7187	-174	2956088	+2231	38279	+26
Kerala***	5207826	+24765	34836	-6366	5129044	+29424	43946	+1707
Ladakh	21886	+113	167	-70	21503	+182	216	+1
Lakshadweep	10408	+3	4	-7	10353	+10	51	0
Madhya Pradesh	793433	+126	171	+21	782733	+105	10529	0
Maharashtra	6646938	+5261	10372	+211	6495249	+4944	141317	+106
Manipur	125586	+132	314	-25	123279	+149	1993	+8
Meghalaya	84726	+83	140	-78	83108	+159	1478	+2
Mizoram	139227	+1522	2530	-569	136167	+2072	530	+19
Nagaland	32164	+21	85	-25	31378	+44	701	+2
Odisha	1052318	+1363	1876	-248	1042002	+1599	8440	+12

Puducherry	129285	+129	186	-55	127220	+182	1879	+2
Punjab	603853	+215	333	-45	586895	+251	16625	+9
Rajasthan	955173	+151	267	+7	945947	+141	8959	+3
Sikkim	32449	+53	179	-23	31864	+75	406	+1
Tamil Nadu	2737962	+4616	7476	-407	2693830	+4942	36656	+81
Telangana	679064	+1317	3805	-82	671247	+1390	4012	+9
Tripura	84950	+52	76	-22	84047	+73	827	+1
Uttarakhand	344533	+122	153	-21	336967	+141	7413	+2
Uttar Pradesh	1710617	+109	157	+23	1687545	+82	22915	+4
West Bengal	1625375	+4005	7506	-59	1598224	+3994	19645	+70
Total	34726049	+51305	86415	-8528	34162765	+57699	476869	+2134

Source: <https://www.mohfw.gov.in/>

iv. Travel Bans/Advisories & Quarantine Orders

- [1] **Australia** – From 15 December 2021, fully vaccinated arrivals from Japan, Singapore and South Korea will be allowed to enter the country with entry restrictions that varies with states. For Tasmania, this, includes a negative test result 72 hours from departure for travellers from Singapore, Samoa, Tonga, Vanuatu and New Zealand North Island.
- [2] **Brazil** – From 13 December 2021, international arrivals are to provide a proof of vaccination and unvaccinated arrivals are to quarantine for 5 days upon arrival.
- [3] **Canada** – The latest travel advisory on 14 December 2021 advised citizens against all international travel for the next 4 weeks, but travel restrictions have yet to be imposed.
- [4] **Egypt** – Non-Egyptian travelers from South Africa, Lesotho, Botswana, Zimbabwe, Mozambique, Eswatini and Namibia will be banned from entering the country from 14 December, and all returning Egyptians are to provide a negative test result and self-quarantine at home for 7 days upon arrival.
- [5] **France** – Two-way travel from Britain will be restricted from 18 December 2021, limiting the reasons for travel and requiring a 48-hour isolation upon arrival regardless of vaccination status. In addition, only EU citizens or non-EU citizens with long-term residency permit or visa will be allowed into France via Britain, and all other foreigners are denied entry into the country.
- [6] **Israel** – The United Kingdom, Belgium and Denmark was announced to be added to the country's travel ban list on 12 December 2021. Israelis are banned from travelling to the 53 countries on the list unless special permission is obtained and must quarantine for at least a week upon return, regardless of vaccination status.
- [7] **Italy** – New restrictions will require all vaccinated arrivals from EU countries to undergo a swab upon arrival, and an additional 5-day quarantine for all unvaccinated arrivals from 15 December 2021 to 31 January 2022.
- [8] **Jamaica** – Arrivals travelling from Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, and Zimbabwe will be allowed to enter the island from 17 December 2021.
- [9] **Lithuania** – From 13 December 2021, Fuerteventura, Tenerife and Gran Canaria, and the French overseas department of French Guiana will be moved to the country's yellow list. Arrivals from these countries not be obliged to quarantine upon arriving in Lithuania, under facilitated entry restrictions.
- [10] **Morocco** – The international air travel ban has been extended until at least 31 December 2021.
- [11] **Nepal** – As of 12 December 2021, Nepal has banned the passengers arriving or transiting from 9 countries: South Africa, Botswana, Zimbabwe, Namibia, Lesotho, Eswatini, Mozambique, Malawi and Hong Kong.
- [12] **South Korea** – The travel advisory against non-essential international travel have been extended until 13 January 2021.
- [13] **United Kingdom** – From 15 December 2021, all African countries will be removed from UK's red list, allowing non-citizen and legal resident arrivals from these countries to enter UK with entry restrictions in place.
- [14] **United States** – Italy, Mauritius and Greenland were added to the CDC's Level 4 category of very high COVID-19 risk on 13 December 2021, while Malaysia was moved from Level 4 to Level 3.

v. Lockdowns

- [1] **Australia (Queensland)** – Queensland will reopen domestic borders to COVID-19 hotspots from 13 December 2021.
- [2, 3] **Australia (Northern Territories)** – NT will allow quarantine-free travel for all interstate arrivals from 20 December 2021, while Kalkarindji, Daguragu, Timber Creek and Gilwi will be in lockdown until 17 December 2021, 2 pm, and Tennant creek will be in lockdown until 20 December 2021.
- [4] **Australia (Tasmania)** – Domestic borders have been reopened on 15 December 2021, and entry restrictions vary depending on the traveler’s vaccination status and the risk level of the area they are travelling from.
- [5] **Australia (Australian Capital Territory)** – Borders to interstate and domestic travellers reopened on 16 November 2021, with only a 7-day quarantine required for fully vaccinated close contacts of an Omicron case, and 3-day quarantine for fully vaccinated overseas arrivals.
- [6] **Canada (Quebec)** – From 20 December 2021, bars, restaurants, stores, entertainment venues and faith venues are required to operate at 50% capacity, and a previous ruling to allow larger indoor private gatherings from 23 December 2021 have been reversed.
- [7] **India (West Bengal)** – Existing restrictions in West Bengal will be extended until 15 January 2022, but will be relaxed between 24 December 2021 to 1 January 2022. These include restrictions regarding the movement of people and vehicles, and operating hours of all shops, restaurants and bars during this period.
- [8] **India (Tamil Nadu)** – Lockdown restrictions in the state have been extended until 31 December 2021. Beaches will also be closed to the public on 31 December 2021 and 1 January 2022.
- [9] **Netherlands** – The evening lockdown from 5pm will be extended until 14 January 2021, and schools will be closed from 20 December 2021.
- [10] **Norway** – Alcohol will be prohibited at bars, restaurants and other service-based venues from 15 December 2021 to 12 January 2022, stricter rules in schools and remote working have been encouraged as part of tightened restrictions.
- [11] **Scotland** – Tightened restrictions to limit the number of households allowed to mix during Christmas to 3 households, require businesses to take more steps to prevent transmission, such as setting up screens and social distancing, and mandate remote working where possible.
- [12] **South Korea** – From 18 December 2021 until 2 January 2022, reinstated tightened restrictions will ban gatherings of 5 or more people, and limit operating hours of all eateries and night-time entertainment businesses to 9pm.
- [13] **United Kingdom** – On 12 December 2021, UK’s Covid alert level was moved from level 3 to level 4, the highest since the alert level was moved down to level 3 in May 2021.
- [14] **United Kingdom** – From 13 December 2021, enhanced restrictions under the “winter Covid Plan B” will mandate face mask use in most public indoor venues, remote working have been encouraged, and the NHS Covid Pass, requiring a negative test or full vaccination will be mandated for big events.
- [15] **United Kingdom (Wales)** – Enhanced restrictions from 27 December 2021 will mandate stricter social distancing rules for businesses, mandate remote working where possible, and close nightclubs and pubs.

vi. Military Surveillance

Canada [1]

- Two units on the Canadian Forces Base Kingston have reported an ongoing COVID-19 outbreak. Exact numbers and details are not disclosed but all cases are military members. As of 6 December 2021, a total of 2,175 cases, including 2,162 resolved cases, 13 active cases and 248 cumulative breakthrough cases have been reported in the Canadian armed forces since the start of the pandemic.

South Korea [2-5]

- On 13 December, the military reported 25 new cases, all of which were breakthrough cases. The new cases include 19 cases from the Army, 4 cases from the Navy, one case from a unit directly under the defense ministry, and one civilian employee. This brings the total number of cases reported in the military to 2,738 cases, of which 1,002 were breakthrough cases.
- On 14 December 2021, 40 new cases were reported from the Army (15 cases), Air Force (13 cases), Navy (4 cases), units under the direct control of the defense ministry (7 cases) and an officer in the ministry. Of the new cases, 35 were breakthrough infections. As of 14 December, 2,777 cases have been reported in the military, of which 308 are active cases and 1,016 are breakthrough cases.
- On 15 December 2021, there were 45 new cases including 41 breakthrough infections. This brings the total caseload in the military to 2,822 cases with 1,057 breakthrough infections and 328 active infections. The new cases were reported from the Army (18 cases), Air Force (10 cases), units directly under the defense ministry (11 cases), the Marine Corps (4 cases), the Navy (1 case) and an officer from the ministry.
- On 16 December, 26 cases were reported from the Army (18 cases), units directly under the defence ministry (3 cases), the Air Force and Navy (2 cases each), and the Marine Corps (1 case). This brings the total number of cases reported in the military to-date to 2,848 cases with 1,079 breakthrough cases and 328 active cases.

vii. WHO Guidance & Other Protocols

The following updates were published by WHO from 11 – 17 December 2021:

- **Enhancing Readiness for Omicron (B.1.1.529): Technical Brief and Priority Actions for Member States**
Available at: [https://www.who.int/publications/m/item/enhancing-readiness-for-omicron-\(b.1.1.529\)-technical-brief-and-priority-actions-for-member-states](https://www.who.int/publications/m/item/enhancing-readiness-for-omicron-(b.1.1.529)-technical-brief-and-priority-actions-for-member-states)
- **Interim recommendations for heterologous COVID-19 vaccine schedules**
Available at: <https://www.who.int/publications/i/item/WHO-2019-nCoV-vaccines-SAGE-recommendation-heterologous-schedules>

viii. CDC Guidance & Protocols

US CDC

The following update was published by the US CDC from 11 – 17 December 2021:

- **Biosafety for Specimen Handling**
Available at: <https://www.cdc.gov/coronavirus/2019-nCoV/lab/lab-biosafety-guidelines.html>
- **Comparative Effectiveness and Antibody Responses to Moderna and Pfizer-BioNTech COVID-19 Vaccines among Hospitalized Veterans — Five Veterans Affairs Medical Centers, United States, February 1–September 30, 2021**
Available at: https://www.cdc.gov/mmwr/volumes/70/wr/mm7049a2.htm?s_cid=mm7049a2_x
- **COVID-19 Vaccines for Moderately to Severely Immunocompromised People**
Available at: <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/immuno.html>
- **SARS-CoV-2 B.1.1.529 (Omicron) Variant — United States, December 1–8, 2021**
Available at: https://www.cdc.gov/mmwr/volumes/70/wr/mm7050e1.htm?s_cid=mm7050e1_x
- **Report of Health Care Provider Recommendation for COVID-19 Vaccination Among Adults, by Recipient COVID-19 Vaccination Status and Attitudes — United States, April–September 2021**
Available at: https://www.cdc.gov/mmwr/volumes/70/wr/mm7050a1.htm?s_cid=mm7050a1_x

EU CDC

The following update was published by the EU CDC from 11 – 17 December 2021:

- **Assessment of the further emergence of the SARS-CoV-2 Omicron VOC in the context of the ongoing Delta VOC transmission in the EU/EEA, 18th update**
Available at: <https://www.ecdc.europa.eu/en/publications-data/covid-19-assessment-further-emergence-omicron-18th-risk-assessment>
- **Generic protocol for COVID-19 vaccine effectiveness studies during outbreaks in semi-closed settings in the EU/EEA**
Available at: <https://www.ecdc.europa.eu/en/publications-data/covid-19-vaccine-effectiveness-outbreaks-semi-closed-settings>

ix. Vaccines/Therapeutics Development

Noteworthy reports are included to inform main developments of COVID-19 pharmaceuticals. Past updates are available from situation report 211 onwards. A global map and registry of trials is also visualised & accessible at: <https://www.covid-nma.com/dataviz/> and trial results are available at: https://covid-nma.com/living_data/index.php. A living systematic review of vaccine trials is also accessible at <https://covid-nma.com/vaccines/> or <https://covid-nma.com/>.

Vaccines

- [1] **Australia** – The Australian Technical Advisory Group on Immunisation (ATAGI) revised their recommendation on the use of Spikevax (Moderna COVID-19 vaccine) for the booster dose on 12 December 2021. The ATAGI now recognises Spikevax to be an acceptable booster vaccine candidate for all individuals aged at least 18 years old, and had completed their primary course at least 5 months ago, with a registered or recognised COVID-19 vaccine.
- [2] **Indonesia** – Yogyakarta will commence mass vaccination for children between 6 to 11 years old on 18 December 2021.
- [3] **Japan** – Moderna’s vaccine candidate was approved as a booster shot candidate in the country on 16 December 2021.
- [4] **United Kingdom** – Phase 1 trial for the needle-free vaccine based on the DIOSvax technology commenced on 14 December 2021 at the NIHR Southampton Clinical Research Facility. The trial team will recruit and follow-up with healthy volunteers aged between 18 and 50 in the Southampton area, who had both doses of a COVID-19 vaccine but not their booster, for approximately 12 months.
- [5] **United States** – On 16 December 2021, US CDC endorsed the Advisory Committee on Immunization Practices (ACIP) recommendation for individuals to receive an mRNA COVID-19 vaccine over Johnson & Johnson’s COVID-19 vaccine, if mRNA vaccines are available.

Therapeutics

- [6] **France** – The French National Authority for Health (HAS) authorised the use of AstraZeneca’s antibody cocktail, Evusheld, on 10 December 2021. The authorisation is valid for high-risk individuals with resistance to COVID-19 vaccines to prevent severe COVID-19 manifestation, and is not recommended for patients with two or more risk factors such as diabetes and obesity.
- [7] **Global** - Results from the Phase 3 trial of molnupiravir published on 16 December 2021 showed a significantly lowered risk of hospitalisation for any cause or death through day 29 in the molnupiravir group (risk difference -6.8% points; 95% confidence interval -11.3 to -2.4, p=0.001) using the modified intention-to-treat population. In the all-randomized modified intention-to-treat population, participants receiving molnupiravir had a lower risk of hospitalization or death through day 29: 6.8% (48 of 709 participants) in the molnupiravir group as compared with 9.7% (68 of 699 participants) in the placebo group (risk difference 3.0% points; 95% CI, -5.9 to -0.1). Adverse events were reported in 216 of 710 participants (30.4%) in the molnupiravir group and 231 of 701 (33.0%) in the placebo group, with similar percentages of AEs considered related to the trial regimen reported in both groups (8.0% vs 8.4%). Deaths resulting from adverse events were not deemed to be related to the trial regimen in both groups. Participants were 1,433 patients (716 in molnupiravir group, 717 in placebo group) recruited as part of the MOVE-OUT trial at 78 sites in 15 countries.

Vaccine Approval Status

Table 6: Number of approving countries per vaccine as of 15 December 2021

Developer	Vaccine	Number of countries approving
Anhui Zhifei Longcom	ZF2001	3
Bharat Biotech	Covaxin	12
CanSino	Ad5-nCoV	10
Center for Genetic Engineering and Biotechnology (CIGB)	CIGB-66	4
Chumakov Center	KoviVac	1
FBRI	EpiVacCorona	2
Gamaleya	Sputnik Light	22
Gamaleya	Sputnik V	74
Instituto Finlay de Vacunas Cuba	Soberana Plus	1
Instituto Finlay de Vacunas Cuba	Soberana 02	4
Johnson & Johnson	Ad26.COVS.2.S	90
Kazakhstan RIBSP	QazVac	2
Medigen	MVC-COV1901	1
Minhai Biotechnology Co	SARS-CoV-2 Vaccine (Vero Cells)	2
Moderna	mRNA-1273	81
Organization of Defensive Innovation and Research	FAKHRAVAC (MIVAC)	1
Oxford/AstraZeneca	AZD1222	127
Pfizer/ BioNTech	BNT162b2	117
Razi Vaccine and Serum Research Institute	Razi Cov Pars	1
Serum Institute of India	Covishield	47
Serum Institute of India	COVOVAX (Novavax formulation)	2
Shifa Pharmed Industrial Co	COVID-19 Inactivated Vaccine	1
Sinopharm	BBIBP-CorV	74
Sinopharm	Inactivated	2
Sinovac	CoronaVac	48
Takeda	TAK-919 (Moderna formulation)	1
Vaxine/CinnaGen Co.	COVAX-19	1
Zyklus Cadila	ZyCoV-D	1

Source: <https://covid19.trackvaccines.org/vaccines/>

Adverse Reactions & Effects

[1] **United States** – As of 16 December 2021, a total of 54 cases of thrombocytosis including 9 fatalities resulting from vaccination with the Johnson-Johnson single dose vaccine candidate were reported. The 54 cases occurred in 37 women including 7 deaths, and 17 men including 2 deaths. The cases were mostly reported in women aged between 30 to 49 years old, with approximately one case per 100,000 doses administered.

As of 16 December 2021, 80 cases of serious AEFIs were reported from the at least 7 million doses of Cominarty (Pfizer-BioNTech vaccine) administered in younger children. The serious AEFIs include a form of inflammation not observed in male teens and young adults (10 cases).

x. Scientific Publications with Epidemiology and Clinical Focus

Association of COVID-19 mortality with COVID-19 vaccination rates in Rhineland-Palatinate (Germany) from calendar week 1 to 20 in the year 2021: a registry-based analysis [1]

Vaccination is among the measures implemented by authorities to control the spread of the COVID-19 pandemic. However, real-world evidence of population-level effects of vaccination campaigns against COVID-19 are required to confirm that positive results from clinical trials translate into positive public health outcomes. Since the age group 80 + years is most at risk for severe COVID-19 disease progression, this group was prioritized during vaccine rollout in Germany. Based on comprehensive vaccination data from the German federal state of Rhineland-Palatinate for calendar week 1-20 in the year 2021, we calculated sex- and age-specific vaccination coverage. Furthermore, we calculated the proportion of weekly COVID-19 fatalities and reported SARS-CoV-2 infections formed by each age group. Vaccination coverage in the age group 80 + years increased to a level of 80% (men) and 75% (women). Increasing vaccination coverage coincided with a reduction in the age group's proportion of COVID-19 fatalities. In multivariable logistic regression, vaccination coverage was associated both with a reduction in an age-group's proportion of COVID-19 fatalities [odds ratio (OR) per 5 percentage points = 0.89, 95% confidence interval (CI) = 0.82-0.96, $p = 0.0013$] and of reported SARS-CoV-2 infections (OR per 5 percentage points = 0.82, 95% CI 0.76-0.88, $p < 0.0001$). The results are consistent with a protective effect afforded by the vaccination campaign against severe COVID-19 disease in the oldest age group.

Smoking and severe illness in hospitalized COVID-19 patients in Japan [2]

Background: The aim of this study was to identify associations between smoking status and the severity of COVID-19, using a large-scale data registry of hospitalized COVID-19 patients in Japan (COVIREGI-JP), and to explore the reasons for the inconsistent results previously reported on this subject.

Methods: The analysis included 17 666 COVID-19 inpatients aged 20-89 years (10 250 men and 7416 women). We graded the severity of COVID-19 (grades 0 to 5) according to the most intensive treatment required during hospitalization. The smoking status of severe grades 3/4/5 (invasive mechanical ventilation/extracorporeal membrane oxygenation/death) and separately of grade 5 (death) were compared with that of grade 0 (no oxygen, reference group) using multiple logistic regression. Results were expressed as odds ratios (OR) and 95% confidence intervals (CI) adjusted for age and other factors considering the potential intermediate effects of comorbidities.

Results: Among men, former smoking significantly increased the risk of grade 3/4/5 and grade 5, using grade 0 as a reference group, with age- and admission-date-adjusted ORs (95% CI) of 1.51 (1.18-1.93) and 1.65 (1.22-2.24), respectively. An additional adjustment for comorbidities weakened the ORs. Similar results were seen for women. Current smoking did not significantly increase the risk of grade 3/4/5 and grade 5 in either sex.

Conclusions: The severity of COVID-19 was not associated with current or former smoking per se but with the comorbidities caused by smoking. Thus, smoking cessation is likely to be a key factor for preventing smoking-related disease and hence for reducing the risk of severe COVID-19.

Latent class analysis of COVID-19 experiences, social distancing, and mental health [3]

Information is needed on the relationship between coronavirus disease (COVID-19) social distancing restrictions and their relationship with mental health. In particular, there is limited investigation into how COVID-related adversities have positively mobilized individuals. We use latent class analysis (LCA) to identify subtypes of positive and negative aspects of the experience of COVID-19 social distancing and the association of these subtypes with mental health. We conduct an online survey of COVID-19 and mental health with 3,183 adults residing in Quebec, Canada, during the first wave of the epidemic. We use LCA to identify subtypes of positive and negative aspects of social distancing. We use logistic and linear regression to estimate the associations between class membership and self-reported impact of COVID-19 on mental health and scores on the Hopkins Symptom Checklist-10 (HSCL-10). We identify five classes of individuals in regards to perceived positives and negatives of social distancing related to COVID-19, named Low Impact, Freedom/Flexibility, Safety, Family/Home, and Hardships. Sociodemographic variables including age, gender, race/ethnicity, and self-reported mental health prior to COVID are associated with class assignment. Latent classes are associated with both outcomes ($p < .001$). Individuals in the Hardships class have greater odds of reporting a significant impact of COVID-19 on mental health, $OR = 2.09$, 95% $CI = [1.53, 2.86]$, $p < .001$, and have higher scores on the HSCL-10, $\beta = .32$, 95% $CI = [.23, .42]$, $p < .001$, than those individuals in the Low Impact group after adjusting for sociodemographic characteristics. Gender, age, and self-reported mental health prior to COVID-19 are independently associated with both outcomes ($p < .001$). We discuss study implications for public health programming and interventions to promote the mental health of at-risk populations during the pandemic.

COVID-19 vaccine perceptions and uptake in a national prospective cohort of essential workers [4]

Introduction: In a multi-center prospective cohort of essential workers, we assessed knowledge, attitudes, and practices (KAP) by vaccine intention, prior SARS-CoV-2 positivity, and occupation, and their impact on vaccine uptake over time.

Methods: Initiated in July 2020, the HEROES-RECOVER cohort provided socio-demographics and COVID-19 vaccination data. Using two follow-up surveys approximately three months apart, COVID-19 vaccine KAP, intention, and receipt was collected; the first survey categorized participants as reluctant, reachable, or endorser.

Results: A total of 4,803 participants were included in the analysis. Most (70%) were vaccine endorsers, 16% were reachable, and 14% were reluctant. By May 2021, 77% had received at least one vaccine dose. KAP responses strongly predicted vaccine uptake, particularly positive attitudes about safety (aOR = 5.46, 95% CI: 1.4-20.8) and effectiveness (aOR = 5.0, 95% CI: 1.3-19.1). Participants' with prior SARS-CoV-2 infection were 22% less likely to believe the COVID-19 vaccine was effective compared with uninfected participants (aOR 0.78, 95% CI: 0.64-0.96). This was even more pronounced in first responders compared with other occupations, with first responders 42% less likely to believe in COVID-19 vaccine effectiveness (aOR = 0.58, 95% CI 0.40-0.84). Between administrations of the two surveys, 25% of reluctant, 56% reachable, and 83% of endorser groups received the COVID-19 vaccine. The reachable group had large increases in positive responses for questions about vaccine safety (10% of vaccinated, 34% of unvaccinated), and vaccine effectiveness (12% of vaccinated, 27% of unvaccinated).

Discussion: Our study demonstrates attitudes associated with COVID-19 vaccine uptake and a positive shift in attitudes over time. First responders, despite potential high exposure to SARS-CoV-2, and participants with a history of SARS-CoV-2 infection were more vaccine reluctant.

Conclusions: Perceptions of the COVID-19 vaccine can shift over time. Targeting messages about the vaccine's safety and effectiveness in reducing SARS-CoV-2 virus infection and illness severity may increase vaccine uptake for reluctant and reachable participants.

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