COVID-19 Weekly Epidemiological Update

Edition 99 published 6 July 2022

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Global overview

Data as of 3 July 2022

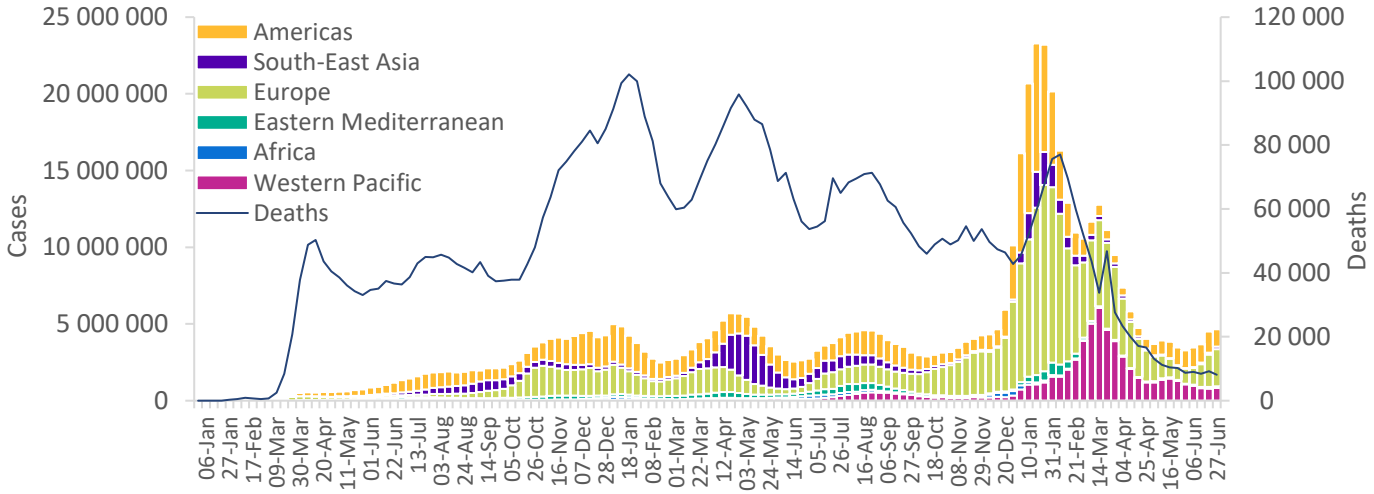
Globally, the number of weekly cases has increased for the fourth consecutive week, after a declining trend since the last peak in March 2022. During the week of 27 June to 3 July 2022, over 4.6 million new cases were reported, a figure similar to that of the previous week (Figure 1). The number of new weekly deaths decreased by 12%, with over 8100 fatalities reported.

At the regional level, the number of new weekly cases increased in the Eastern Mediterranean Region (+29%), the South-East Asia Region (+20%), the European Region (+15%), and the Western Pacific Region (+4%), while it decreased in the African Region (-33%) and the Region of the Americas (-18%). The number of new weekly deaths increased in the Eastern Mediterranean Region (+34%) and the South-East Asia Region (+16%), while decreases were observed in the African Region (-50%), the Region of the Americas (-13%), the European Region (-12%) and the Western Pacific Region (-12%).

As of 3 July 2022, over 546 million confirmed cases and over 6.3 million deaths have been reported globally.

These trends should be interpreted with caution as several countries have been progressively changing COVID-19 testing strategies, resulting in lower overall numbers of tests performed and consequently lower numbers of cases detected.

Figure 1. COVID-19 cases reported weekly by WHO Region, and global deaths, as of 3 July 2022**



**See *Annex 1: Data, table, and figure notes*

At the country level, the highest numbers of new weekly cases were reported from France (603 074 new cases; +33%), Germany (555 331 new cases; -2%), Italy (511 037 new cases; +50%), the United States of America (496 049 new cases; -29%), and Brazil (334 852 new cases; -4%).

The highest numbers of new weekly deaths were reported from the United States of America (1 622 new deaths; -19%), Brazil (1 187 new deaths; -10%), China (755 new deaths; -30%), Italy (430 new deaths; +21%), and the Russian Federation (371 new deaths; -14%).

Table 1. Newly reported and cumulative COVID-19 confirmed cases and deaths, by WHO Region, as of 3 July 2022**

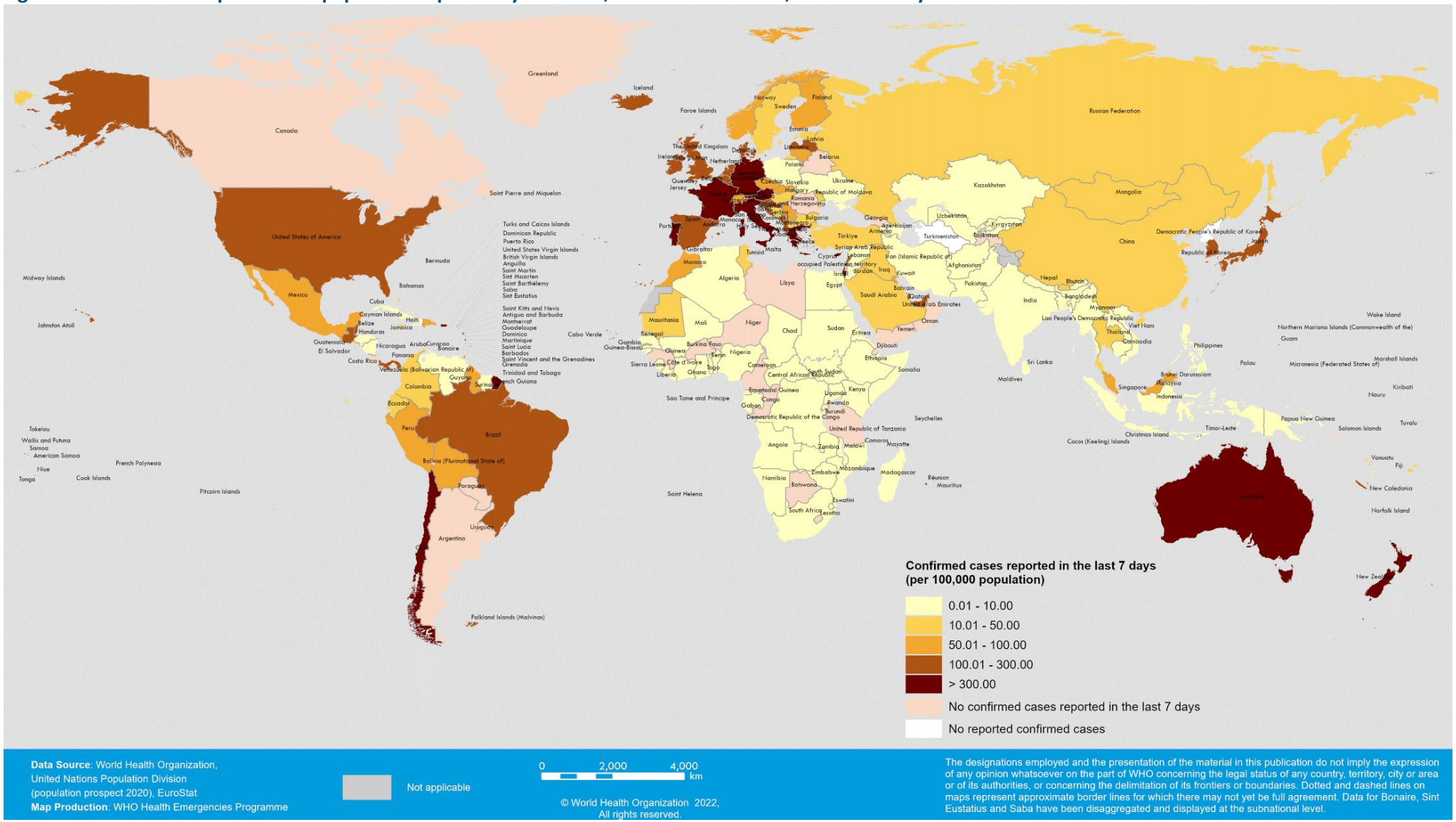
WHO Region	New cases in last 7 days (%)	Change in new cases in last 7 days *	Cumulative cases (%)	New deaths in last 7 days (%)	Change in new deaths in last 7 days *	Cumulative deaths (%)
Europe	2 421 772 (52%)	15%	228 917 538 (42%)	2 347 (29%)	-12%	2 027 968 (32%)
Americas	1 128 639 (24%)	-18%	163 205 242 (30%)	3 632 (45%)	-13%	2 762 527 (44%)
Western Pacific	827 117 (18%)	4%	64 433 670 (12%)	1 526 (19%)	-12%	238 904 (4%)
South-East Asia	157 080 (3%)	20%	58 628 247 (11%)	364 (4%)	16%	790 178 (12%)
Eastern Mediterranean	95 912 (2%)	29%	22 044 303 (4%)	111 (1%)	34%	343 596 (5%)
Africa	18 483 (0%)	-33%	9 134 221 (2%)	122 (2%)	-50%	173 616 (3%)
Global	**4 649 003 (100%)**	**3%**	**546 363 985 (100%)**	**8 102 (100%)**	**-12%**	**6 336 802 (100%)**

**Percent change in the number of newly confirmed cases/deaths in the past seven days, compared to seven days prior*
**See *Annex 1: Data, table, and figure notes*

For the latest data and other updates on COVID-19, please see:

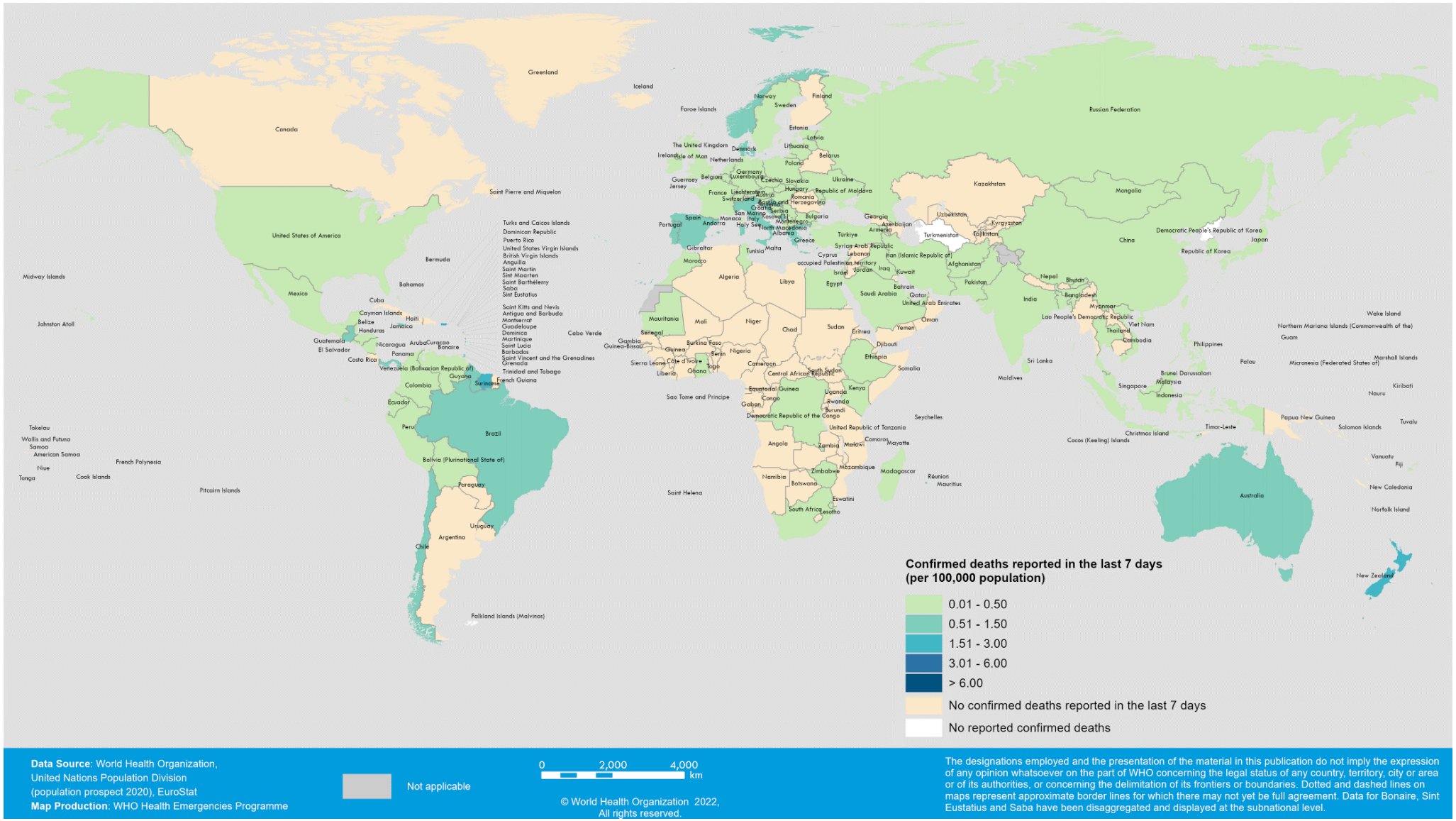
- WHO COVID-19 Dashboard
- WHO COVID-19 Weekly Operational Update and previous editions of the Weekly Epidemiological Update
  WHO COVID-19 detailed surveillance data dashboard

Figure 2. COVID-19 cases per 100 000 population reported by countries, territories and areas, 27 June - 3 July 2022*



**See *Annex 1: Data, table, and figure notes*

Figure 3. COVID-19 deaths per 100 000 population reported by countries, territories and areas, 27 June - 3 July 2022**



**See *Annex 1: Data, table, and figure notes*

Special Focus: Update on SARS-CoV-2 variants of interest and variants of concern

WHO, in collaboration with national authorities, institutions and researchers, routinely assesses if variants of SARS-CoV-2 alter transmission or disease characteristics, or impact the effectiveness of vaccines, therapeutics, diagnostics or public health and social measures (PHSM) applied to control disease spread. Potential variants of concern (VOCs), variants of interest (VOIs) or variants under monitoring (VUMs) are regularly assessed based on the risk posed to global public health.

The classifications of variants will be revised as needed to reflect the continuous evolution of circulating variants and their changing epidemiology. Criteria for variant classification, and the lists of currently circulating and previously circulating VOCs, VOIs and VUMs, are available on the WHO Tracking SARS-CoV-2 variants website. National authorities may choose to designate other variants and are strongly encouraged to investigate and report newly emerging variants and their impact.[1]

Geographic spread and prevalence of VOCs

The Omicron VOC continues to be the dominant variant circulating globally, accounting for 92% of sequences reported to GISAID between 1 and 30 June 2022. The remaining 8% waiting to be assigned are (presumed Omicron), Delta VOC and recombinants. Among Omicron lineages, the proportions of BA.5 and BA.4 continue to increase. BA.5 has been detected in 83 countries, and during epidemiological week 25 (19 to 25 June), the proportion of BA.5 among all sequences submitted weekly to GISAID increased from 37% to 52% (Table 2). Although BA.4 is also rising globally, the rate of increase is not as high as that of BA.5. BA.4 has been detected in 73 countries, and now accounts for 12% of all sequences submitted during week 25 (up from 11% in the previous week). BA.4 and BA.5 share similar mutations in SARS-CoV-2 spike but have different mutations in non-spike regions.

Globally, the proportions of Omicron lineages BA.2 and BA.2.12.1 have decreased as compared to week 23 (5 to 11 June). During week 25, the prevalence of BA.2 among all sequences submitted to GISAID was 9% (a decrease from 16% in the previous week) and the prevalence of BA.2.12.1 was 11% (a decrease from 19% in the previous week). BA.2 and BA.2.12.1 have been reported in 150 and 84 countries, respectively. There is no evidence yet regarding any change in severity with BA.4, BA.5 or BA.2.12.1 as compared to BA.2. However, the rise in prevalence of BA.2.12.1, BA.4 and BA.5 has coincided with an increase in cases in several WHO regions. In some countries, the rise in cases also resulted in a surge in hospitalizations, ICU admissions and deaths. In countries where the incidence of BA.4, BA.5 or BA.2.12.1 cases is now declining, the rise in cases, hospitalizations, ICU admissions and deaths have been lower as compared to the previous BA.1 and/or BA.2 waves. The differences observed in epidemiological situations is likely influenced by a number of factors, including surveillance, vaccination coverage and the implementation of PHSM.

Figure 4. Panel A and B: The number and percentage of SARS-CoV-2 sequences, as of 3 July 2022

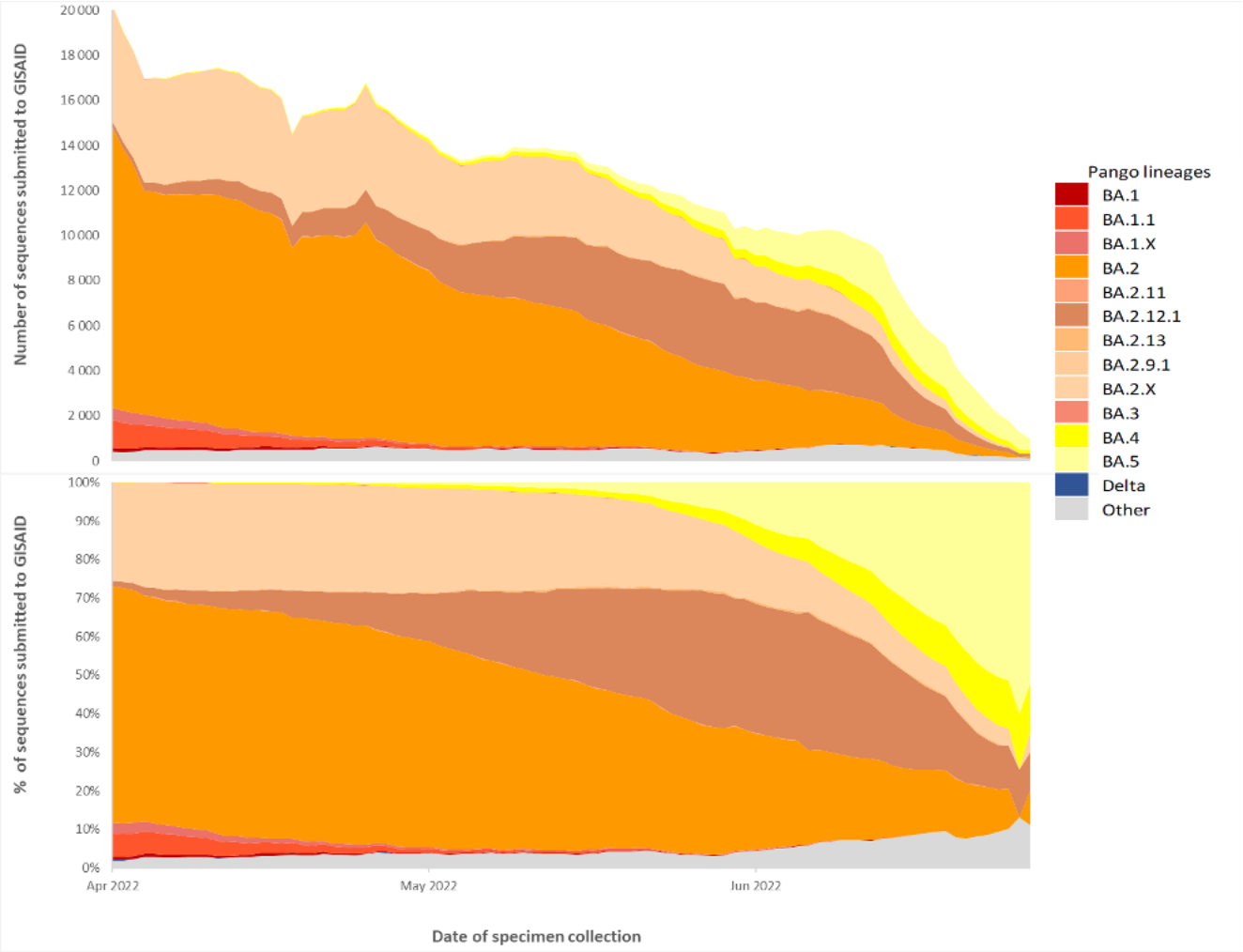


Figure 4 Panel A shows the number and **Panel B** the percentage of all circulating variants since 1 April 2022. Omicron sister-lineages and additional Omicron VOC descendent lineages under further monitoring (VOC-VUM) are shown. BA.1.X and BA.2.X include all BA.1 and BA.2 pooled descendent lineages, except those already shown in the figure above. Source: SARS-CoV-2 sequence data and metadata from GISAID, as of 3 July 2022.

Table 2. Relative proportions of SARS-CoV-2 sequences over the last four weeks by specimen collection date

			Last 4 weeks by collection date (%) [b]			
Lineage	**Countries**	**Sequences[a]**	**2022-22**	**2022-23**	**2022-24**	**2022-25**
BA.1	177	494 370	0.04	0.03	0.01	0.00
BA.1.1	177	973 139	0.12	0.06	0.03	0.03
BA.1.X*	176	907 266	0.08	0.03	0.04	0.02
BA.2	150	1 140 152	27.17	21.06	15.89	9.00
BA.2.11	20	697	0.03	0.02	0.01	0.06
BA.2.12.1	84	180 177	32.93	29.76	19.03	10.57
BA.2.13	44	3 366	0.52	0.47	0.38	0.41
BA.2.9.1	14	722	0.02	0.02	0.01	0.00
BA.2.X*	137	508 704	13.51	10.00	7.47	4.41
BA.3	41	1 060	0.01	0.02	0.03	0.00
BA.4	73	23 625	5.68	8.35	10.69	12.48
BA.5	83	56 476	14.22	23.11	36.92	51.68
Delta[#]	202	4 348 347	0.02	0.00	0.01	0.01
Other[^]	210	2 706 558	5.65	7.08	9.48	11.34

[a] Data source: cumulative sequences and metadata from GISAID.

[b] Relative proportions in %.

*BA.1.X and BA.2.X include all BA.1 and BA.2 pooled descendent lineages, except those already shown in the table.

[#] Previously circulating VOC.

[^]Other include sequences waiting to be assigned, Delta VOC and recombinants.

Characteristics of Omicron

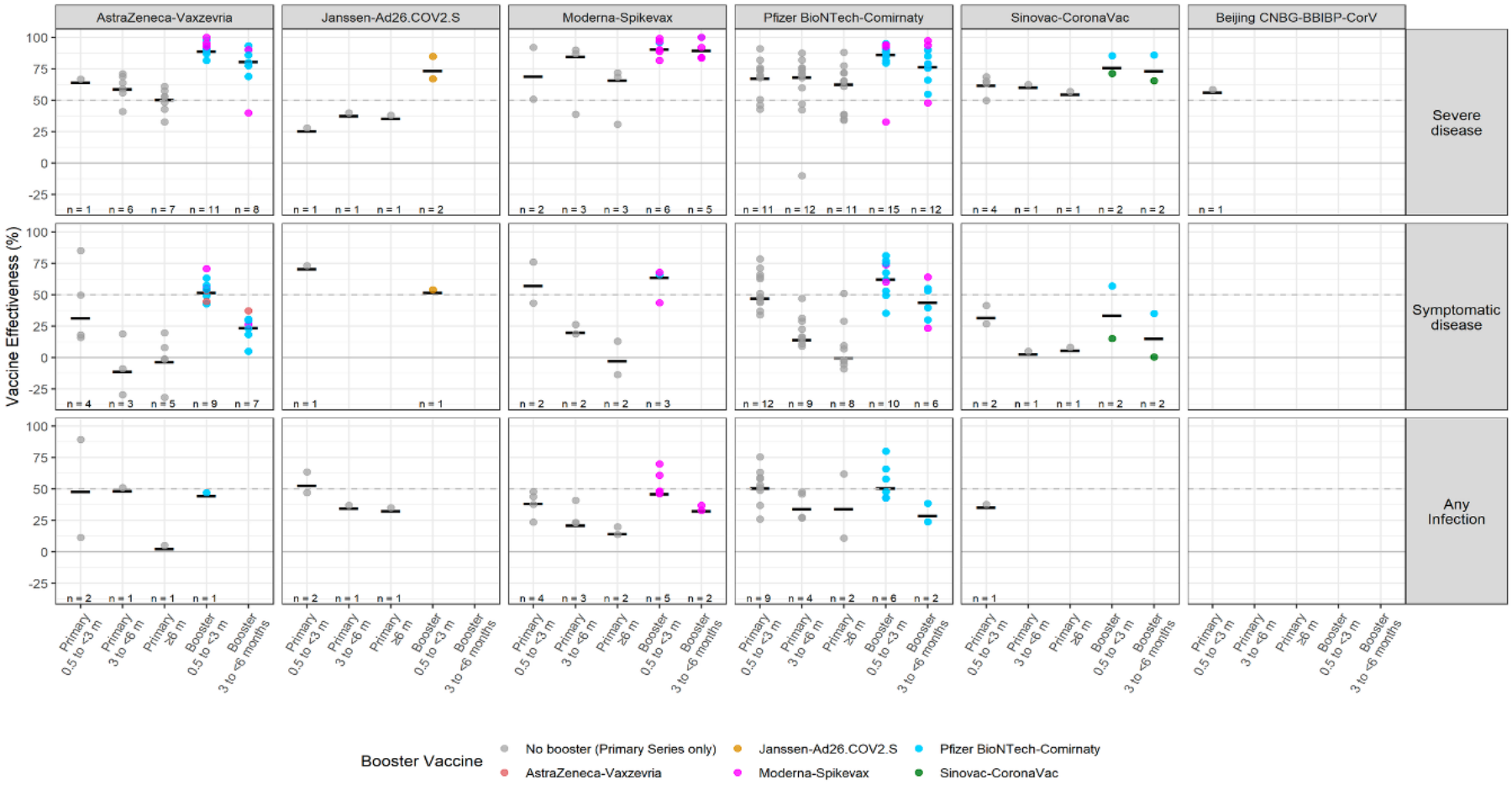
Available evidence on the phenotypic impacts of VOCs is reported in previous editions of the COVID-19 Weekly Epidemiological Update. Table 2 summarizes the phenotypic characteristics of the Omicron VOC and its sub-lineages for which evidence is available since the last update on 22 June 2022. Some of these studies have not been peer-reviewed and the findings must, therefore, be interpreted with due consideration of this limitation.

Table 3. Summary of phenotypic characteristics* of the Omicron VOC

Public health domain of impact	Omicron (B.1.1.529)	Omicron sublineages			
		BA.1	BA.2	BA.4	BA.5
Transmissibility	Growth advantage and increased transmissibility compared to Delta [1]	Lower transmissibility compared to BA.2[2]	Increased transmissibility compared to BA.1 [2]	Growth advantage compared to BA.2 [2]	Growth advantage over BA.2[2]
Disease severity	Overall evidence suggests lower severity despite contrasting evidence. Earlier studies reported lower severity compared to Delta. [3–7] However, more recent studies in different settings reported similar [8,9] severity[10] compared to Delta.[3–7,11 12]	No difference in disease severity compared to BA.2[13]	No difference in disease severity compared to BA.1[13]	Currently available evidence does not suggest a difference in disease severity compared to BA.1 [14]	Currently available evidence does not suggest a difference in disease severity compared to BA.1 [15,16]
Risk of reinfection	Reduced risk of Omicron reinfection among individuals previously infected with a different SARS-CoV-2 variant compared to naïve individuals[17,18]	Reduced risk of reinfection with BA.1 following infection with BA.2[19]	Reduced risk of reinfection with BA.2 following infection with BA.1 [19]	No specific data available	No specific data available
Impact on antibody responses	Reduction in neutralizing activity as compared to other VOCs[20–22]	Lower neutralising antibody titers compared to the index virus [21]	Lower neutralising antibody titers compared to the index virus[21]	Lower neutralising antibody titres (7.6-fold) compared to BA.1 [23–25]	Lower neutralising antibody titres (7.5-fold) compared to BA.1 [23,25]
Impacts on diagnostics	PCR assays that include multiple gene targets maintain their accuracy to detect Omicron[26]; S gene target failure/positivity (SGTF) may be a proxy for screening. Limited to no impact on sensitivity of Ag-RDTs observed[27–30]	S gene target failure.	The majority will be S gene target positive (SGTP).	S gene target failure.	S gene target failure.
Impact on treatment	No difference in the effectiveness of antiviral agents (polymerase and protease inhibitors) against the Omicron variant[31]. Conserved neutralizing activity for three broadly neutralizing monoclonal antibodies (sotrovimab, S2X259 and S2H97) and a reduced effectiveness of other monoclonal antibodies[32–35]	Reduced efficacy of cilgavimab[36] and casirivimab-imdevimab [37]	Reduced neutralising activity of sotrovimab[36, 37] , casirivimab and imdevimab [38]	Reduced neutralising activity of cilgavimab[38], casirivimab and imdevimab[38]	Reduced neutralising activity of cilgavimab[38], casirivimab and imdevimab[38]
Impact on vaccination	Results of vaccine effectiveness (VE) studies should be interpreted with caution because estimates vary with the type of vaccine administered and the number of doses and scheduling (sequential administration of different vaccines). For further information, see the section Interpretation of the results of the VE for the Omicron variant.				

[1] Similar methodology used as Reference [1]

Figure 5. Vaccine effectiveness (VE) of primary series and first booster vaccination against the Omicron variant of concern



Dots represent point estimates of VE from each study; dark black horizontal lines represent median VE across all studies in stratum. All data is from a systematic review of COVID-19 VE studies; methods and summary tables of VE studies can be found on view-hub.org. Vertical panels represent VE for full primary series (grey dots) and VE for homologous or heterologous booster vaccination (other colored dots) following completion of primary series vaccination with vaccine of primary series noted in panel header. All booster VE estimates are for the first booster dose. Severe disease includes hospitalization and pneumonia; symptomatic disease includes disease of any severity level; any infection can include symptomatic and asymptomatic infection. Additional details on the methods for inclusion of the estimates in the plots provided in text.

Figure 5 summarizes the impact of the Omicron variant on vaccine effectiveness (VE) over time, grouped by the primary series vaccine; booster doses may have been a different vaccine (i.e., both homologous and heterologous booster vaccination VEs are shown). Additional information on vaccine performance against VOCs can also be found in Annex 2.

Methods for Figure 5

- VE studies included in the plot were identified from an ongoing systematic review of COVID-19 vaccine effectiveness studies. All studies were cohort or test-negative designs conducted when Omicron was the predominant circulating variant. Methods for the systematic review and inclusion/exclusion criteria are available on view-hub.org.
- Only studies providing VE estimates of individual vaccines are included in the plot; studies assessing combined VE of more than one vaccine are excluded except for studies of heterologous primary and booster schedules where all participants included in a VE estimate received the same brands of vaccines in the same order.
- Only studies providing VE estimates for discrete time intervals since vaccination or estimates with limited follow-up time (such that the median time point falls clearly in one of the intervals for the plot) are included. Studies that only provide VE estimates over a cumulative period of time covering more than one time interval are excluded because they are difficult to interpret due to the marked waning of VE over time with Omicron.
- Only estimates of absolute vaccine effectiveness (i.e., the comparison group is unvaccinated persons) are included in the plot; estimates of relative vaccine effectiveness (e.g., the comparison group is persons having completed the primary series) are excluded as the interpretation of relative vaccine effectiveness is not comparable with absolute vaccine effectiveness.

Interpretation of the results of absolute VE for the Omicron variant

To date, 33 studies from 14 countries (Argentina, Brazil, Canada, Chile, Czech Republic, Denmark, Finland, Norway, Israel, Qatar, South Africa, the United Kingdom, the United States of America, and Zambia) have collectively assessed the protection of six vaccines against the Omicron variant (12 studies contributed VE estimates of primary series vaccination only, four contributed to estimates of first booster vaccination only, and 17 contributed to both). Findings from these studies show reduced VE of COVID-19 primary series vaccines against the Omicron variant for all outcomes (*severe disease*, *symptomatic disease*, and *infection*) than has been observed for the other four VOCs. Importantly though, VE estimates against the Omicron variant remain higher for *severe disease* than the other outcomes, in the majority of studies. The first booster vaccination substantially improves VE for all outcomes and for all combinations of schedules with estimates available for both primary series and booster vaccination. VE declines more over time after the first booster vaccination for symptomatic disease and infection than it does for severe disease[39]; however, studies that assess VE of booster vaccination beyond six months to evaluate longer duration of protection are not yet available.

For *severe disease*, VE of the primary series showed little decline over six months. VE was ≥70% during the first three months after primary series vaccination for seven of 13 (54%) VE estimates for the mRNA vaccines (Moderna-Spikevax and Pfizer BioNTech-Comirnaty). Of the two vector vaccines studies available, both had VE <70%: one reported VE <70% for AstraZeneca-Vaxzevria and the other reported VE <50% for Janssen-Ad26.COV2.S. Four estimates were available for inactivated vaccines: none of the three estimates for Sinovac-CoronaVac were ≥ 70% (2 [67%] were ≥ 50%); the single estimate for Beijing CNBG-BBIBP-CorV was <70% but ≥50%. Beyond three months after

vaccination, VE was ≥70% for 14 of 29 (48%) VE estimates for the mRNA vaccines (20 [69%] had VE ≥50%); one of 13 (8%) AstraZeneca-Vaxzevria VE estimates was ≥70% (9 [69%] were ≥50%); neither of the two estimates for the other vector-based vaccine, Janssen-Ad26.COV2.S, was ≥50%; the two VE estimates for Sinovac-CoronaVac were ≥50% but <70%.

The first booster dose vaccination improved VE against *severe disease* in all studies, and VE was ≥70% in 34 (94%) of 36 estimates evaluating VE between 14 days and three months of receipt of a booster dose (33 estimates evaluated an mRNA booster, two evaluated a Janssen-Ad26.COV2.S booster, and one evaluated a Sinovac-CoronaVac booster); one Moderna-Spikevax booster dose had VE <50%, and one Janssen-Ad26.COV2.S booster dose had VE <70%. At three to six months post mRNA booster, VE was ≥70% for 21 of 26 (81%) estimates (the primary series was an mRNA vaccine in 17 of the 26 estimates, AstraZeneca-Vaxzevria in eight and Sinovac-CoronaVac in one). One study found the VE to be <70% but ≥50% following three to six months from the third dose of Sinovac-CoronaVac.

VE against *symptomatic disease* and *infection* within the first three months of primary series vaccination was lower than against severe disease, and VE decreased more substantially over time. For *symptomatic disease*, only three of 14 (21%) VE estimates for the mRNA vaccines were ≥70% and only seven (50%) were ≥50%; one (25%) of the four VE estimates for AstraZeneca-Vaxzevria was ≥70% while the remaining three estimates were <50%; the single estimate for Janssen-Ad26.COV2.S was ≥70%, and both estimates for Sinovac (CoronaVac) were <50%. Beyond three months after vaccination, there were 31 VE estimates (21 estimates evaluated mRNA vaccines, eight evaluated AstraZeneca-Vaxzevria, and two evaluated Sinovac-CoronaVac), of which only one was ≥50% . mRNA booster vaccination after completion of a primary series of an mRNA vaccine, AstraZeneca-Vaxzevria, or Sinovac-CoronaVac improved VE against *symptomatic disease*: five of 21 (24%) VE estimates between 14 days and three months post booster were ≥70% (16 [76%] were ≥50%); one (50%) of two VE estimates evaluating three doses of AstraZeneca-Vaxzevria was ≥50% but <70% as was the single estimate for three doses of Janssen-Ad26.COV2.S, and the single estimate for three doses of Sinovac-CoronaVac was <50%. However, first booster dose protection declined rapidly over time: only three of 13 (23%) estimates available at three to six months following receipt of an mRNA booster dose had VE ≥50% and none were ≥70%. Neither the single estimate for three doses of AstraZeneca-Vaxzevria nor the single estimate for three doses of Sinovac-CoronaVac assessed three to six months post booster vaccination was above 50%. VE against *infection* showed a similar pattern of waning as that against *symptomatic disease*.

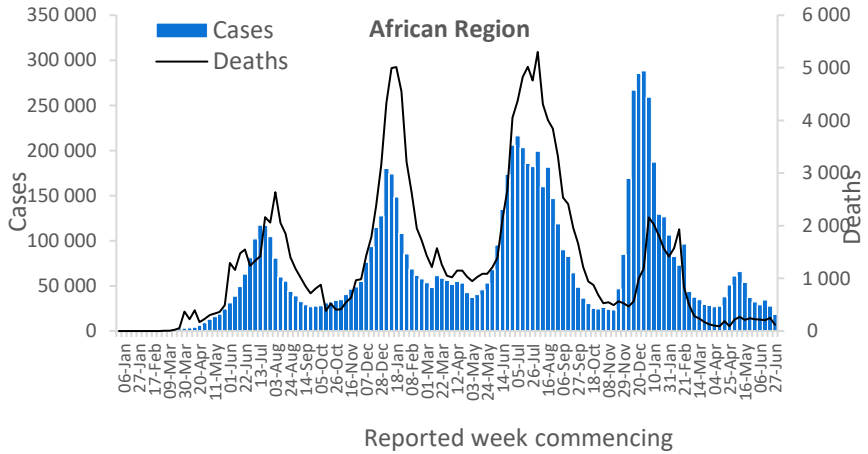
WHO regional overviews:

Epidemiological week 27 June - 3 July 2022**

African Region

The African Region reported a decline in the number of new weekly cases, with over 18 000 new cases reported, a 33% decrease as compared to the previous week. Thirteen (25%) countries reported an increase in the number of new cases of 20% or greater, with some of the greatest proportional increases seen in Mauritania (699 vs 135 new cases; +418%), Equatorial Guinea (92 vs 44 new cases; +109%) and Côte d'Ivoire (638 vs 340 new cases; +88%). The countries that reported the highest numbers of new cases were South Africa (2842 new cases; 4.8 new cases per 100 000 population; -58%), Kenya (2283 new cases; 4.2 new cases per 100 000; -20%), and Ethiopia (2038 new cases; 1.8 new cases per 100 000; -41%).

The number of new weekly deaths in the Region decreased by 50% as compared to the previous week, with over 100 new deaths reported. The highest numbers of new deaths were reported from South Africa (81 new deaths; <1 new death per 100 000 population; -39%), Zimbabwe (nine new deaths; <1 new death per 100 000; -40%), and Ethiopia (eight new deaths; <1 new death per 100 000; similar to the previous week's figures).

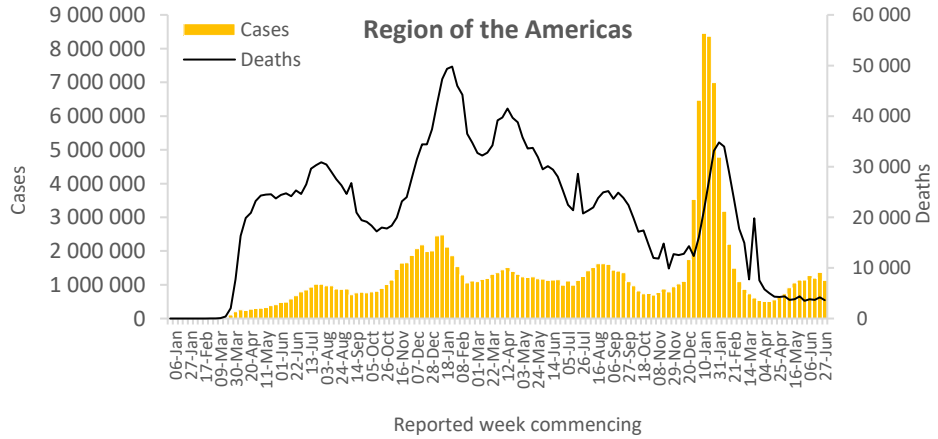


Updates from the African Region

Region of the Americas

The Region of the Americas reported a decrease in the number of new weekly cases, with over 1.1 million new cases reported, an 18% decrease as compared to the previous week. Fourteen of 46 (30%) countries for which data are available reported increases in the number of new cases of 20% or greater, with some of the greatest proportional increases observed in Saint Kitts and Nevis (155 vs 37 new cases; +319%), Haiti (302 vs 75 new cases; +303%), and Saint Barthélemy (43 vs 26 new cases; +65%). The highest numbers of new cases were reported from the United States of America (496 049 new cases; 149.9 new cases per 100 000; -29%), Brazil (334 852 new cases; 157.5 new cases per 100 000; -4%), and Mexico (97 374 new cases; 75.5 new cases per 100 000; +27%).

The number of new weekly deaths in the Region decreased by 13% as compared to the previous week, with over 3600 new deaths reported. The highest numbers of new deaths were reported from the United States of America (1622 new deaths; <1 new death per 100 000; -19%), Brazil (1187 new deaths; <1 new deaths per 100 000; -10%), and Chile (178 new deaths; <1 new death per 100 000; +12%).

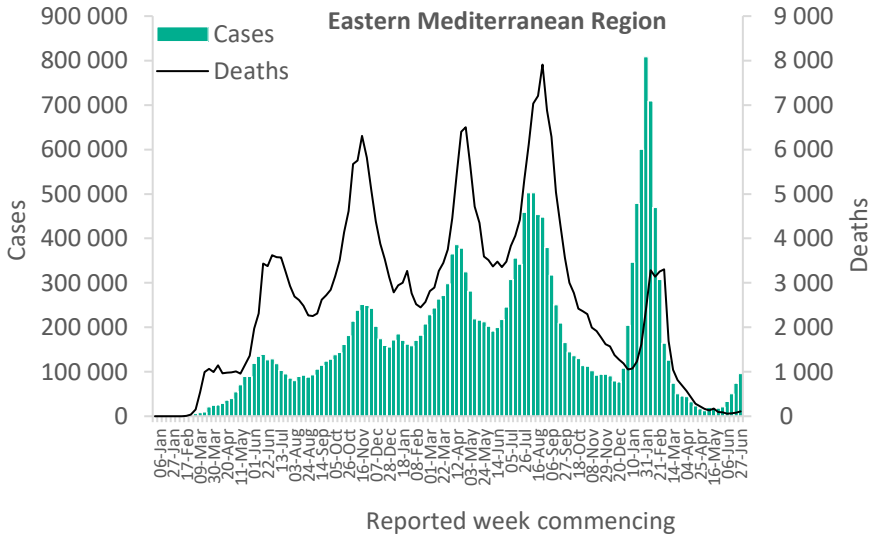


Updates from the Region of the Americas

Eastern Mediterranean Region

The Eastern Mediterranean Region reported just under 96 000 new weekly cases, representing a 29% increase as compared to the previous week. Eight (36%) countries reported increases in the number of new cases of 20% or greater, with the greatest proportional increases observed in the occupied Palestinian territory (1350 vs 403 new cases; +235%), Iraq (15 791 vs 6237 new cases; +153%), and Tunisia (5477 vs 2277 new cases; +141%). The highest numbers of new cases were reported from Morocco (21 124 new cases; 57.2 new cases per 100 000; +19%), Iraq (15 791 new cases; 39.3 new cases per 100 000; +153%), and the United Arab Emirates (12 347 new cases; 124.8 new cases per 100 000; +11%).

The number of new weekly deaths in the Region increased by 34% as compared to the previous week, with over 100 new deaths reported. Some of the highest numbers of new deaths were reported from Tunisia (21 new deaths; <1 new death per 100 000; +40%), Morocco (18 new deaths; <1 new death per 100 000; +50%), and Saudi Arabia (13 new deaths; <1 new death per 100 000; similar to the previous week's figures).

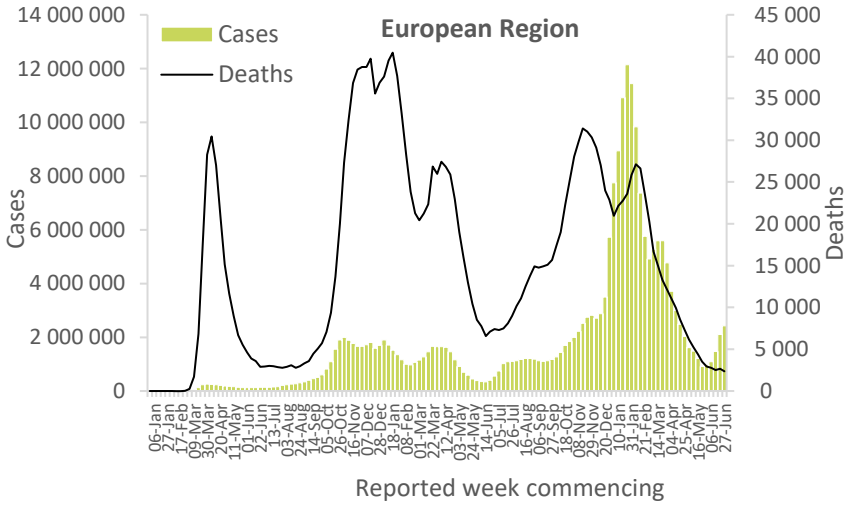


Updates from the Eastern Mediterranean Region

European Region

New weekly cases have continued to increase for over a month in the European Region, with over 2.4 million new cases reported, a 15% increase compared to the previous week. Thirty-one (51%) countries in the Region reported increases in new cases of 20% or greater, with the greatest proportional increases observed in Kosovo[1] (849 vs 199 new cases; +327%), Kyrgyzstan (29 vs 7 new cases; +314%) and Kazakhstan (959 vs 299 new cases; +221%). The highest numbers of new cases were reported from France (603 074 new cases; 927.2 new cases per 100 000; +33%), Germany (555 331 new cases; 667.7 new cases per 100 000; -2%), and Italy (511 037 new cases; 856.8 new cases per 100 000; +50%).

Over 2300 new weekly deaths were reported in the Region, a 12% decrease as compared to the previous week. The highest numbers of new deaths were reported from Italy (430 new deaths; <1 new death per 100 000; +21%), the Russian Federation (371 new deaths; <1 new death per 100 000; -14%), and Spain (312 new deaths; <1 new death per 100 000; -2%).

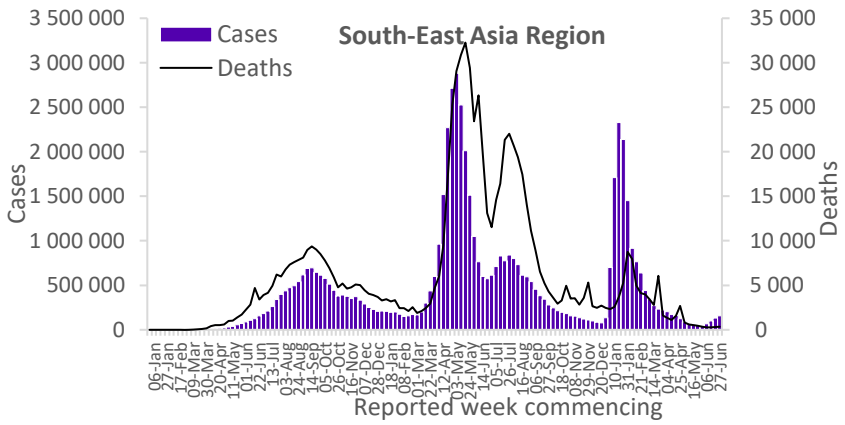


Updates from the European Region

South-East Asia Region

The South-East Asia Region has been reporting an increasing trend in cases since early June, with over 157 000 new cases reported, a 20% increase as compared to the previous week. Five of 10 countries (50%) for which data are available showed increases in the number of new cases of 20% or greater, with the greatest proportional increases observed in Bhutan (103 vs 48 new cases; +115%), Nepal (268 vs 171 new cases; +57%) and Bangladesh (13516 vs 8846 new cases; +53%). The highest numbers of new cases were reported from India (112 456 new cases; 8.1 new cases per 100 000; +21%), Thailand (15 950 new cases; 22.9 new cases per 100 000; +6%), and Bangladesh (13 516 new cases; 8.2 new cases per 100 000; +53%).

The number of new weekly deaths in the Region increased by 16% as compared to the previous week, with over 350 new deaths reported. The highest numbers of new deaths were reported from India (200 new deaths; <1 new death per 100 000; +39%), Thailand (108 new deaths; <1 new death per 100 000; -14%), and Indonesia (32 new deaths; <1 new death per 100 000; +7%).

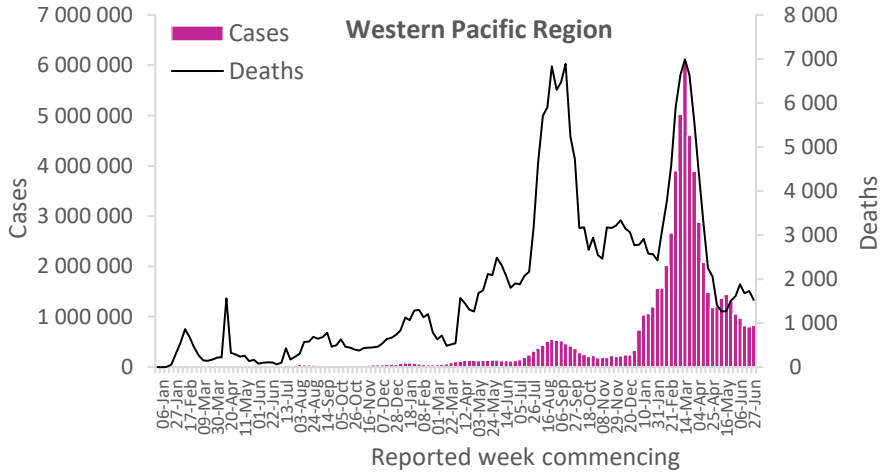


Updates from the South-East Asia Region

Western Pacific Region

After a decreasing trend in cases since mid-May, the Western Pacific Region reported a slight increase in new weekly cases, with over 827 000 new cases, a 4% increase as compared to the previous week. Thirteen (39%) countries reported increases in new cases of 20% or greater, with some of the largest proportional increases observed in the Commonwealth of the Northern Mariana Islands (190 vs 87 new cases; +118%), Palau (36 vs 20 new cases; +80%) and New Caledonia (822 vs 513 new cases; +60%). The highest numbers of new cases were reported from China (270 446 new cases; 18.4 new cases per 100 000; -19%), Australia (210 389 new cases; 825.1 new cases per 100 000; +7%), and Japan (136 357 new cases; 107.8 new cases per 100 000; +25%).

The Region reported over 1500 new weekly deaths, representing a 12% decrease as compared to the previous week. The highest numbers of new deaths were reported from China (755 new deaths; <1 new death per 100 000; -30%), Australia (331 new deaths; 1.3 new death per 100 000; similar to the previous week's figures), and Japan (192 new deaths; <1 new death per 100 000; +106%).



Updates from the Western Pacific Region

Annex 1. Data, table, and figure notes

Data presented are based on official laboratory-confirmed COVID-19 cases and deaths reported to WHO by country/territories/areas, largely based upon WHO case definitions and surveillance guidance. While steps are taken to ensure accuracy and reliability, all data are subject to continuous verification and change, and caution must be taken when interpreting these data as several factors influence the counts presented, with variable underestimation of true case and death incidences, and variable delays to reflecting these data at the global level. Case detection, inclusion criteria, testing strategies, reporting practices, and data cut-off and lag times differ between countries/territories/areas. A small number of countries/territories/areas report combined probable and laboratory-confirmed cases. Differences are to be expected between information products published by WHO, national public health authorities, and other sources.

Due to public health authorities conducting data reconciliation exercises that remove large numbers of cases or deaths from their total counts, negative numbers may be displayed in the new cases/deaths columns as appropriate. When additional details become available that allow the subtractions to be suitably apportioned to previous days, graphics will be updated accordingly. A record of historic data adjustment made is available upon request by emailing epi-data-support@who.int. Please specify the countries of interest, time period, and purpose of the request/intended usage. Prior situation reports will not be edited; see covid19.who.int for the most up-to-date data. COVID-19 confirmed cases and deaths reported in the last seven days by countries, territories, and areas, and WHO Region (reported in previous issues) are now available at: https://covid19.who.int/table.

'Countries' may refer to countries, territories, areas or other jurisdictions of similar status. The designations employed, and the presentation of these materials do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement. Countries, territories, and areas are arranged under the administering WHO region. The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by WHO in preference to others of a similar nature that are not mentioned. Errors and omissions except, the names of proprietary products are distinguished by initial capital letters.

[1] All references to Kosovo should be understood to be in the context of the United Nations Security Council resolution 1244 (1999). In the map, the number of cases of Serbia and Kosovo (UNSCR 1244, 1999) have been aggregated for visualization purposes.
[2] Since 21 May 2022, data for COVID-19 cases and deaths in Northern Ireland was no longer included in the United Kingdom updates.
[3] Updates of an outbreak of COVID-19 reported in the Democratic People's Republic of Korea continue through official media since 12 May 2022; however, at present, no confirmed cases or deaths have been reported to WHO.

Erratum: 21 July 2022: There was an error in the disease severity section for B.1.1.529 in Table 3 (Summary of phenotypic characteristics of the Omicron VOC) mentioning an increased severity of Omicron compared to Delta. This has been corrected and now states that "The studies show either similar or lower disease severity of Omicron compared to Delta.

See the correct list of references in edition 101 published on 20 July 2022.

Annex 2. Neutralization Studies of Primary Series and First Booster Vaccine Performance against Omicron Variant of Concern (data as of 27 June 2022)

		Omicron Sub-Lineage				
		BA.1	**BA.2**	**BA.2.12.1**	**BA.3**	**BA.4/BA.5**
Primary Series Vaccination						
WHO Emergency Use Listing (EUL) Qualified Vaccines	AstraZeneca-Vaxzevria/SII-Covishield	HNR_{9}	HNR_{1}	----	----	----
	Beijing CNBG-BBIBP-CorV	HNR_{7}	HNR_{2}	----	HNR_{1}	HNR_{1}
	Bharat-Covaxin	$\downarrow\downarrow_{1}$	----	----	----	----
	Cansino-Covidecia	----	----	----	----	----
	Janssen-Ad26-COV2.S	HNR_{6}	----	----	----	----
	Moderna-Spikevax	$\downarrow\downarrow\downarrow_{10}$	HNR_{2}	$\downarrow\downarrow\downarrow_{1}$	----	----
	Novavax-Nuvaxovid/SII - Covavax	----	----	----	----	----
	Pfizer BioNTech-Comirnaty	HNR_{47}	$\downarrow\downarrow\downarrow_{2}$	$\downarrow\downarrow\downarrow_{2}$	HNR_{1}	HNR_{1}
	Sinovac-CoronaVac	$\downarrow\downarrow\downarrow_{1}$	----	----	----	----
Vaccines without WHO EUL	Anhui ZL-Recombinant	----	----	----	----	----
	Gamaleya-Sputnik V	HNR_{2}	----	----	----	----
Booster Vaccination (Primary Series Vaccine + Booster Vaccine)						
WHO Emergency Use Listing (EUL) Qualified Booster Vaccines	AstraZeneca-Vaxzevria/SII-Covishield + AstraZeneca-Vaxzevria/SII Covishield	HNR_{2}	HNR_{2}	----	----	----
	AstraZeneca-Vaxzevria/SII-Covishield + Moderna-Spikevax	$\downarrow_{1}$	----	----	----	----
	AstraZeneca-Vaxzevria/SII-Covishield + Pfizer BioNTech-Comirnaty	$\downarrow\downarrow_{1}$	$\downarrow\downarrow_{1}$	----	$\downarrow\downarrow_{1}$	----
	Beijing CNBG-BBIBP-CorV + Beijing CNBG-BBIBP-CorV	$\downarrow\downarrow$to$\downarrow\downarrow\downarrow_{6}$	HNR_{2}	HNR_{1}	$\downarrow\downarrow_{1}$	HNR_{1}
	Janssen-Ad26-COV2.S + Janssen-Ad26-COV2.S	HNR_{1}	----	----	$\downarrow\downarrow_{1}$	----
	Moderna-Spikevax + Moderna-Spikevax	$\downarrow$to$\downarrow\downarrow\downarrow_{9}$	$\downarrow\downarrow_{1}$	$\downarrow\downarrow_{1}$	----	$\downarrow\downarrow\downarrow_{1}$
	Moderna-Spikevax + Pfizer BioNTech-Comirnaty	$\downarrow\downarrow\downarrow_{1}$			----	----
	Pfizer BioNTech-Comirnaty + Pfizer BioNTech-Comirnaty	$\downarrow$to$\downarrow\downarrow\downarrow_{38}$	$\downarrow$to$\downarrow\downarrow\downarrow_{11}$	$\downarrow\downarrow\downarrow_{1}$	$\downarrow$to$\downarrow\downarrow\downarrow_{3}$	$\downarrow\downarrow$to$\downarrow\downarrow\downarrow_{3}$
	Pfizer BioNTech-Comirnaty + Janssen-Ad26-COV2.S	$\downarrow_{2}$	----	----	----	----
	Pfizer BioNTech-Comirnaty + Moderna-Spikevax	$\downarrow$to$\downarrow\downarrow_{2}$	----	----	----	----
	Sinovac-CoronaVac + Sinovac-CoronaVac	HNR_{6}	$\downarrow\downarrow_{2}$	$\downarrow\downarrow_{1}$	$\downarrow\downarrow_{1}$	$\downarrow\downarrow_{1}$
	Sinovac-CoronaVac + Pfizer BioNTech-Comirnaty	$\downarrow\downarrow_{2}$	$\downarrow\downarrow_{1}$	----	----	----
Booster Vaccines without WHO EUL	Anhui ZL-Recombinant + Anhui ZL-Recombinant	HNR_{3}	----	----	----	----
	Beijing CNBG-BBIBP-CorV + Anhui ZL - Recombinant	$\downarrow\downarrow$to$\downarrow\downarrow\downarrow_{5}$	HNR_{2}	HNR_{1}	$\downarrow\downarrow\downarrow_{1}$	HNR_{1}
	Gamaleya-Sputnik V + Gamaleya Sputnik Light	$\downarrow\downarrow_{1}$	----	----	----	----
	Sinovac-CoronaVac + Anhui ZL - Recombinant	$\downarrow_{1}$	$\downarrow_{1}$	$\downarrow_{1}$	$\downarrow_{1}$	$\downarrow\downarrow_{1}$

Abbreviations: HNR=high non-response. Arrows generalize the magnitude of reduction in neutralization against the Omicron sub-lineage relative to the ancestral strain: "↔" indicates <2-fold reduction in neutralization; "↓" indicates 2 to <5-fold reduction; "↓↓" indicates 5 to <10-fold reduction; "↓↓↓" indicates ≥10-fold reduction. When more than one neutralization study is available, the interquartile range (25th and 75th percentiles) of fold-reductions across all studies was used, restricting to studies reporting ≥75% of persons/sera with detectable neutralization titers. HNR indicates a median percent of persons/sera with detectable neutralization titers across all studies of <75%; in these instances, fold-reductions can be biased and, thus are not presented. The number of studies is shown as subscripts. For booster vaccination, only schedules with available results are shown.

Additional notes on Annex 2 table

- Studies contributing to the table are identified from an ongoing review of the preprint and published literature on neutralization of SARS-CoV-2 variants by COVID-19 vaccines.
- Studies that use samples collected more than seven days and less than six months after complete vaccination and that use an ancestral strain as the reference are included in the table.
- Studies of immunocompromised persons are excluded.
- It is important to note that studies vary in population and other methodological considerations, which may in part explain some differences when comparing products between different studies. In addition, the reductions summarized in the table do not incorporate uncertainty intervals around the degree of reductions, which can vary substantially across studies when reported.

References

1. Campbell F, Archer B, Laurenson-Schafer H, et al. Increased transmissibility and global spread of SARS-CoV-2 variants of concern as at June 2021. *Eurosurveillance*. 2021;26(24):2100509.

2. UK Health Security Agency. SARS-CoV-2 variants of concern and variants under investigation in England. Technical briefing 43. 24 June 2022. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1086494/Technical-Briefing-43-28.06.22.pdf

3. Ferguson N, Ghani A, Hinsley W, Volz E. *Report 50: Hospitalisation Risk for Omicron Cases in England*. Imperial College London; 2021. Accessed December 23, 2021. https://www.imperial.ac.uk/media/imperial-college/medicine/mrc-gida/2021-12-22-COVID19-Report-50.pdf

4. Ulloa AC, Buchan SA, Daneman N, Brown KA. Estimates of SARS-CoV-2 Omicron Variant Severity in Ontario, Canada. *JAMA*. Published online February 17, 2022. doi:10.1001/jama.2022.2274

5. Lewnard JA, Hong VX, Patel MM, Kahn R, Lipsitch M, Tartof SY. *Clinical Outcomes among Patients Infected with Omicron (B.1.1.529) SARS-CoV-2 Variant in Southern California*. Epidemiology; 2022. doi:10.1101/2022.01.11.22269045

6. Nyberg T, Twohig KA, Harris RJ, et al. Risk of hospital admission for patients with SARS-CoV-2 variant B.1.1.7: cohort analysis. *BMJ*. 2021;373:n1412. doi:10.1136/bmj.n1412

7. Wolter N, Jassat W, Walaza S, et al. *Early Assessment of the Clinical Severity of the SARS-CoV-2 Omicron Variant in South Africa*. Infectious Diseases (except HIV/AIDS); 2021. doi:10.1101/2021.12.21.21268116

8. Gunadi, Hakim MS, Wibawa H, et al. *Comparative Analysis of the Outcomes of COVID-19 between Patients Infected with SARS-CoV-2 Omicron and Delta Variants: A Retrospective Cohort Study*. Public and Global Health; 2022. doi:10.1101/2022.04.30.22274532

9. Strasser Z, Hadavand A, Murphy S, Estiri H. *SARS-CoV-2 Omicron Variant Is as Deadly as Previous Waves After Adjusting for Vaccinations, Demographics, and Comorbidities*. In Review; 2022. doi:10.21203/rs.3.rs-1601788/v1

10. Grint DJ, Wing K, Gibbs HP, et al. *Accident and Emergency (AE) Attendance in England Following Infection with SARS-CoV-2 Omicron or Delta*. Infectious Diseases (except HIV/AIDS); 2022. doi:10.1101/2022.05.03.22274602

11. Wang Z, Schmidt F, Weisblum Y, et al. mRNA vaccine-elicited antibodies to SARS-CoV-2 and circulating variants. *Nature*. Published online February 2021. https://www.ncbi.nlm.nih.gov/pubmed/33567448

12. Nyberg T, Ferguson NM, Nash SG, et al. Comparative analysis of the risks of hospitalisation and death associated with SARS-CoV-2 omicron (B.1.1.529) and delta (B.1.617.2) variants in England: a cohort study. *The Lancet*. 2022;399(10332):1303-1312. doi:10.1016/S0140-6736(22)00462-7

13. Wolter N, Jassat W, DATCOV-Gen author group, von Gottberg A, Cohen C. *Clinical Severity of Omicron Sub-Lineage BA.2 Compared to BA.1 in South Africa*. Infectious Diseases (except HIV/AIDS); 2022. doi:10.1101/2022.02.17.22271030

14. COVID-19 Hospital Surveillance ; Update: Week 23, 2022. https://www.nicd.ac.za/wp-content/uploads/2022/06/NICD-COVID-19-Weekly-Sentinel-Hospital-Surveillnace-update-Week-23-2022.pdf

15. National Institute for Communicable Diseases. COVID-19 Hospital Surveillance Update: week 12 2022. Published online 2022. Accessed April 5, 2022. https://www.nicd.ac.za/wp-content/uploads/2022/03/NICD-COVID-19-Weekly-Sentinel-Hospital-Surveillnace-update-Week-12-2022.pdf

16. Relatório de Monitorização da Situação Epidemiológica da COVID-19 Monitoring of COVID-19. https://www.dgs.pt/em-destaque/relatorio-de-monitorizacao-da-situacao-epidemiologica-da-covid-19-n-12-pdf.aspx

17. Chang CC, Vlad G, Vasilescu ER, et al. *Previous SARS-CoV-2 Infection or a Third Dose of Vaccine Elicited Cross-Variant Neutralizing Antibodies in Vaccinated Solid Organ Transplant Recipients*. Infectious Diseases (except HIV/AIDS); 2022. doi:10.1101/2022.04.13.22273829

18. Carazo S, Skowronski DM, Brisson M, et al. *Protection against Omicron Re-Infection Conferred by Prior Heterologous SARS-CoV-2 Infection, with and without MRNA Vaccination*. Infectious Diseases (except HIV/AIDS); 2022. doi:10.1101/2022.04.29.22274455

19. Chemaitelly H, Ayoub HH, Coyle P, et al. *Protection of Omicron Sub-Lineage Infection against Reinfection with Another Omicron Sub-Lineage*. Epidemiology; 2022. doi:10.1101/2022.02.24.22271440

20. Bowen JE, Sprouse KR, Walls AC, et al. *Omicron BA.1 and BA.2 Neutralizing Activity Elicited by a Comprehensive Panel of Human Vaccines*. Immunology; 2022. doi:10.1101/2022.03.15.484542

21. Iketani S, Liu L, Guo Y, Liu L, Huang Y, Wang M. Antibody Evasion Properties of SARS-CoV-2 Omicron Sublineages. :12.

22. Yu J, Collier A ris Y, Rowe M, et al. *Comparable Neutralization of the SARS-CoV-2 Omicron BA.1 and BA.2 Variants*. Infectious Diseases (except HIV/AIDS); 2022. doi:10.1101/2022.02.06.22270533

23. Khan K, Karim F, Ganga Y, et al. *Omicron Sub-Lineages BA.4/BA.5 Escape BA.1 Infection Elicited Neutralizing Immunity*. Infectious Diseases (except HIV/AIDS); 2022. doi:10.1101/2022.04.29.22274477

24. Hachmann NP, Miller J, Collier A ris Y, et al. *Neutralization Escape by the SARS-CoV-2 Omicron Variants BA.2.12.1 and BA.4/BA.5*. Infectious Diseases (except HIV/AIDS); 2022. doi:10.1101/2022.05.16.22275151

25. Cao Y, Yisimayi A, Jian F, et al. *BA.2.12.1, BA.4 and BA.5 Escape Antibodies Elicited by Omicron Infection*. Immunology; 2022. doi:10.1101/2022.04.30.489997

26. Metzger CM, Lienhard R, Seth-Smith HM. PCR performance in the SARS-CoV-2 Omicron variant of concern? *Swiss Med Wkly*. 2021;151(49-50). doi:10.4414/smw.2021.w30120

27. Drain PK, Bemer M, Morton JF, et al. *Accuracy of Rapid Antigen Testing across SARS-CoV-2 Variants*. Infectious Diseases (except HIV/AIDS); 2022. doi:10.1101/2022.03.21.22272279

28. Soni A, Herbert C, Filippaios A, et al. *Comparison of Rapid Antigen Tests' Performance between Delta (B.1.61.7; AY.X) and Omicron (B.1.1.529; BA1) Variants of SARS-CoV-2: Secondary Analysis from a Serial Home Self-Testing Study*. Infectious Diseases (except HIV/AIDS); 2022. doi:10.1101/2022.02.27.22271090

29. Bayart JL, Degosserie J, Favresse J, et al. Analytical Sensitivity of Six SARS-CoV-2 Rapid Antigen Tests for Omicron versus Delta Variant. Published online 2022:9.

30. Bekliz M, Perez-Rodriguez F, Puhach O, et al. *Sensitivity of SARS-CoV-2 Antigen-Detecting Rapid Tests for Omicron Variant*. Infectious Diseases (except HIV/AIDS); 2021. doi:10.1101/2021.12.18.21268018

31. Takashita E, Kinoshita N, Yamayoshi S, et al. Efficacy of Antiviral Agents against the SARS-CoV-2 Omicron Subvariant BA.2. *N Engl J Med*. Published online March 9, 2022:NEJMc2201933. doi:10.1056/NEJMc2201933

32. Planas D, Saunders N, Maes P, et al. *Considerable Escape of SARS-CoV-2 Variant Omicron to Antibody Neutralization*. Immunology; 2021. doi:10.1101/2021.12.14.472630

33. VanBlargan LA, Errico JM, Halfmann PJ, et al. *An Infectious SARS-CoV-2 B.1.1.529 Omicron Virus Escapes Neutralization by Several Therapeutic Monoclonal Antibodies*. Microbiology; 2021. doi:10.1101/2021.12.15.472828

34. Cameroni E, Saliba C, Bowen JE. Broadly neutralizing antibodies overcome SARS-CoV-2 Omicron antigenic shift. Published December 14, 2021. Accessed December 23, 2021. https://www.biorxiv.org/content/10.1101/2021.12.12.472269v1

35. Roche. Ronapreve does not retain neutralising activity against the Omicron variant. Published 2021. Accessed December 17, 2021. https://www.roche.com/dam/jcr:dfe6dcb4-d787-45d6-9b1d-ffc17d667e4c/2021216_Roche%20statement%20on%20Ronapreve%20Omicron.pdf

36. Arora P, Kempf A, Nehlmeier I, et al. Augmented neutralisation resistance of emerging omicron subvariants BA.2.12.1, BA.4, and BA.5. *The Lancet Infectious Diseases*. Published online June 2022:S1473309922004224. doi:10.1016/S1473-3099(22)00422-4

37. World Health Organization. Therapeutics and COVID-19: Living guideline. Accessed December 17, 2021. https://www.who.int/publications/i/item/WHO-2019-nCoV-therapeutics-2021.4

38. Yamasoba D, Kosugi Y, Kimura I, et al. *Sensitivity of Novel SARS-CoV-2 Omicron Subvariants, BA.2.11, BA.2.12.1, BA.4 and BA.5 to Therapeutic Monoclonal Antibodies*. Microbiology; 2022. doi:10.1101/2022.05.03.490409

39. Higdon MM, Baidya A, Walter KK, et al. Duration of effectiveness of vaccination against COVID-19 caused by the omicron variant. *The Lancet Infectious Diseases*. 2022;0(0). doi:10.1016/S1473-3099(22)00409-1