COVID-19 Weekly Epidemiological Update

Edition 74, published 11 January 2022

In this edition:

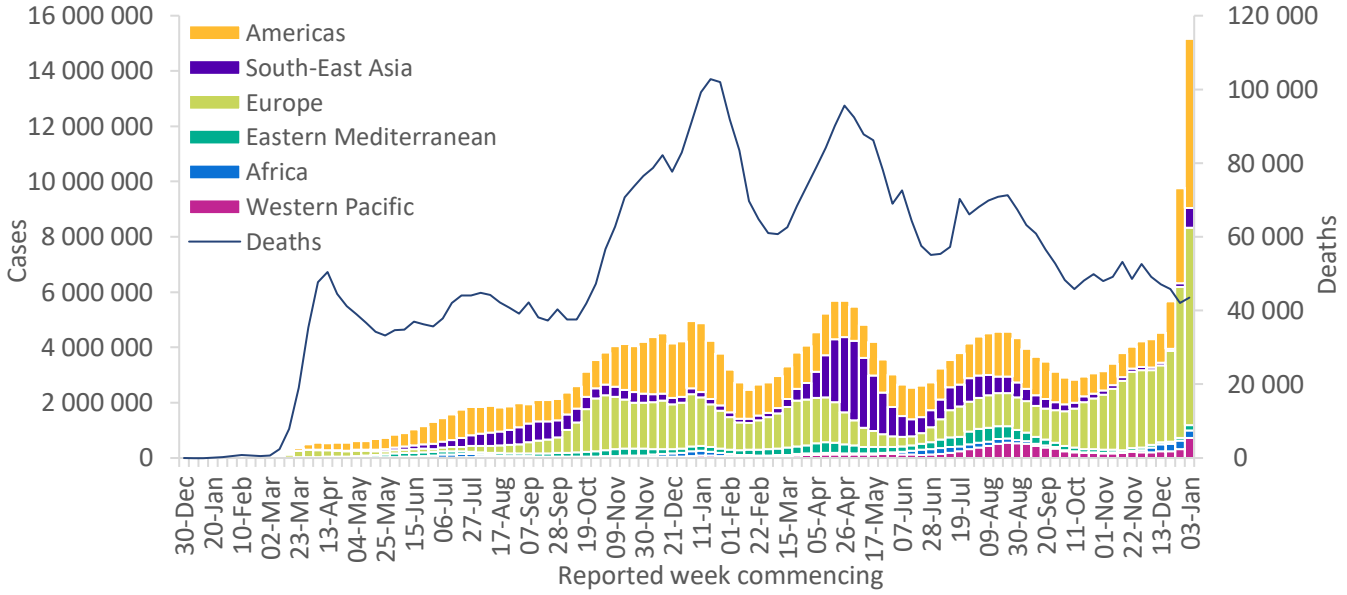
Global overview

Data as of 9 January 2022

Globally, the number of new cases increased markedly in the past week (3-9 January 2022), while the number of new deaths remained similar to that of the previous week. Across the six regions, over 15 million new cases were reported this past week, a 55% increase as compared to the previous week and over 43 000 new deaths were reported. As of 9 January, over 304 million confirmed cases and over 5.4 million deaths have been reported.

All regions reported an increase in the incidence of weekly cases with the exception of the African Region, which reported an 11% decrease. The South-East Asia region reported the largest increase in new cases last week (418%), followed by the Western Pacific Region (122%), the Eastern Mediterranean Region (86%), the Region of the Americas (78%) and the European Region (31%). New weekly deaths increased in the African Region (84%) and Region of the Americas (26%). The number of new deaths remained similar to that of the previous week in the Western Pacific Region, while a decrease was reported in the Eastern Mediterranean Region (11%), the European Region (10%) and in the South-East Asia Region (6%).

Figure 1. COVID-19 cases reported weekly by WHO Region, and global deaths, as of 9 January 2022**



**See *Annex 3: Data, table, and figure notes*

The regions reporting the highest weekly case incidence per 100 000 population continue to be the European Region (765.8 new cases per 100 000 population) and the Region of the Americas (597.9 new cases per 100 000 population). Both regions also reported the highest weekly incidence in deaths of 2.2 and 1.4 per 100 000 population, respectively, while <1 new death per 100 000 was reported in all other regions.

The highest numbers of new cases were reported from the United States of America (4 610 359 new cases; a 73% increase), France (1 597 203 new cases; a 46% increase), the United Kingdom (1 217 258 new cases; a 10% increase), Italy (1 014 358 new cases; a 57% increase), and India (638 872 new cases; a 524% increase).

Table 1. Newly reported and cumulative COVID-19 confirmed cases and deaths, by WHO Region, as of 9 January 2022**

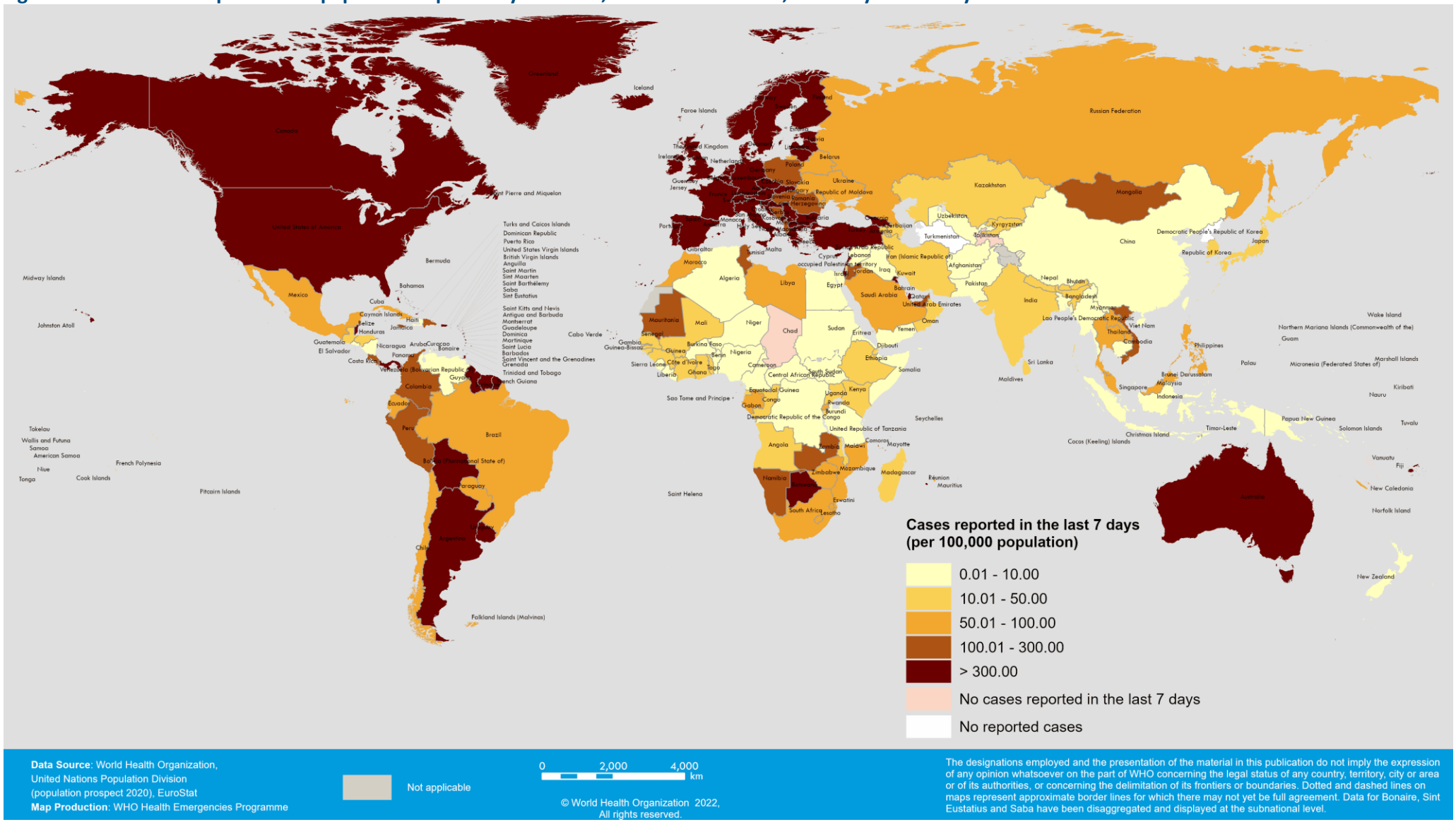
WHO Region	New cases in last 7 days (%)	Change in new cases in last 7 days *	Cumulative cases (%)	New deaths in last 7 days (%)	Change in new deaths in last 7 days *	Cumulative deaths (%)
Europe	7 145 424 (47%)	31%	110 413 718 (36%)	20 696 (48%)	-10%	1 695 819 (31%)
Americas	6 115 409 (40%)	78%	111 063 942 (36%)	14 489 (33%)	26%	2 427 710 (44%)
Western Pacific	732 464 (5%)	122%	12 124 225 (4%)	2 781 (6%)	0%	159 296 (3%)
South-East Asia	699 635 (5%)	418%	45 734 456 (15%)	2 309 (5%)	-6%	724 249 (13%)
Africa	261 720 (2%)	-11%	7 611 721 (3%)	2 130 (5%)	84%	158 581 (3%)
Eastern Mediterranean	200 014 (1%)	86%	17 401 381 (6%)	1 056 (2%)	-11%	317 197 (6%)
Global	**15 154 666 (100%)**	**55%**	**304 350 207 (100%)**	**43 461 (100%)**	**3%**	**5 482 865 (100%)**

**Percent change in the number of newly confirmed cases/deaths in the past seven days, compared to seven days prior*
**See *Annex 3: Data, table, and figure notes*

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

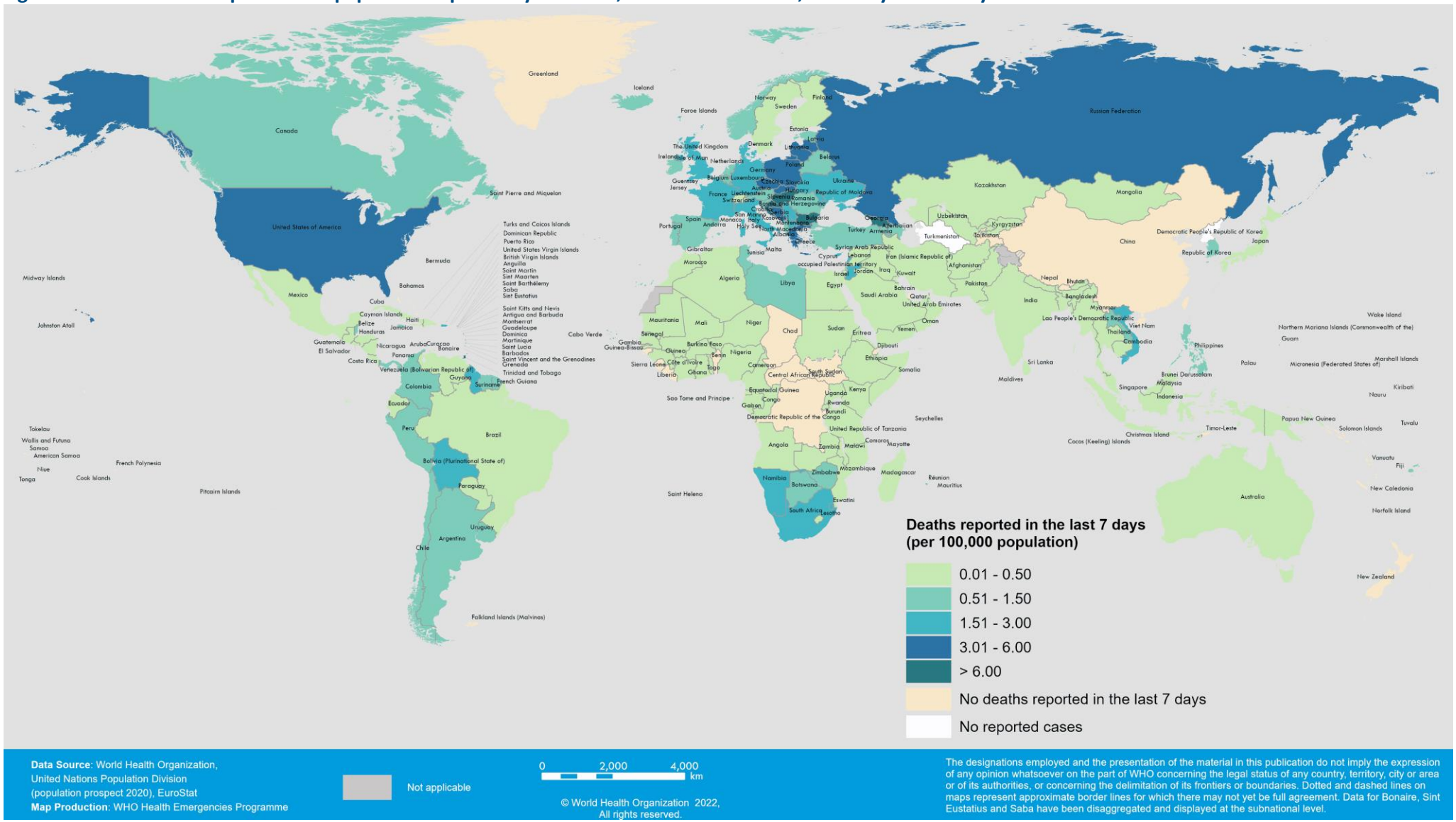
- WHO COVID-19 Dashboard
- WHO COVID-19 Weekly Operational Update and previous editions of the Weekly Epidemiological Update

Figure 2. COVID-19 cases per 100 000 population reported by countries, territories and areas, 3 January – 9 January 2022**



**See *Annex 3: Data, table, and figure notes*

Figure 3. COVID-19 deaths per 100 000 population reported by countries, territories and areas, 3 January – 9 January 2022**



**See *Annex 3: 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 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. As evidence becomes available, classifications of variants will be revised to reflect the continuous evolution of circulating variants and their changing epidemiology. Criteria for variant classification, and the current lists of VOCs, VOIs and VUMs, are available on the WHO Tracking SARS-CoV-2 variants website. National authorities may choose to designate other variants of local interest/concern and are encouraged to investigate and report on the impacts of these variants.

Geographic spread and prevalence of VOCs

The current global epidemiology of SARS-CoV-2 is characterized by the emergence of Omicron variant, declining prevalence of the Delta variant, and very low level circulation of Alpha, Beta and Gamma variants. Following the identification of travel related Omicron cases, many countries are now reporting clusters as well as community transmission of this VOC. Among the 357 206 sequences uploaded to GISAID with specimens collected in the last 30 days[i], 208 870 sequences (58.5%) were Omicron, 147 887 (41.4%) were Delta, 12 (<0.1%) were Alpha, two (<0.1%) were Gamma, one (<0.1%) was Beta and six sequences (<0.1%) comprised other circulating variants (including VOIs Mu and Lambda).To note, global VOCs distribution should be interpreted with due consideration of surveillance limitations, including differences in sequencing capacities and sampling strategies between countries, as well as delays in reporting.

Differences in the characteristics of VOCs

Available evidence on the phenotypic impacts of VOCs is summarized in Table 2, as well as in previous editions of the COVID-19 Weekly Epidemiological Update. Since the last update on 14 December 2021, there are several new publications on the phenotypic characteristics of VOCs**,** including recent literature on Omicron. Some of the studies reported have not been peer-reviewed and the findings must therefore be interpreted with due consideration of this limitation.

Update on Omicron VOC

The Omicron variant has a substantial growth advantage and is rapidly replacing other variants. This variant has been shown to have a shorter doubling time as compared to previous variants, with transmission occurring even amongst those vaccinated or with a history of prior SARS-CoV-2 infection; there is increasing evidence that this variant is able to evade immunity.[1–4] In Denmark, the first case of infection with the Omicron variant was detected on 22 November 2021, with community transmission established by late November 2021. A non-peer-reviewed preprint used Danish registers to estimate the household secondary attack rate (SAR) among Danish households during December 2021. The SAR was 31% versus 21% in households with the Omicron (total primary cases: 2225) and Delta variant (total primary cases: 9712), respectively, with the estimated SAR remaining higher for the Omicron than for the Delta variant across all groups.[3] Additionally, unvaccinated households had a 1.17 (95%CI: 0.99-1.38) times higher SAR when infected with the Omicron compared to Delta variant, while vaccinated individuals and individuals who had

[i] Includes sequences submitted to GISAID with sample collected dates from 12 December 2021 to 10 January 2022 (last reported sample at the time of data extraction), excluding low coverage sequences.

received a booster dose had 2.61 times (95%-CI: 2.34-2.90) and 3.66 times (95%-CI: 2.65-5.05) higher SAR respectively, providing evidence as to the ability of the Omicron variant to evade immunity (note that the absolute risk of infection remained lower in vaccinated individuals than unvaccinated individuals).

In terms of disease severity, there is growing evidence that the Omicron variant is less severe as compared to other variants.[5–8] A non-peer-reviewed preprint from Gauteng province, South Africa which documented the first rapid increases in case incidence due to the Omicron variant, compared the clinical severity of patients hospitalised with SARS-CoV-2 infection from 14 November until 11 December 2021 (a period during which Omicron became the dominant circulating variant) with periods when the Beta and Delta variants were the dominant variants (29 November to 26 December 2020 and 2 May to 29 May 2021, respectively).[9] Despite the higher number of cases during the 'Omicron-dominant' period, hospital admission rates were lower, with 4.9% of cases admitted as compared with 18.9% admitted during the 'Beta-dominant' period and 13.7% during the 'Delta-dominant' period. Similarly, fewer patients developed severe disease during the latter period (28.8%; 1,276/4,438) as compared to the Beta (60.1%; 4,672/7,774) and Delta (66.8%; 3,058/4,574) periods. In this study, severe disease was defined as one or more of the following: development of acute respiratory distress syndrome, supplemental oxygen or invasive mechanical ventilation, treatment in high care or the intensive care unit, or death. Additionally, patients admitted during the 'Omicron-dominant period' were 73% less likely to have severe disease than patients admitted during the 'Delta-dominant period' (Adjusted Odds Ratio 0.27, 95% CI 0.25-0.31).

A non-peer-reviewed retrospective cohort study from the United States of America, where the Omicron variant has been detected since December 2021, used propensity-score matching on demographic characteristics, co-morbidities, medications,, vaccination status and other socio-economic determinants of health to compare the 3-day risk (time window from the first day of SARS-CoV-2 infection identification to three days after infection) of adverse outcomes following infection with SARS-CoV-2.[8] The outcomes, visiting the emergency department (ED), hospitalization, ICU admission, and mechanical ventilation, were compared between the two cohorts. These cohorts included those infected with SARS-CoV-2 between 15 and 24 December 2021 when the Omicron variant was dominant, the 'Omicron cohort' (n=14 054) and those infected between 1 September and 15 December 2021 when the Delta variant was dominant (n=563 884), the 'Delta cohort'. Compared to the Delta cohort, the risk of an adverse outcome in the Omicron cohort was lower, including admission to ED (Risk Ratio [RR] 0.30, 95%CI 0.28-0.33); hospitalization (RR 0.44, 95%CI 0.38-0.52); ICU admission (RR 0.33, 95%CI 0.23-0.48) and mechanical ventilation (RR 0.16, 95%CI 0.08-0.32). Similarly, the risk of attending the ED or of hospitalization was lower amongst those under 5 years old in the Omicron as compared to Delta cohort (RR=0.19, 95%CI 0.14-0.25 and RR=0.36, 95%CI 0.19-0.68, respectively). These findings suggests that while the absolute number of cases and hospitalizations among children are currently increasing in the United States of America, the risk of hospitalization still remains lower compared to other age groups during the period when Omicron is circulating as compared to the period when the Delta variant was dominant.

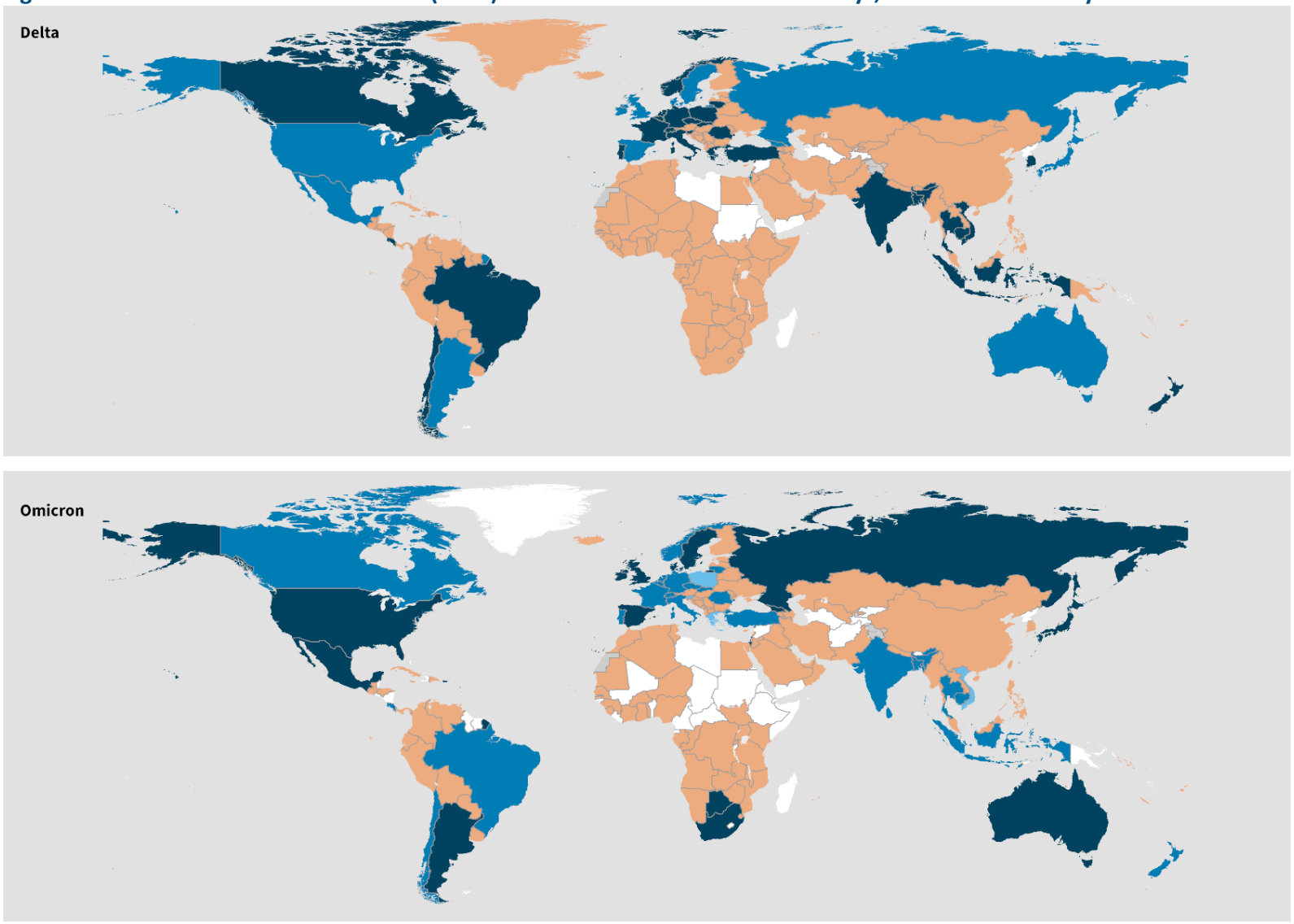
A small cohort study (not yet peer-reviewed) conducted in South Africa of 15 individuals showed that infection with the Omicron variant enhanced an individual's neutralizing antibody immune response against the Delta variant.[10] The study enrolled previously vaccinated and unvaccinated individuals who were infected with SARS-CoV-2 during the period when the Omicron variant was dominant(n=13). Participants were sampled at enrollment, which was a median of four days post-symptom onset and again at a median of 14 days post-enrollment. Two participants did not neutralize Omicron at either timepoint and were excluded from the analysis. Two of the remaining 13 participants did not have detectable SARS-CoV-2 at enrollment, indicating that infection was already cleared, and therefore, that these participants were sampled later post-infection. The blood from the participants was used to neutralize both Omicron and Delta variants at enrollment and a median of 14 days after enrollment. A 14.4-fold increase (95% CI 5.5-37.4) in the geometric mean titer (GMT) of the focus reduction neutralization test ($FRNT_{50}$) (20 to 285) was seen between enrollment and the later visit for the Omicron variant and a 4.4-fold increase (95%CI 2.1-9.2) in the GMT of the $FRNT_{50}$ for the Delta variant (80 to 354). This study provides early evidence on a small cohort

which suggests that there may be an increase in Delta variant neutralization in individuals infected with Omicron, which may result in decreased ability of Delta to re-infect those individuals.

A case-control test-negative study (not yet peer-reviewed) estimated the effectiveness of prior infection with SARS-CoV-2 in preventing reinfection with the Omicron and other variants in Qatar, with the hypothesis that protection against reinfection with Omicron was lower than for other variants.[11] Cases (those who were PCR-positive for SARS-CoV-2) and controls (those who were PCR-negative) were matched by sex, 10-year age group, nationality, and calendar time of the PCR test, to control for known differences in the risk of exposure to SARS-CoV-2 infection. Prevention against symptomatic reinfection was estimated at 90.2% (95% CI: 60.2-97.6) for the Alpha variant, 84.8% (95% CI: 74.5-91.0) for the Beta variant, 92.0% (95% CI: 87.9-94.7) for the Delta variant, and 56.0% (95% CI: 50.6-60.9) for the Omicron variant. Prevention against hospitalization or death due to reinfection was estimated at 69.4% (95% CI: -143.6-96.2) for the Alpha variant, 88.0% (95% CI: 50.7-97.1) for the Beta variant, 100% (95% CI: 43.3-99.8) for the Delta variant, and 87.8% (95% CI: 47.5-97.1) for the Omicron variant. This study suggested that protection afforded by prior infection in preventing symptomatic reinfection with Alpha, Beta, or Delta was robust; while such protection against reinfection with Omicron was lower, at nearly 60%. Prior-infection protection against hospitalization or death at reinfection remained robust regardless of variant.

These are all preliminary results which may not represent the overall phenotypic and clinical profile of the Omicron variant and will possibly change as more evidence becomes available in the coming weeks. As a result of this, the overall risk related to Omicron remains very high. More information on the Omicron variant can be found in the updated Technical Brief and Priority Actions for Member States dated 7 January 2022 by WHO.

Figure 4: Prevalence of variants of concern (VOCs) Delta and Omicron in the last 30 days, data as of 11 January 2022



See also Annex 2 for reported VOC detections by country/territory/area

Table 2: Summary of phenotypic impacts* of variants of concern

WHO label	Alpha	Beta	Gamma	Delta	Omicron
Transmissibility	Increased transmissibility[12]	Increased transmissibility[13,14]	Increased transmissibility[14,15]	Increased transmissibility [14,16,17]	Increased transmissibility.[1–4]
Disease severity	Possible increased risk of hospitalization[18,19], possible increased risk of severe disease and death[20,21]	Possible increased risk of hospitalization[19], possible increased in-hospital mortality[22]	Possible increased risk of hospitalization[19], possible increased risk of severe disease[23]	Possible increased risk of hospitalization[24,25]	Possible reduced risk of hospitalization and severe disease [5–8]
Risk of reinfection	Neutralizing activity retained[26], risk of reinfection remains similar[27]	Reduction in neutralizing activity reported; T cell response elicited by D614G virus remains effective[28]	Moderate reduction in neutralizing activity reported[29]	Reduction in neutralizing activity reported[30–32]	Increased risk of reinfection [11,33]
Impacts on diagnostics	Limited impact – S gene target failure (SGTF), no impact on overall result from multiple target RT-PCR; No impact on Ag RDTs observed[34]	No impact on RT-PCR or Ag RDTs observed[32]	None reported to date	No impact on RT-PCR or Ag RDTs observed[35]	PCR continues to detect Omicron. Impact on Ag-RDTs is under investigation: Results are mixed as to whether or not there may be decreased sensitivity to detect Omicron. [1,8,36–38]

**Generalized findings as compared to previously/co-circulating variants. Based on emerging* evidence, including non-peer-reviewed preprint articles and reports, all subject to ongoing investigation and revision.

Table 3 summarizes the impact of variants on product specific vaccine efficacy/effectiveness (VE) and quantifies the reduction in VE in the setting of variants compared to non-VOC settings. Here, we review studies assessing VE against Delta and Omicron variants of concern only. Since the 14 December update, we report on a total of 13 new studies that provided evidence of COVID-19 vaccine effectiveness against Delta and Omicron.

Additional resources

- Tracking SARS-CoV-2 Variants
- COVID-19 new variants: Knowledge gaps and research
- Genomic sequencing of SARS-CoV-2: a guide to implementation for maximum impact on public health
- Considerations for implementing and adjusting public health and social measures in the context of COVID-19

Table 3. Table 3. Summary of vaccine performance against variants of concern (data as of 8 January 2022)

	WHO Emergency Use Listing (EUL) Qualified Vaccines[+]							Vaccines without WHO EUL[+]		
	AstraZeneca-Vaxzevria/SII - Covishield	Beijing CNBG-BBIBP-CorV	Bharat-Covaxi	Janssen-Ad26.COV 2.S	Moderna-mRNA-1273	Pfizer BioNTech-Comirnaty	Sinovac-CoronaVac	Anhui ZL-Recombinant	Gamaleya-Sputnik V	Novavax-Covavax
Alpha[39,40]										
Summary of VE*	Protection retained against all outcomes									
- Severe disease	↔$_{2}$	-	-	-	↔$_{2}$	↔$_{6}$	-	-	-	-
- Symptomatic disease	↔to↓$_{5}$	-	-	-	↔$_{1}$	↔$_{4}$	-	-	-	↓$_{1}$
- Infection	↔to↓$_{4}$	-	-		↔$_{3}$	↔$_{3}$	-	-	-	-
Neutralization	↔to↓$_{9}$	↔$_{1}$	↔$_{2}$	↔$_{5}$	↔to↓$_{15}$	↔to↓$_{48}$	↔to↓↓$_{8}$	↔$_{2}$	↔to↓$_{3}$	↓$_{2}$
Beta[41–44]										
Summary of VE*	Protection retained against severe disease; reduced protection against symptomatic disease; limited evidence									
- Severe disease	-	-	-	↔$_{1}$	↔$_{1}$	↔$_{3}$	-	-	-	-
- Symptomatic disease	↔to↓↓↓$_{2}$	-	-	↔$_{1}$	↔$_{1}$	↔$_{2}$	-	-	-	↓↓↓$_{1}$
- Infection	-	-	-	-	↔$_{1}$	↓$_{1}$	-	-	-	-
Neutralization	↓to↓↓$_{11}$	↓$_{3}$	↓$_{2}$	↓to↓↓$_{9}$	↓to↓↓$_{26}$	↓to↓↓↓$_{57}$	↓to↓↓↓$_{7}$	↔to↓$_{3}$	↓to↓↓$_{4}$	↓↓to↓↓↓$_{2}$
Gamma										
Summary of VE*	Unclear impact; very limited evidence									
- Severe disease	↔$_{1}$	-	-	-	↔$_{1}$	↔$_{2}$	-	-	-	-
- Symptomatic disease	↔$_{1}$	-	-	-	↔$_{1}$	↔$_{1}$	-	-	-	-
- Infection	↔$_{1}$	-	-	-	↔$_{1}$	↔$_{1}$	↔$_{1}$	-	-	-
Neutralization	↔to↓$_{4}$	-	-	↔to↓$_{5}$	↓$_{10}$	↔to↓$_{28}$	↓$_{5}$	↔$_{1}$	↓t$_{1}$	↓$_{1}$
Delta[45]										
Summary of VE*	Protection retained against severe disease; possible reduced protection against symptomatic disease and infection									
- Severe disease	↔$_{3}$	-	-	↓$_{1}$	↔$_{3}$	↔$_{6}$	-	-	-	-
- Symptomatic disease	↔to↓↓$_{6}$	-	↓$_{1}$	-	↔$_{2}$	↔to↓$_{5}$	-	-	-	-
- Infection	↔to↓$_{4}$	-	-	↓↓↓$_{1}$	↔$_{3}$	↔to↓$_{3}$	-	-	-	-
Neutralization	↓$_{13}$	↓$_{2}$	↔to↓$_{3}$	↔to↓↓$_{9}$	↔to↓$_{14}$	↔to↓$_{39}$	↓to↓↓↓$_{8}$	↔to↓$_{2}$	↓to↓↓$_{3}$	↓$_{1}$
Omicron										
Summary of VE*	Reduced protection against infection and symptomatic disease; possible reduced protection against severe disease; limited evidence									
- Severe disease	-	-	-	-	-	↓↓/↓↓↓$_{1}$	-	-	-	-
- Symptomatic disease	↓↓↓$_{1}$	-	-	-	↓↓$_{1}$	↓↓↓$_{1}$	-	-	-	-
- Infection	-	-	-	-	↓↓↓$_{1}$	↓↓↓$_{2}$	-	-	-	-
Neutralization	↓↓↓$_{3}$	-	-	↓↓$_{1}$	↓↓↓$_{12}$	↓↓↓$_{20}$	↓$_{1}$	-	↓↓↓$_{1}$	↓↓$_{1}$

VE refers to vaccine effectiveness and vaccine efficacy. *Summary of VE: indicates the general conclusions but only for the vaccines evaluated against the specific variant. Arrows generalize the magnitude of reduction in VE or neutralization: "↔" <10% reduction in VE, or VE >90% with no comparator, or that there was a <2-fold reduction in neutralization; "↓" 10 to <20% reduction in VE, or 2 to <5-fold reduction in neutralization; "↓↓" 20 to <30% reduction in VE, or 5 to <10-fold reduction in neutralization; "↓↓↓" ≥30% reduction in VE, or ≥10-fold reduction in neutralization. When more than one neutralization study is available, the interquartile range (25th and 75th percentiles) of fold-reductions across all studies for specific vaccine/variant was used. "Moderna-mRNA-1273/Pfizer BioNTech-Comirnaty" indicates that both vaccines were evaluated together in study. The number of studies is shown as subscripts: vaccine effectiveness and neutralization studies informing this table can be found on the VIEW-hub Resources Library. References indicated by superscripts next to VOC name in column 1 are vaccine efficacy results from randomized controlled trials informing this table.

Omicron VOC

Since the last update on 14 December, six studies have provided evidence of reduced vaccine effectiveness (VE) of COVID-19 vaccines against the Omicron variant. Four of these studies provide the first estimates of VE against severe disease associated with the Omicron variant.

A peer-reviewed test-negative case control study from South Africa analyzed 133 437 PCR test results among adults aged 18 years and older and found reduced VE of Pfizer BioNTech-Comirnaty against hospitalization ≥ 14 days after receipt of the second dose during the period 15 November– 7 December 2021 when Omicron was the dominant circulating variant.[46] VE against hospitalization during this period was 70% (95% CI: 62 to 76%) as compared to 93% (90-94%) during the period of 1 September to 31 October 2021 when Delta was the dominant variant in circulation.

A second test-negative study (not yet peer reviewed) assessed VE of a booster dose of Janssen-Ad26.COV2.S against hospitalization due to Omicron among healthcare workers in South Africa.[47] VE of two doses of Janssen-Ad26.COV2.S against hospitalization with Omicron 14-27 days post booster as compared to unvaccinated healthcare workers was 84% (67 to 92%), which was maintained 1-2 months after a booster.

A third test-negative case-control study from the United Kingdom (not yet peer reviewed) found a combined VE of either the Pfizer BioNTech-Comirnaty, Moderna-mRNA-1273 or AstraZeneca-Vaxzevria vaccines against hospitalization due to infection with the Omicron variant, of 72% (55 to 83%) 2-24 weeks after receipt of a second dose. This declined to 52% (21-71%) after 25 weeks following the second dose.[48] However, the contribution of each vaccine to the VE was unknown. A booster dose of mRNA vaccine increased VE against hospitalization ≥ 14 days after vaccination to 88% (78 to 93%).

A fourth test-negative case-control study from the United States of America (not yet peer-reviewed) assessed the effectiveness of Moderna-mRNA-1273 at preventing hospitalization due to Omicron and Delta among members aged 18 years and older of a large healthcare system during 16 to 23 December 2021.[49] Though numbers were too small to estimate the VE against hospitalization due to Omicron and adjusted for important confounders, the authors report an *unadjusted* VE of 16.5% (0-89.1%) for two doses and 100% (95% CI not available due to no cases in the vaccinated group) for three doses; adjusted VE of two doses against hospitalization due to Delta was 98.0% (87.2 to 99.7%). The maximum potential follow-up time from second and third dose was approximately 11 months and two months, respectively. This study also assessed VE of Moderna-mRNA-1273 against infection due to Omicron. Adjusted VE 14-90 days post second dose was 30.4% (5.0 to 49.0%) and fell to 0% by 6 months post second dose. Among immunocompetent persons who had received a third vaccine dose after 20 October 2021, VE against Omicron was 63.6% (57.4 to 61.5%) with a median follow-up time of 36 days. VE of three doses of Moderna-mRNA-1273 against Omicron infection was substantially lower when restricting to immunocompromised persons (VE: 11.5%, 95% CI: 0 to 66.5%). VE of two doses of the vaccine against infection due to Delta was substantially higher than that for Omicron, but also showed declined over time since second dose. VE at 14-90 days and 271-365 days among vaccinated was 82.8% (69.6 to 90.3%) and 52.9% (43.7 to 60.5%), respectively. VE of three doses against Delta infection for persons receiving their booster dose after 20 October 2021 was 95.7% (94.2 to 96.8%).

A fifth test-negative study (not yet peer reviewed) assessed VE of Pfizer BioNTech-Cominarty against infection due to Omicron and Delta among persons aged 18 years and older in Canada.[50] The findings showed that Pfizer BioNTech-Comirnaty was not effective at preventing infection with Omicron 7-59 days following receipt of the second dose (VE: -2%, 95% CI: -38% to 25%). VE against infection due to Omicron increased but remained low after ≥7 days of receiving the booster dose of Pfizer BioNTech-Comirnaty (37%, 95%: 18 to 51%). The same study found that VE against infection due to Delta remained high at 82% (79 to 85%) 7-59 days after the second dose of Pfizer BioNTech-

Comirnaty but declined to 66% (60 to 71%) by eight months post second dose. Receipt of a third dose of the vaccine increased VE against Delta to 93% ≥7 days after receiving the vaccine (91 to 94%).

While early VE estimates against the Omicron variant should be interpreted with caution due to potential biases, these preliminary results provide evidence of reduced overall effectiveness of vaccines against the Omicron variant, with greater declines in effectiveness with increasing time since vaccination, relative to Delta. These VE findings are consistent with findings from recent neutralization studies (see table 3). While a booster vaccination appears to improve VE against infection and hospitalization due to the Omicron variant, more data are needed to assess both the magnitude and duration of the protection.

Delta VOC

Several additional studies have assessed the effectiveness of COVID-19 vaccines against the Delta variant. A retrospective cohort study (not yet peer reviewed) conducted among a cohort of healthcare worker in South Africa during a period when the Delta variant was the dominant variant found the Janssen-Ad26.COV2.S vaccine to be 67% (62 to 71%) and 82% (74 to 89%) effective at preventing hospitalization and death, respectively, over a median follow-up time of 3.6 months.[51] Another retrospective study among adults in Scotland, the United Kingdom, during a Delta dominant period found the AstraZeneca-Vaxzevria vaccine to be 83.7% (79.7 to 87.0%) effective at preventing hospitalization or death 14-27 days after receipt of second dose, with VE decreasing to 53.6% (48.4 to 58.3%) approximately five months after.[52]

Five new studies assessed the ability of a booster dose of mRNA vaccines to prevent infection and disease due to the Delta variant. A retrospective cohort study from Singapore (not yet peer reviewed) found an increased vaccine effectiveness of three doses of Pfizer BioNTech-Comirnaty and Moderna-mRNA-1273 *relative to two doses* of each vaccine during a period when Delta was dominant.[53] The VE of three versus two doses of Pfizer BioNTech-Comirnaty against infection, symptomatic disease, and severe disease was 73% (71 to 74%), 72% (71 to 74%), and 95% (92 to 97%), respectively. A booster dose of Moderna-mRNA-1273 after Pfizer BioNTech-Comirnaty primary series resulted in higher VE estimates for infection (82%), symptomatic disease (82%) and severe disease (92%) compared to receiving a booster of Pfizer BioNTech-Comirnaty. The VE of three compared to two doses of Moderna-mRNA-1273 against infection and symptomatic disease was 86% (81 to 90%) and 85% (79 to 89%), with no estimate available for severe disease. The maximum potential follow-up time from receipt of booster dose for this study was six weeks.

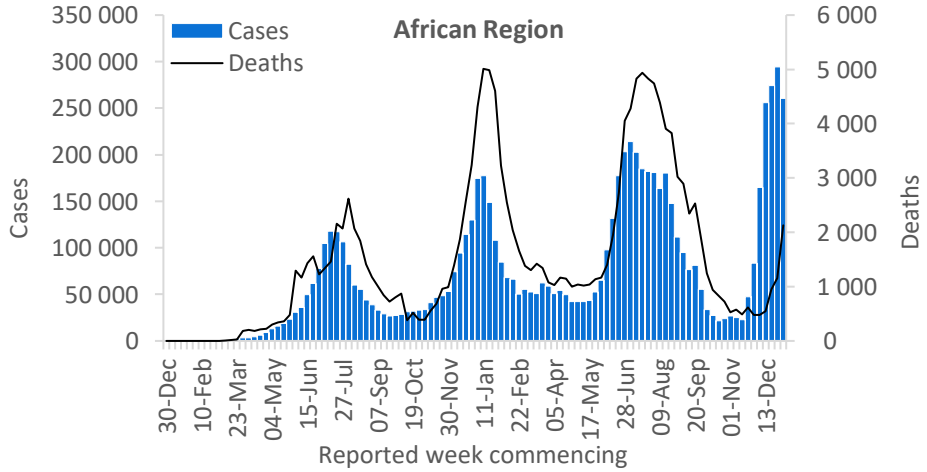
To date many studies have provided evidence of high VE against the Delta variant, especially against severe disease due to Delta, with VE decreasing over time among vaccinated people. These recent studies provide further evidence that booster vaccination may improve VE against Delta, although more data are needed to fully assess the duration of protection.[54–58]

WHO regional overviews Epidemiological week 3 – 9 January 2021

African Region

After showing a continuous increase in weekly cases for six weeks, the African Region reported an 11% decrease in weekly cases as compared to the previous week, with over 260 000 new cases reported this week. This decrease was mainly driven by decreases in new weekly cases reported by Mozambique (17 667 vs 26, 860 new cases) and South Africa (53 433 vs 60 142 new cases). However, one-third of countries (16/49), still reported increases of over 50%. The highest numbers of new cases were reported from South Africa (53 433 new cases; 90.1 new cases per 100 000 population; an 11% decrease), Zambia (23 628 new cases; 128.5 new cases per 100 000; a 10% decrease), and Ethiopia (18 999 new cases; 16.5 new cases per 100 000; a 34% decrease).

The number of new weekly deaths continues to increase in the Region, with over 2100 new deaths reported this week, an 84% increase as compared to the previous week. This increase is largely due to retrospective reporting of 500 deaths on 6 January, resulting in an increase in weekly deaths of 176%. The highest numbers of new deaths were reported from South Africa (1173 new deaths; two new deaths per 100 000 population; a 176% increase), Zimbabwe (131 new deaths; <1 new death per 100 000; a 1% decrease), and Madagascar (90 new deaths; <1 new death per 100 000; a 190% increase).

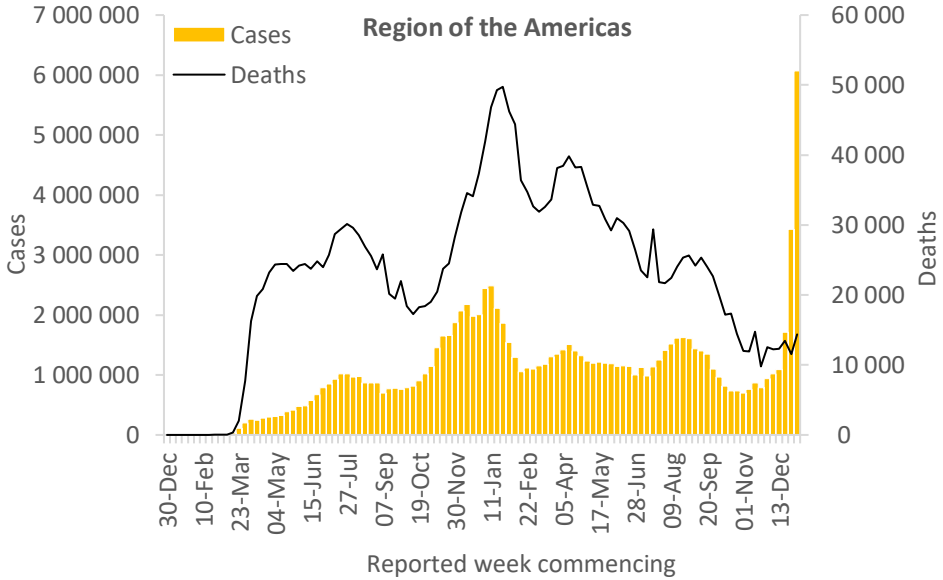


Updates from the African Region

Region of the Americas

The Region of the Americas has continued to report an increasing trend in weekly cases for over a month, with the highest number of weekly cases (over six million new cases) ever reported this week, a 78% increase as compared to the previous week. The Region also reported over 14 000 new deaths, a 25% increase as compared to the previous week. This increase in weekly cases and deaths is mainly driven by large increases in the United States of America with four additional countries (80%) reporting an increase of 50% or more compared to the previous week.

The highest numbers of new cases were reported from the United States of America (4 610 359 new cases; 1392.8 new cases per 100 000; a 73% increase), Argentina (461 408 new cases; 1020.9 new cases per 100 000; a 101% increase), and Canada (254 299 new cases; 673.8 new cases per 100 000; a 15% increase). The highest numbers of new deaths were reported from the United States of America (11 182 new deaths; 3.4 new deaths per 100 000; a 26% increase), Brazil (766 new deaths; <1 new death per 100 000; a 15% increase), and Mexico (560 new deaths; <1 new death per 100 000; a 28% increase).

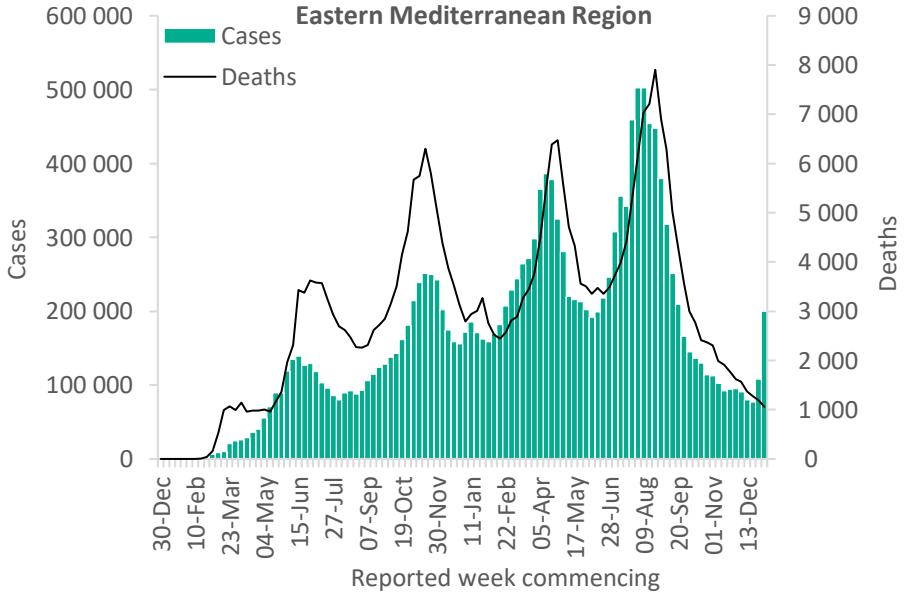


Updates from the Region of the Americas

Eastern Mediterranean Region

The Eastern Mediterranean Region reported over 200 000 new cases and over 1000 new deaths, an 86% increase and an 11% decrease, respectively as compared to the previous week. This week, 35% of all new cases were reported from two countries including Lebanon (38,112 new cases) and Morocco (31,701 new cases). In the past week, 12 countries in the Region (57%) reported an increase of 50% or greater in the number of new cases, with Kuwait reporting the highest proportional increase in cases (2812 vs 13 197 new cases, a 369% increase). The highest numbers of new cases were reported from Lebanon (38 112 new cases; 558.4 new cases per 100 000; a 90% increase), Morocco (31 701 new cases; 85.9 new cases per 100 000; a 222% increase), and the United Arab Emirates (18 373 new cases; 185.8 new cases per 100 000; a 23% increase). These countries account for almost half (44%) of all new cases in the Region.

The highest numbers of new deaths were reported from the Islamic Republic of Iran (208 new deaths; <1 new death per 100 000; a 29% decrease), Jordan (172 new deaths; 1.7 new deaths per 100 000; a 28% decrease), and Egypt (170 new deaths; <1 new death per 100 000; a 14% decrease).

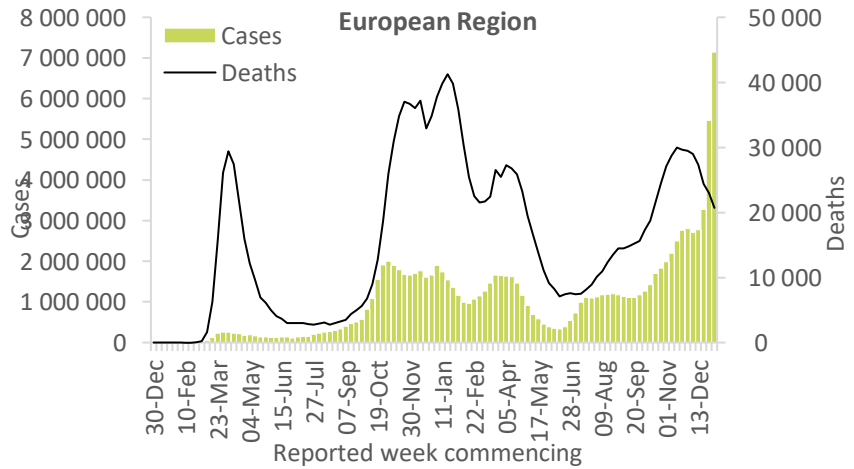


Updates from the Eastern Mediterranean Region

European Region

The number of new cases continued to increase this week in the European Region with over 7.1 million new cases reported, a 31% increase as compared to the previous week. However, the number of weekly deaths continued to decline with over 20 000 new deaths reported, a 10% decrease as compared to the previous week. In the past week, 27 countries in the Region (44%) reported an increase of 50% or greater in the number of new cases with the highest increases reported from Kosovo [1] (842 vs 204 new cases, a 313% increase), Greenland (1883 vs 475 new cases, a 296% increase) and Israel (100 353 vs 26 913 new cases, a 273% increase). The highest numbers of new cases were reported from France (1 600 121 new cases; 2460.2 new cases per 100 000; a 46% increase), the United Kingdom (1 217 258 new cases; 1793.1 new cases per 100 000; a 10% increase), and Italy (1 014 358 new cases; 1700.8 new cases per 100 000; a 57% increase).

The highest number of new deaths were reported from the Russian Federation (5645 new deaths; 3.9 new deaths per 100 000; a 10% decrease), Poland (2150 new deaths; 5.7 new deaths per 100 000; a 34% decrease), and Germany (1822 new deaths; 2.2 new deaths per 100 000; similar to the previous week's figures).

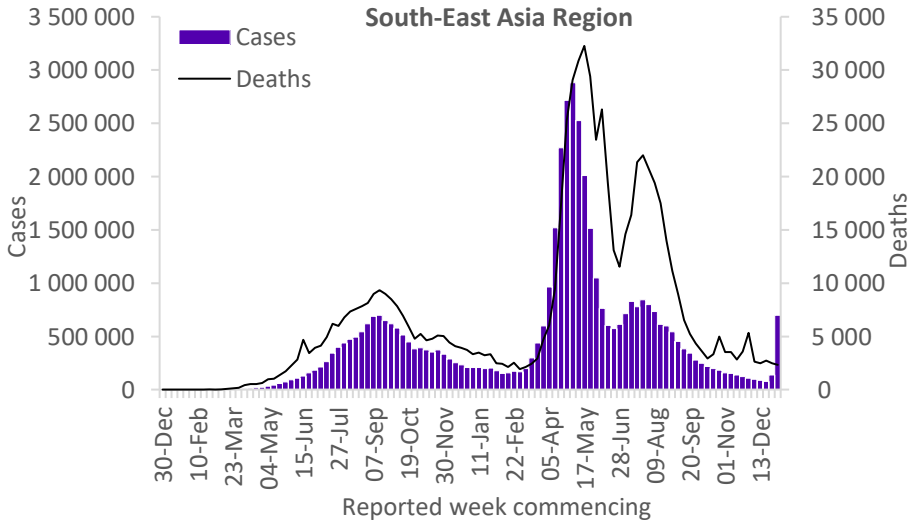


Updates from the European Region

South-East Asia Region

During the past week, the South-East Asia Region reported over 699 000 new cases, a 418% increase, an incidence not seen since mid-August 2021. Seven countries (78%) reported large increases, of over 50%, with the highest increases reported from India, Timor-Leste (six vs 17 new cases; a 183% increase) and Bangladesh.). The highest numbers of new cases were reported from India (638 872 new cases; 46.3 new cases per 100 000; a 524% increase), Thailand (39 992 new cases; 57.3 new cases per 100 000; a 104% increase), and Bangladesh (7234 new cases; 4.4 new cases per 100 000; a 125% increase).

The number of deaths however, declined in the past week with over 2300 new deaths reported, a 6% decrease as compared to the previous week. The highest numbers of new deaths were reported from India (2020 new deaths; <1 new death per 100 000; similar to the previous week's figures), Thailand (105 new deaths; <1 new death per 100 000; a 25% decrease), and Sri Lanka (100 new deaths; <1 new death per 100 000; a 26% decrease).

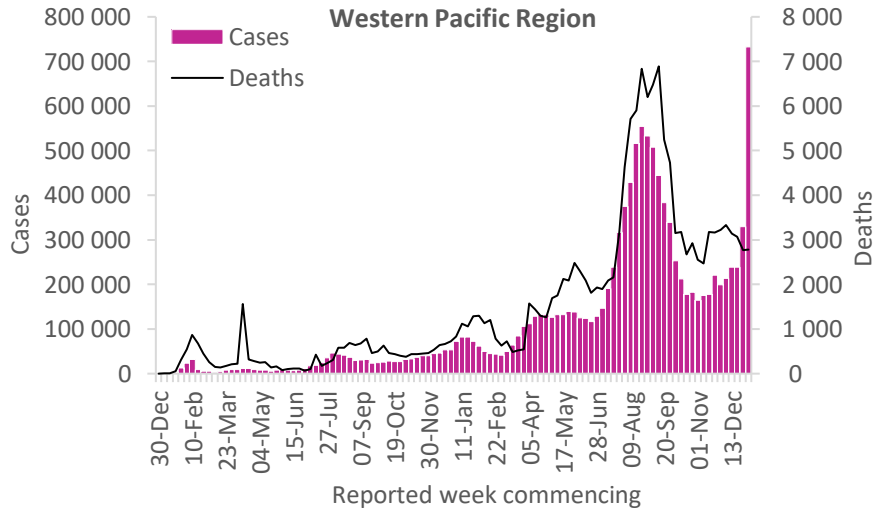


Updates from the South-East Asia Region

Western Pacific Region

The number of reported new cases in the Western Pacific Region more than doubled (122%) in the past week with over 732 000 new cases reported. Of the 27 countries in the Region, 10 (37%) reported an increase of over 50% in new cases this week with the highest increases reported from the Philippines, Japan (23 168 vs 2777 new cases, a 734% increase) and Guam (666 vs 92 new cases, a 624% increase). The highest numbers of new cases were reported from Australia (420 079 new cases; 1647.4 new cases per 100 000; a 204% increase), Viet Nam (130 302 new cases; 133.9 new cases per 100 000; a 19% increase), and the Philippines (89 409 new cases; 81.6 new cases per 100 000; an 880% increase).

Just over 2700 new deaths were reported this week, similar to the previous week's figures. The highest numbers of new deaths were reported from Viet Nam (1507 new deaths; 1.5 new deaths per 100 000; a 6% decrease), the Philippines (590 new deaths; <1 new death per 100 000; a 65% increase), and the Republic of Korea (343 new deaths; <1 new death per 100 000; a 24% decrease).



Updates from the Western Pacific Region

Technical guidance and other resources

- WHO technical guidance
- WHO COVID-19 Dashboard
- WHO Weekly Operational Updates on COVID-19
- WHO COVID-19 case definitions
- COVID-19 Supply Chain Inter-Agency Coordination Cell Weekly Situational Update
- Research and Development
- Open WHO courses on COVID-19 in official UN languages and in additional national languages
- WHO Academy COVID-19 mobile learning app
- The Strategic Preparedness and Response Plan (SPRP) outlining the support the international community can provide to all countries to prepare and respond to the virus
- EPI-WIN: tailored information for individuals, organizations, and communities
- Recommendations and advice for the public:
  - Protect yourself
  - Questions and answers
  - Travel advice

Annexes

Annex 1. Additional notes on VOC impacts on vaccines

- Reductions in VE do not necessarily mean loss of protection, as indicated by the absolute VE estimate. For example, a 10-percentage point reduction in VE against symptomatic disease for mRNA vaccines would still mean high vaccine effectiveness of ~85%. Likewise, vaccines have shown higher VE against severe disease; thus, small reductions in VE against severe disease due to VOCs may still mean substantial protection.
- Table 3 summarizes the impact of VOCs on COVID-19 vaccine performance in the absence of waning, and, therefore, does not include studies that only assess VE greater than four months post final dose.
- Studies reporting VOC-specific VE estimates for full vaccination (≥7 days post final dose) are assessed against a comparator VE estimate for that vaccine product to determine level of reduction in VE. For symptomatic disease, VOC VE is compared against phase 3 RCT results from non-VOC settings. For severe disease and infection, due to instability or lack of phase 3 RCT estimates, VOC VE is compared to non-VOC VE estimates from the same study when available (or to Alpha VE from same study when assessing Beta, Gamma, or Delta); with an exception for AstraZeneca-Vaxzevria for infection (when a phase 3 estimate of VE against infection due to non-VOC is available and used as comparator). In some instances, a study may be included for severe disease or infection outcome even without a comparator if a very high VE estimate is reported against a VOC (i.e., >90%).
- It is also important to note that studies vary in population, outcome definitions, study design and other methodological considerations, which may in part explain differences when comparing VE estimates for a product between different studies. In addition, the reductions summarized in the table represent VE point estimates and do not represent the uncertainty intervals around these estimates which vary substantially across studies. The reductions in VE noted should be interpreted with these limitations in mind.
- Neutralization studies that use samples collected >7 days and < 6 months after complete vaccination and that use an ancestral strain as the reference are included in the Table 3.

Annex 2. List of countries/territories/areas reporting variants of concern as of 11 January 2022

Country/Territory/Area	Alpha	Beta	Delta	Gamma	Omicron
Afghanistan	●	-	●	-	-
Albania	●	-	○	-	○*
Algeria	●	-	●	-	●
Andorra	○	○	○	-	-
Angola	●	●	●	●	●*
Anguilla	●	-	●	-	-
Antigua and Barbuda	●	●	●	●	●*
Argentina	●	●	●	●	●
Armenia	●	-	●	-	●*
Aruba	●	●	●	●	●
Australia	●	●	●	●	●
Austria	●	●	●	●	●
Azerbaijan	●	-	○	-	●*
Bahamas	●	-	●	●	-
Bahrain	●	●	●	●	●
Bangladesh	●	●	●	○	●
Barbados	●	-	●	●	●*
Belarus	●	-	○	-	○*
Belgium	●	●	●	●	●
Belize	●	-	●	●	-
Benin	●	●	●	●	-
Bermuda	●	●	●	-	●
Bhutan	●	●	●	-	-
Bolivia (Plurinational State of)	●	-	●	●	○*
Bonaire	●	-	●	●	●*
Bosnia and Herzegovina	●	●	○	●	○*
Botswana	○	●	●	-	●
Brazil	●	●	●	●	●
British Virgin Islands	●	-	●	●	○*
Brunei Darussalam	●	●	●	-	●*
Bulgaria	●	●	●	-	○*
Burkina Faso	●	●*	●	-	●
Burundi	●	●	●	-	-
Cabo Verde	●	●*	●	-	●*
Cambodia	●	●	●	-	●
Cameroon	●	●	●	●	-
Canada	●	●	●	●	●
Cayman Islands	●	●	●	●	●
Central African Republic	●	●	●	-	-
Chad	●	●*	●*	-	-
Chile	●	●	●	●	●
China	●	●	●	●	●
Colombia	●	-	●	●	●
Comoros	●*	●	●	-	-
Congo	●	●	●	●	○*
Costa Rica	●	●	●	●	●
Croatia	●	●	○	●	●
Cuba	●	●	●	-	●
Curaçao	●	●	●	●	○*
Cyprus	●	●	○	-	●
Czechia	●	●	●	●	●
Côte d'Ivoire	●	●	○	●*	○*
Democratic Republic of the Congo	●	●	●	-	●
Denmark	●	●	●	●	●
Djibouti	●	●	●	-	-
Dominica	●	-	●	-	-
Dominican Republic	●	-	●	●	●*
Ecuador	●	-	●	●	●
Egypt	●	-	●	-	●
El Salvador	●	-	●	●	-
Equatorial Guinea	●	●	●	●*	-
Estonia	●	●	○	○	●
Eswatini	●	●	●	-	●*
Ethiopia	●	●	●	○*	-
Falkland Islands (Malvinas)	●	●	-	-	-
Faroe Islands	●	-	-	●	-
Fiji	○	-	●	-	●
Finland	●	●	●	●	●
France	●	●	●	●	●
French Guiana	●	●	●	●	●*
French Polynesia	●	●	●	●	●
Gabon	●	●	●	●*	○*
Gambia	●	●*	●	●*	○*
Georgia	●	○	●	-	●
Germany	●	●	●	●	●
Ghana	●	●	●	●	●
Gibraltar	●	-	○	-	●
Greece	●	●	●	●	●
Greenland	-	-	●	-	-
Grenada	●	-	●	●	●*
Guadeloupe	●	●	●	●	●
Guam	●	●	●	●	-
Guatemala	●	●	●	●	●*
Guernsey	-	-	-	-	●
Guinea	●	●	●	-	●*
Guinea-Bissau	●	●	●	-	-
Guyana	-	-	●	●	-

Country/Territory/Area	Alpha	Beta	Delta	Gamma	Omicron
Haiti	●	-	●	●	-
Honduras	●	-	●	●	○*
Hungary	●	○	○	●	●
Iceland	●	●	●	●	●
India	●	●	●	●	●
Indonesia	●	●	●	-	●
Iran (Islamic Republic of)	●	●	●	-	●
Iraq	●	●	●	●	●*
Ireland	●	●	●	●	●
Israel	●	●	●	●	●
Italy	●	●	●	●	●
Jamaica	●	-	●	-	●*
Japan	●	●	●	●	●
Jordan	●	●	●	●	●
Kazakhstan	●	○	●	-	○*
Kenya	●	●	●	●*	●
Kosovo[1]	●	○	○	-	●*
Kuwait	●	●	●	-	●
Kyrgyzstan	●	●	●	-	-
Lao People's Democratic Republic	●	-	●	-	○*
Latvia	●	●	○	●	●
Lebanon	●	-	●	-	●
Lesotho	●*	●	●	-	-
Liberia	●	●	●	-	-
Libya	●	●	-	-	-
Liechtenstein	●	-	○	○	○
Lithuania	●	●	○	●	●
Luxembourg	●	●	●	●	●
Madagascar	●	●	-	○*	-
Malawi	●	●	●	-	●
Malaysia	●	●	●	-	●

Country/Territory/Area	Alpha	Beta	Delta	Gamma	Omicron
Maldives	●	-	●	-	●
Mali	●	●*	●	-	-
Malta	●	○	○	●	●*
Martinique	●	●	●	●	●*
Mauritania	●	●	●	-	●*
Mauritius	●	●	●	-	●
Mayotte	●	●	○	-	●*
Mexico	●	●	●	●	●
Monaco	●	●	●	-	-
Mongolia	●	-	●	-	○
Montenegro	●	-	○	○	○
Montserrat	●	-	●	●	-
Morocco	●	●	●	-	●
Mozambique	●	●	●	-	●
Myanmar	●	-	●	-	●*
Namibia	●	●	●	●	●
Nepal	●	-	●	-	●
Netherlands	●	●	●	●	●
New Caledonia	●	-	●	-	●*
New Zealand	●	●	●	●	●
Nicaragua	●	●	●	●	-
Niger	●	-	●	-	●*
Nigeria	●	●	●	-	●
North Macedonia	●	●	○	-	○*
Northern Mariana Islands (Commonwealth of the)	○	-	●	-	-
Norway	●	●	●	●	●
Occupied Palestinian Territory	●	●	●	-	●
Oman	●	●	●	-	●
Pakistan	●	●	●	●	●
Panama	●	●	●	●	●
Papua New Guinea	-	-	●	-	-

Country/Territory/Area	Alpha	Beta	Delta	Gamma	Omicron
Paraguay	●	-	●	●	●*
Peru	●	-	●	●	●
Philippines	●	●	●	●	●
Poland	●	○	●	●	●
Portugal	●	●	●	●	●
Puerto Rico	●	●	●	●	●
Qatar	●	●	●	-	●
Republic of Korea	●	●	●	●	●
Republic of Moldova	●	-	●	-	○*
Romania	●	●	●	●	●
Russian Federation	●	●	●	○	●
Rwanda	●	●	●	-	●
Réunion	●	●	○	●	●
Saba	-	-	●	-	-
Saint Barthélemy	●	-	●	-	○*
Saint Kitts and Nevis	-	-	●	-	○*
Saint Lucia	●	-	●	-	-
Saint Martin	●	●	●	-	●
Saint Pierre and Miquelon	-	-	●	-	-
Saint Vincent and the Grenadines	-	-	●	●	●*
Sao Tome and Principe	●	●*	○	-	-
Saudi Arabia	●	●	●	-	●
Senegal	●	●	●	-	●
Serbia	●	-	●	-	○*
Seychelles	●	●	●	-	○*
Sierra Leone	●*	●	●	-	●
Singapore	●	●	●	●	●
Sint Maarten	●	●	●	●	●*
Slovakia	●	●	●	-	●
Slovenia	●	●	●	●	●
Solomon Islands	-	-	-	-	●*

Country/Territory/Area	Alpha	Beta	Delta	Gamma	Omicron
Somalia	●	●	●	-	-
South Africa	●	●	●	●	●
South Sudan	●	●	●	-	●*
Spain	●	●	●	●	●
Sri Lanka	●	●	●	-	●
Sudan	●	●	-	●	-
Suriname	●	●	●	●	-
Sweden	●	●	●	●	●
Switzerland	●	●	●	●	●
Thailand	●	●	●	●	●
Timor-Leste	●	-	●	-	-
Togo	●	●	●	●	●

Country/Territory/Area	Alpha	Beta	Delta	Gamma	Omicron
Trinidad and Tobago	●	-	●	●	●
Tunisia	●	●	●	-	●
Turkey	●	●	●	●	●
Turks and Caicos Islands	●	-	●	●	-
Uganda	●	●	●	-	●
Ukraine	●	○	○	-	●
United Arab Emirates	●	●	●	●	●
United Kingdom	●	●	●	●	●
United Republic of Tanzania	●*	●	●*	●*	○*
United States Virgin Islands	●	●	●	●	-
United States of America	●	●	●	●	●
Uruguay	●	●	●	●	●*

Country/Territory/Area	Alpha	Beta	Delta	Gamma	Omicron
Uzbekistan	●	●	○	-	●*
Vanuatu	-	-	●	-	-
Venezuela (Bolivarian Republic of)	●	-	●	●	●*
Viet Nam	●	●	●	-	●*
Wallis and Futuna	●	-	-	-	-
Yemen	●	●	-	-	-
Zambia	●	●	●	-	●
Zimbabwe	●	●	●	-	●

**Newly reported in this update. "●" indicates that information for this variant was received by WHO from official sources. "○" indicates that information for this variant was received by WHO from unofficial sources and will be reviewed as more information become available. **Includes countries/territories/areas reporting the detection of VOCs among travellers (e.g., imported cases detected at points of entry), or local cases (detected in the community). Excludes countries, territories, and areas that have never reported the detection of a variant of concern. See also Annex 2: Data, table, and figure notes*

Annex 3. Data, table, and figure notes

Data presented are based on official laboratory-confirmed COVID-19 case 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.

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