COVID-19 Weekly Epidemiological Update

Edition 58, published 21 September 2021

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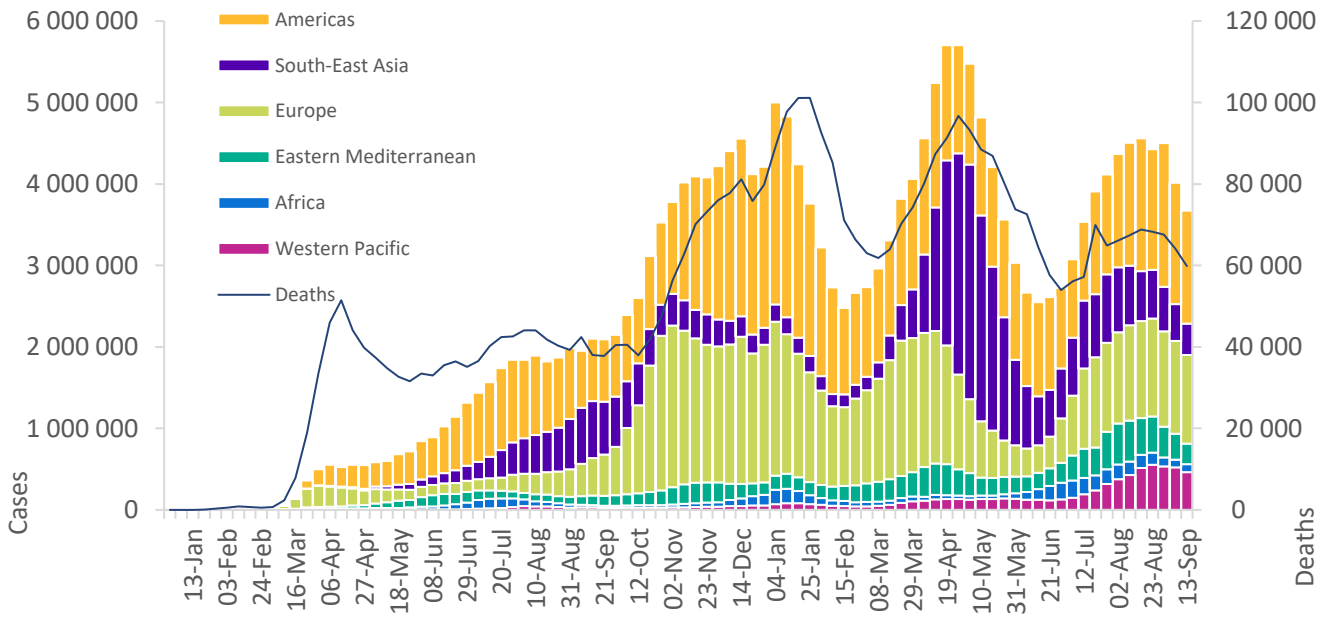
Global overview

Data as of 19 September 2021

The numbers of weekly COVID-19 cases and deaths globally continued to decline this week, with over 3.6 million cases and just under 60 000 deaths reported between 13-19 September. This brings the cumulative number of confirmed cases reported globally to just under 228 million. While the African and the European Regions reported numbers of cases similar to those of the previous week, the other regions reported decreases in weekly case incidence, with substantial decreases reported in the Eastern Mediterranean (22%) and South East Asia Regions (16%).

In terms of COVID-19 mortality, nearly 60 000 deaths were reported globally in the past week, a 7% decrease as compared to the previous week. This brings the cumulative number of deaths to over 4.6 million. The African, Eastern Mediterranean and South-East Asian Regions reported decreases in weekly mortality over the past week, with the South-East Asia Region reporting the largest percentage decrease (27%). In contrast, the Western Pacific Region reported an increase (7%) in the number of new weekly deaths, while the number of deaths reported in Americas and European Regions reported was similar to that of the previous week.

Figure 1. COVID-19 cases reported weekly by WHO Region, and global deaths, as of 19 September 2021**



**See *Annex 2: Data, table and figure notes*

The regions reporting the highest weekly incidence rates per 100 000 population of cases and deaths remain the same as in the previous week: the Region of the Americas (135.5 new cases per 100 000 population; 2.4 deaths per 100 000 population) and the European Region (116.9 new cases per 100 000 population; 1.6 deaths per 100 000 population).

The highest numbers of new cases were reported from the United States of America (1 017 644 new cases; similar to last week), India (211 242 new cases; 15% decrease), the United Kingdom (203 077 new cases; 21% decrease), Turkey (183 962 new cases; 16% increase), and the Philippines (141 522 new cases; similar to last week); while the highest number of new deaths were reported from the United States of America (12 896 new deaths; 2% increase), the Russian Federation (5469 new deaths; similar to last week), Brazil (3 727 new deaths; 17% increase), Mexico (3 689 new deaths; 20% decrease), and the Islamic Republic of Iran (2 967 new deaths; 21% decrease).

Globally, cases of the Alpha variant have been reported in 193 countries, territories or areas (hereafter countries; no new country added since last two weeks), while 142 countries (one new country since last week) have reported cases of the Beta variant; and 96 countries (four new countries since last week) have reported cases of the Gamma variant. The Delta variant has been reported in 185 countries (five new countries since last week) across all six WHO regions as of 21 September.

Table 1. Newly reported and cumulative COVID-19 cases and deaths, by WHO Region, as of 19 September 2021**

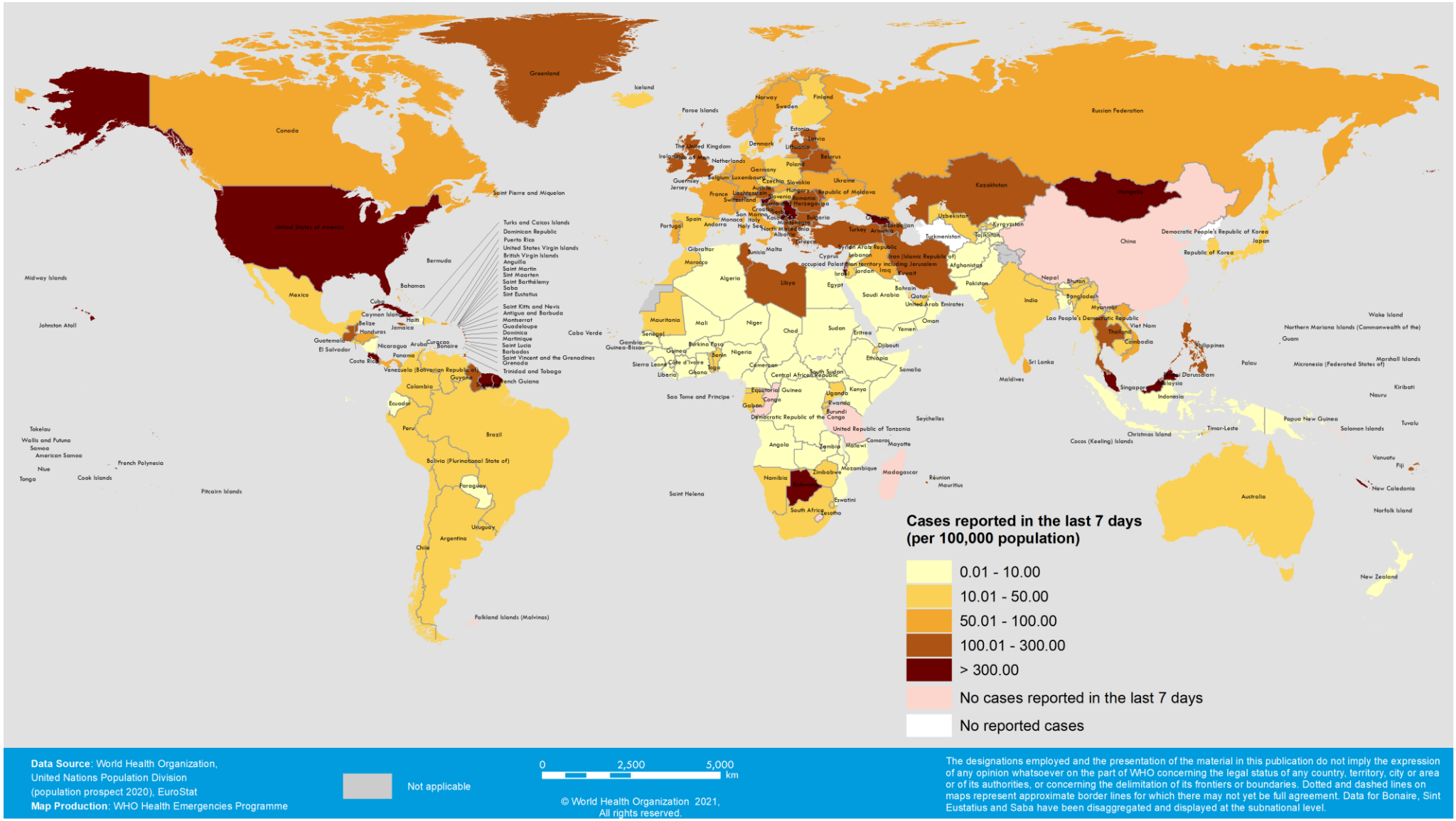
WHO Region	New cases in last 7 days (%)	Change in new cases in last 7 days *	Cumulative cases (%)	New deaths in last 7 days (%)	Change in new deaths in last 7 days *	Cumulative deaths (%)
Americas	1 386 267 (38%)	-7%	87 874 973 (39%)	24 489 (41%)	-2%	2 170 188 (46%)
Europe	1 090 667 (30%)	-4%	68 290 457 (30%)	14 477 (24%)	1%	1 311 390 (28%)
South-East Asia	383 053 (10%)	-16%	42 498 922 (19%)	6 540 (11%)	-27%	668 468 (14%)
Eastern Mediterranean	250 781 (7%)	-22%	15 449 977 (7%)	5 074 (8%)	-20%	282 711 (6%)
Western Pacific	461 979 (13%)	-11%	7 914 374 (3%)	6 852 (11%)	7%	107 712 (2%)
Africa	98 485 (3%)	4%	5 911 505 (3%)	2 407 (4%)	-21%	142 417 (3%)
Global	**3 671 232 (100%)**	**-9%**	**227 940 972 (100%)**	**59 839 (100%)**	**-7%**	**4 682 899 (100%)**

Percent change in the number of newly confirmed cases/deaths in past seven days, compared to seven days prior
See *Annex 2: Data, table and figure notes*

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

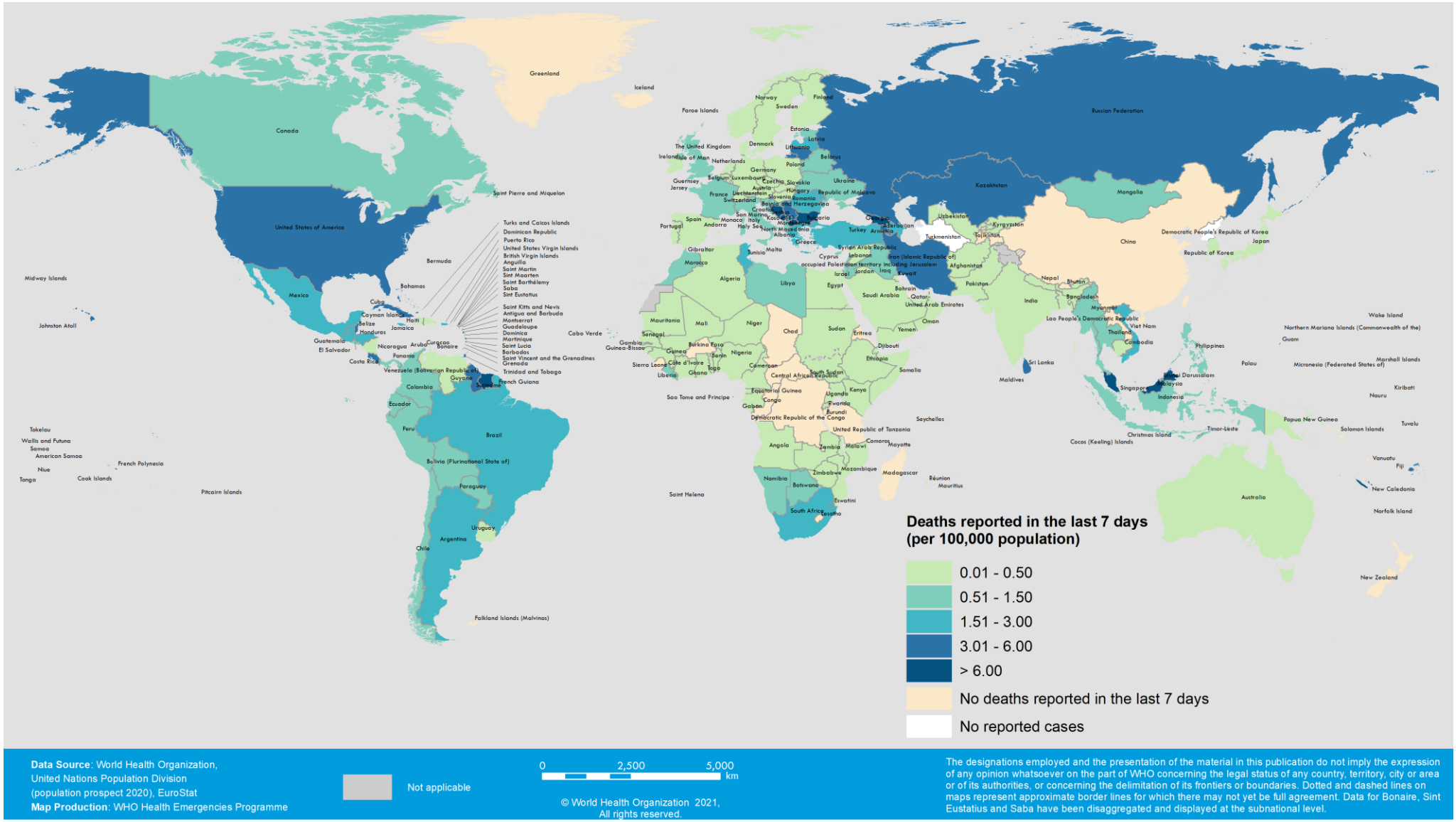
- WHO COVID-19 Dashboard
- WHO COVID-19 Weekly Operational Update and previous editions of the Weekly Epidemiological Update

Figure 2. COVID-19 cases per 100 000 population reported by countries, territories and areas, 13 – 19 September 2021**



**See *Annex 2: Data, table and figure notes*

Figure 3. COVID-19 deaths per 100 000 population reported by countries, territories and areas, 13 -19 September 2021**



**See *Annex 2: 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 vaccine, therapeutics, diagnostics or effectiveness of public health and social measures (PHSM) applied by national authorities to control disease spread. "Signals" of potential Variants of Concern (VOCs) or Variants of Interest (VOIs) are detected and assessed based on the risk posed to global public health. National authorities may choose to designate other variants of local interest/concern and are encouraged to investigate and report on impacts of these variants.

Updates to the WHO SARS-CoV-2 variant tracking website

Given the continuous need to understand the epidemiological and clinical impacts of VOCs and VOIs, WHO regularly monitors and reviews circulation of variants. The changes in the rise of new variants are being monitored in light of other co-circulating variants, such as Delta.

This may mean that Variants of Interest (VOIs) or Variants of Concern (VOCs) may be outcompeted by newly emerging variants, such as VOC Delta. As evidence becomes available, we will revise classifications accordingly. These revisions reflect the continuous evolution of circulating variants and their changing epidemiology (see criteria for variant classification here).

The category of 'Alerts for further monitoring' have been renamed 'Variants Under Monitoring' (VUMs). The change applies only to the name, while the definition remains the same. Primary actions by Member States and WHO following the identification of a new VUM is also outlined.

Changes to the VOI classification

As the impacts of specific SARS-CoV-2 variants on public health become better understood, WHO will continue to assess the classification of VOIs and VOCs and revise the lists accordingly. The revision described below reflect the rapid spread and current dominance of the Delta variant in most regions of the world. The Delta variant accounted for 90% of the sequences submitted to GISAID with a sample collection date (between 15 June-15 September 2021).

A variant of SARS-CoV-2 can be designated as a VOI or VOC if it meets the criteria as stated here. These may also be reclassified when there is sufficient evidence suggesting that there is no major ongoing risk to global health associated with the specific variant compared to other circulating SARS-CoV-2 variants (and thus no longer meets the criteria of a VOI or VOC).

The VOIs Eta (B.1.525), Iota (B.1.526) and Kappa (B.1.617.1) have been reclassified as 'former VOIs' based upon the latest round of assessments, and after consultation with national and regional stakeholders, as well as in consultation with the Virus Evolution Working Group on 13 September 2021. These will now be assessed as Variants Under Monitoring. While all three variants carry mutations with suspected and/or established phenotypic impacts, the number of reported detections of these variants have decreased over time at the global, regional and country levels. Evidence from both sequencing data submitted to GISAID and information available to WHO indicate a substantial decline in their respective incidence worldwide, and therefore represent diminished public health risks relative to other VOCs and VOIs.

The WHO assessment of the impact of variants considers global risks posed by variants. At country level, national authorities may choose to continue to designate Eta, Iota and Kappa as variants of local interest. Moreover, these variants will continue to be monitored, and if their characteristics change over time, this classification will be reassessed.

Eta (B.1.525) has been detected in 81 countries since it was initially identified in December 2020. It was designated as a VOI on 17 March 2021. This variant has shown a limited reduction in neutralizing activity of sera of vaccinated individuals, comparable to the reduction observed for the Delta variant. Since a peak in circulation in April 2021 of 0.8% of the sequences submitted to GISAID, there has been a continuous decline in the detection of this variant. Sequencing data submitted to GISAID and information from WHO Regional Offices indicate that the prevalence of Eta has remained very low at a global, regional and country level since July 2021.

Iota (B.1.526) was first identified in the United States of America (USA) in November 2020. It was designated as a VOI on 24 March 2021, following an increase in the number of sequences submitted to GISAID across several countries (identified in at least 49 countries). Roughly half of the sequences of this variant contains the E484K mutation in the spike, and one third contain the S477N change, but those two changes are practically never seen together in this variant. By April 2021, the proportion of this variant to overall sequences submitted to GISAID reached a peak of just over 3%, with the majority of sequences being reported from the USA. Since then, the proportion of this variant has declined continuously. Sequencing data from the USA shows a significant and continued decline in the proportion of Iota, which has only been found in very sporadic cases since late July 2021.

Kappa (B.1.617.1) was first reported by India in early October 2020 and has since spread to 57 countries. It was designated as a VOI on 4 April 2021. Like the Delta variant, this variant has the spike mutation P681R, which is thought to increase the transmissibility of the variant. Kappa shares a common parent lineage with Delta, but Delta has additional notable amino acid changes in the spike protein. Also similar to Delta, Kappa shows a limited reduction in the neutralizing activity of convalescent sera and sera of vaccinated individuals. Kappa reached a peak of 1% of all sequences submitted to GISAID in April 2021 but has since shown a steep and continuous decline in the proportion of submitted sequences. Sequencing data submitted to GISAID and information available to WHO indicate that the prevalence of Kappa at a global and country levels has remained very low since July 2021. This decline to very low to no circulation was also observed in regions of India that had previously experienced high transmission of this variant, such as Maharashtra.

List of current VOIs

The revised list of current VOIs now includes Lambda and Mu variants, both circulating in Latin America, where the Delta variant has begun to circulate but has not yet become dominant. The epidemiology of these VOIs, particularly considering the co-circulation of the Delta variant, will continue to be monitored closely.

Updates on VOCs and VOIs, and a list of VUMs, are available on the WHO Tracking SARS-CoV-2 Variants website.

Guidance for surveillance of SARS-CoV-2 variants

On 9 August 2021, WHO published an interim guidance document on surveillance of SARS-CoV-2 variants. The document aims to describe a minimum set of surveillance activities recommended at the national level to detect and monitor the relative prevalence of SARS-CoV-2 variants and outlines a set of activities for the characterization and assessment of risk posed by these variants. A set of indicators is also provided to standardize monitoring and public reporting of variant circulation.

The document is primarily intended for national and sub-national public health authorities and partners who support implementation of SARS-CoV-2 variant surveillance. It complements the interim guidance on Public health surveillance for COVID-19, which provides overall guidance for public health surveillance of coronavirus disease 2019 (COVID-19) in humans. Additional guidance has been published for laboratory stakeholders on diagnostic testing for SARS-CoV-2 and sequencing for public health goals, alongside an implementation guide for SARS-CoV-2 sequencing.

Geographic distribution

As surveillance activities to detect SARS-CoV-2 variants are strengthened at national and subnational levels, including through the expansion of genomic sequencing capacities, the number of countries/areas/territories (hereafter countries) reporting VOCs continues to increase (Figure 4, Annex 1). This distribution should nonetheless be interpreted with due consideration of surveillance limitations, including differences in sequencing capacities and sampling strategies between countries.

Phenotypic characteristics

Available evidence on phenotypic impacts of VOCs is summarized in Table 2, as well as in previous editions of these COVID-19 Weekly Epidemiological Updates. Since the last detailed update on 7 September, there are several new publications on the phenotypic characteristics of VOCs.

An observational preprint study conducted in a tertiary care hospital setting in India compared the surge in cases recorded from March to December 2020 to that in January to July 2021 when the Delta variant was in circulation. Preliminary results from the study found that the median (IQR) length of stay during pre-Delta Vs Delta circulation period was [7 (5-10) vs 8 (6-10) days] and ICU stay [6 (2-10) vs 9 (5-13) days] .[1] In-hospital deaths were 1.84 times higher during the period of Delta circulation (95% CI:1.32-2.55), which did not change significantly after adjusting for age and sex (adjusted odds ratio, 95% CI: 2.03, 1.44-2.86), and age, sex and comorbidities (adjusted odds ratio 95% CI: 2.09, 1.47-2.95). However, the study should be interpreted carefully as these are preliminary results. To note, the hospitalization rates pre-and post-emergence of Delta variant were also influenced by government policies as people were encouraged to seek hospital care during pre-emergence period (March to December 2020) while home-based isolation was promoted widely during the circulation of Delta variant, partly due to the pressure on the health-care systems and the lack of available beds in many hospitals.

An ecological peer-reviewed study using the Ministry of Health Influenza Epidemiological Surveillance Information System, analyzed the mortality in the state of Amazonas , Brazil over two periods: prior to circulation of the Gamma variant (April to May 2020) when B.1.1.28, B.1.1.29, B.1.1.33 were in circulation and

when Gamma started to predominate (January 2021). The study did not include the month of December 2020 when old lineages were replaced by Gamma.[2]The study found higher incidence and an increased proportion of COVID-19 cases in younger age groups (20- 39 years old) during the circulation of the Gamma variant. Additionally, when comparing the pre- and post-emergence of the Gamma variant, there was an increase in the proportion of women among cases of Severe Acute Respiratory Infection (SARI) (40% vs. 47%), as well as among those who died (34% vs. 47%). The case fatality rate (CFR) among those infected with the Gamma variant who were hospitalized between the age of 20-39-year-old was 2.7 times greater than the rate observed prior (between April to May 2020; pre-Gamma circulation) for both males and females. The CFR ratios in the general population were 1.15 (95% CI: 1.1-1.2) in females and 0.78 (95% CI: 0.7-0.8) in males. These findings suggest greater severity of disease for those infected with the Gamma variant among young adults of both sexes and the general female population. It is important to note that mortality was greatly influenced by the significant pressure on the health care system, which could have contributed to the increase in mortality , case fatality and hospital mortality, however, the study did not find a homogeneous increase across age groups by sex as was observed during the period prior to Gamma circulation. Further studies are needed to better understand the variant profile and their impact.

An observational preprint study from one Brazilian state investigated the proportion of reinfections due to Gamma variant using estimates from regular blood donors in Amazona's capital, Manaus.[3] A total of 223 samples were included in the study. Using the serological definition of reinfection, the study found that 13.6% (CI 95%: 7% - 24.5%) of all presumed Gamma infections that were observed in 2021 were reinfections. When probable or possible reinfections were included, these percentages increased to 22.7% (95% CI 14.3% - 34.2%) and 39.3% (95% CI 29.5% - 50.0%) respectively. Previous infection conferred a protection against reinfection by 85.3% (95% CI 71.3% - 92.7%), decreasing to 72.5% (95% CI 54.7% - 83.6%) and 39.5% (95% CI 14.1% - 57.8%), respectively, if probable and possible reinfections are included. The study concluded that the estimated rates of reinfection suggest that the Gamma variant may induce a higher reinfection risk than previous non-Gamma variants. These results reinforce the concerns over the risk of reinfection with continuous virus evolution. However, the study did not sample donors frequently enough to detect all potential reinfections which may have led to possible non detection of reinfection.

Table 2: Summary of phenotypic impacts* of Variants of Concern

WHO label	Alpha	Beta	Gamma	Delta
Transmissibility	Increased transmissibility[4]	Increased transmissibility[5,6]	Increased transmissibility[6,7]	Increased transmissibility and secondary attack rate[6,8]
Disease severity	Increased risk of hospitalization[9], possible increased risk of severity and mortality[10,11]	Not confirmed, possible increased risk of in-hospital mortality[12]	Possible increased risk of hospitalization[13],risk of severity[2]	Increased risk of hospitalization[14,15]
Risk of reinfection	Neutralizing activity retained [16], risk of reinfection remains similar[17]	Reduction in neutralizing activity reported; T cell response elicited by D614G virus remains effective[18]	Moderate reduction in neutralizing activity reported[19]	Reduction in neutralizing activity reported[20–22]
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[23]	No impact on RT-PCR or Ag RDTs observed[22]	None reported to date	None reported to date

**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. Summary of vaccine performance against Variants of Concern

	Anhui ZL-Recombinant	AstraZeneca-Vaxzevria	Beijing CNBG-BBIBP-CorV	Bharat-Covaxin	Gamaleya-Sputnik V	Janssen-Ad26.COV 2.5	Moderna-mRNA-1273	Moderna-mRNA-1273/ Pfizer BioNTech-Comirnaty	Novavax-Covavax	Pfizer BioNTech-Comirnaty	SII - Covishield	Sinovac-CoronaVac
Alpha[24,25]												
Summary of VE*	Protection retained against all outcomes											
- Severe disease	-	↓$_1$	-	-	-	-	↔$_1$	↔$_1$	-	↔$_5$	-	-
- Symptomatic disease	-	↔to↓$_3$	-	-	-	-	↔$_1$	↔$_1$	↓$_1$	↔$_4$	-	-
- Infection	-	↔to↓$_2$	-	-	-		↔$_1$	-	-	↔$_2$	-	-
Neutralization	↔$_2$	↓$_4$	↔$_1$	↔$_2$	↔$_3$	↔$_3$	↔to↓$_{11}$	↓$_1$	↓$_1$	↔to↓$_{37}$	↔$_1$	↔to↓$_5$
Beta[26–29]												
Summary of VE*	Protection retained against severe disease; reduced protection against symptomatic disease; limited evidence											
- Severe disease	-	-	-	-	-	↔$_1$	-	-	-	↔$_2$	-	-
- Symptomatic disease	-	↓↓↓$_1$	-	-	-	↔$_1$	-	-	↓↓↓$_1$	↔$_1$	-	-
- Infection	-	-	-	-	-	-	↔$_1$	-	-	↓$_1$	-	-
Neutralization	↔to↓$_3$	↔to↓↓$_5$	↔to↓$_2$	↓$_2$	↓to↓↓$_3$	↓to↓↓$_5$	↓to↓↓$_{13}$	↓↓↓$_1$	↓↓↓$_1$	↓to↓↓$_{35}$	↓$_1$	↓to↓↓$_5$
Gamma												
Summary of VE*	Unclear impact; very limited evidence											
- Severe disease	-	-	-	-	-	-	-	-	-	-	-	-
- Symptomatic disease	-	-	-	-	-	-	-	-	-	-	-	-
- Infection	-	-	-	-	-	-	-	-	-	-	-	↔$_1$
Neutralization	↔$_1$	↓$_2$	-	-	↓$_2$	↓$_2$	↓$_6$	-	-	↔to↓$_{20}$	-	↔to↓$_4$
Delta[30]												
Summary of VE*	Protection retained against severe disease; possible reduced protection against symptomatic disease and infection; limited evidence											
- Severe disease	-	↔$_2$	-	-	-	-	↔$_1$	-	-	↔$_5$	-	-
- Symptomatic disease	-	↔to↓↓$_3$	-	↓$_1$	-	-	-	-	-	↔to↓$_4$	-	-
- Infection	-	↓$_1$	-	-	-	-	-	-	-	↓$_1$	-	-
Neutralization	↔to↓$_2$	↓to↓↓$_5$	-	↔to↓$_3$	↓$_2$	↓$_3$	↓$_4$	↓↓$_1$	-	↔to↓$_{12}$	↓$_2$	↓to↓↓↓$_3$

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 page (https://view-hub.org/resources). For individual vaccine effectiveness studies, see 'COVID-19 Vaccine Effectiveness Results Summary', reference numbers noted with a '#'. For a list of all neutralization studies, see 'COVID-19 Vaccine Neutralization Studies Table'.

References indicated by superscripts next to VOC name in column 1 are vaccine efficacy results from randomized controlled trials informing this table and are included in the reference section below.

Additional notes on VOC impacts on vaccines

- Studies presenting VOC-specific vaccine efficacy or effectiveness (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 randomised RCT results from non-VOC settings. For severe disease and infection, due to instability or lack of phase 3 RCT estimates for these outcomes, 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.
- Some VE estimates may not be included in the table above when it is not possible to tease out the effect of waning from the effect of variants on vaccine performance.

Table 3 presents the impact of variants on product specific vaccine efficacy/effectiveness (VE) and quantifies the reduction in VE in the setting of variants compared to VE in non-VOC settings. Of note, 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%. In addition, vaccines have shown higher VE against severe disease; thus, small reductions in VE against severe disease due to VOCs may still mean substantial protection, as is the case for AstraZeneca-Vaxzevria.

Since the latest update published on 07 September, there have been six further publications assessing vaccine effectiveness against SARS-CoV-2 VOC.

A test-negative case-control study (pre-print) from Public Health England used UK national surveillance data, adjusting for multiple potential confounders, to assess the effectiveness of Pfizer BioNTech-Comirnaty, Moderna-mRNA-1273, and AstraZeneca-Vaxzevria over time separately for Alpha and Delta variants among persons 16 years and older. [31] VE against symptomatic disease up to 10+ weeks post full vaccination was higher for Alpha than Delta for both Pfizer BioNTech-Comirnaty and AstraZeneca-Vaxzevria. VE against Alpha symptomatic disease 2-9 weeks post full vaccination was 95.0% (95% CI: 93.8-96.0%) and 81.9% (79.2-84.3%) for Pfizer BioNTech-Comirnaty and AstraZeneca-Vaxzevria, respectively, whereas VE against Delta symptomatic disease 2-9 weeks post full vaccination was 89.8% (89.6-90.0%) and 66.7% (66.3-67.0%), respectively. VE of 2 doses of Moderna-mRNA-1273 against Delta symptomatic disease 2-9 weeks post full vaccination was 100% (no comparable estimate was available for Alpha). Results show that VE against symptomatic disease due to Delta peaked in the first weeks after full vaccination and then declined to 69.7% (95% CI: 68.7-70.5%) for Pfizer BioNTech-Comirnaty and 47.3% (45-49.6%) for AstraZeneca-Vaxzevria by 20+ weeks post full vaccination. Because Delta rapidly replaced Alpha in the UK, assessment of Alpha VE against symptomatic disease at 20+ weeks was not possible. Protection against hospitalisation and death due to Delta remained high for at least 20 weeks after the second dose of for Pfizer BioNTech-Comirnaty with VE estimates of 92.7% (90.3-94.6%) and 90.4 (85.1 to 93.8), respectively. Some waning of protection against hospitalization and death was observed for AstraZeneca-Vaxzevria with VE estimates of 77.0 (70.3-82.3%) and 78.7 (52.7 to 90.4), respectively, 20+ weeks post second dose. Authors also found greater waning among

those ≥65 years of age and those 40-64 years of age in clinical risk groups for both Pfizer BioNTech-Comirnaty and AstraZeneca-Vaxzevria.

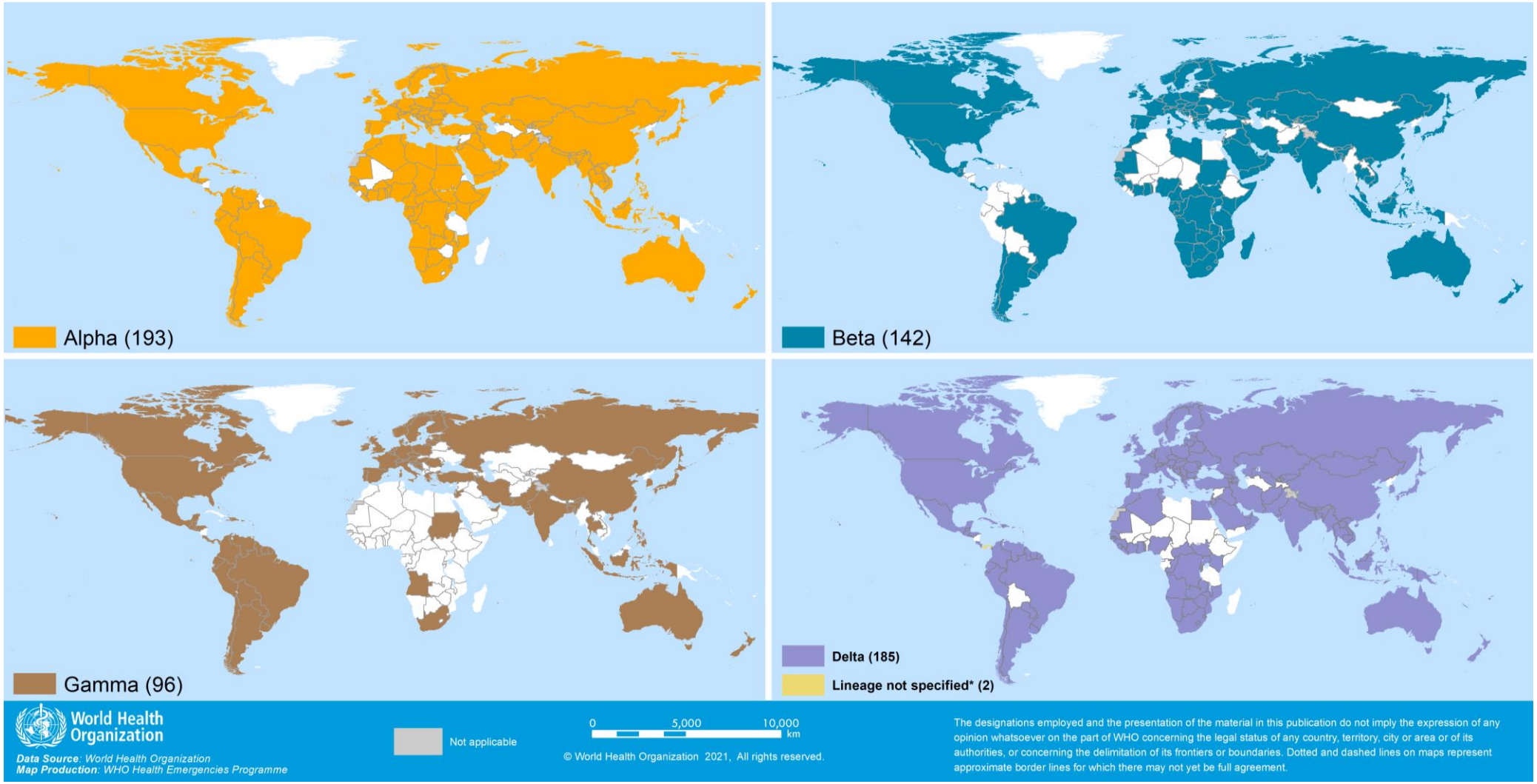
Five studies (including peer-reviewed journals and preprint) from the USA assessed VE of COVID-19 vaccines during periods of high Alpha and/or high Delta prevalence. A retrospective cohort study linking insurance claims data to health data sources assessed the effectiveness of Janssen-Ad26.COV2.S vaccine in preventing SARS-CoV-2 infection and hospitalization among persons 18 years and older for periods of high Alpha and Delta prevalence.[32] VE against infection was similar during both periods: 79% (77-80%) during the Alpha period and 78% (73-82%) during the Delta period. VE against hospitalization was also similar: 81% (79-84%) vs. 85% (73-91%) for Alpha and Delta periods, respectively. A second study used a test-negative design to evaluate the VE of mRNA vaccines against hospitalization among patients presenting with COVID-19-like illness at 5 Veterans Affairs medical centers. The VE of mRNA vaccines (Pfizer BioNTech-Comirnaty or Moderna-mRNA-1273) against hospitalization was similar during February-June 2021 when Alpha was the predominant variant (84.1%, 95% CI: 74.1-90.2%) and July-August 2021 when Delta was predominant (89.3%, 95% CI: 80.1-94.3%). A third study using the test-negative design evaluated the effectiveness of Pfizer BioNTech-Comirnaty, Moderna-mRNA-1273, and Janssen-Ad26.COV2.S vaccines among adults 18 years and older across nine states from June-July 2021 when Delta was the predominant variant in the USA.[33] VE against hospitalization 14 or more days after receipt of the final dose was 80% (73-85%), 95% (92-97%), and 60% (31-77%) for Pfizer BioNTech-Comirnaty, Moderna-mRNA-1273, and Janssen-Ad26.COV2.S, respectively. Similar VEs were observed for emergency and urgent care visits. Authors note these VE estimates were similar to those during the months before Delta became predominant as noted in two previous publications.[34,35] A fourth study also used a test-negative design to evaluate VE of mRNA vaccines and Ad26.COV2.S-Janssen against SARS-CoV-2 infection among persons ≥ 15 years in Oregon during July 2021, when Delta accounted for >75% of sequenced cases in the state.[36] VE of 2 doses of mRNA vaccines was 74% (65-82%); VE of 1 dose of Janssen-Ad26.COV2.S was 51% (-2-76%). Authors note that the VE estimate for mRNA vaccines are reduced compared to June 2021 when Delta accounted for only 4% of sequenced viruses (VE of 84%, 95% CI: 60-94), suggesting reduced VE against infection of the Delta variant, though confidence intervals overlapped. The VE estimate for Janssen-Ad26.COV2.S during June was unstable due to small numbers. Finally, a retrospective cohort study in Minnesota found slightly reduced VE of mRNA vaccines against asymptomatic SARS-CoV-2 infection during June-August when Delta was predominant, as compared to April-May when Alpha was predominant: 63% (44-76%) vs. 71% (53-83%), though confidence intervals overlap.[37] Note that studies that compare VE against Alpha from an earlier time period with Delta from a later time period might be confounded by waning VE over time.

Together these studies provide evidence that VE of mRNA vaccines, AstraZeneca-Vaxzevria, and Ad26.COV2.S-Janssen against severe disease outcomes due to Delta is high and similar to that of Alpha, with evidence of no-to-minimal waning for these severe outcomes to date. Consistent with previous research, the majority of studies described in this issue suggest that VE of these vaccines against symptomatic disease, infection, and asymptomatic disease may be reduced for Delta compared to Alpha; with waning VE against symptomatic disease apparentfor Delta variant in the UK study that provided longitudinal VE estimates.

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

Figure 4. Countries, territories and areas reporting variants Alpha, Beta, Gamma and Delta, as of 21 September 2021**



**Includes countries/territories/areas reporting the detection of B.1.617 without further specification of lineage at this time. These will be reallocated as further details become available.*

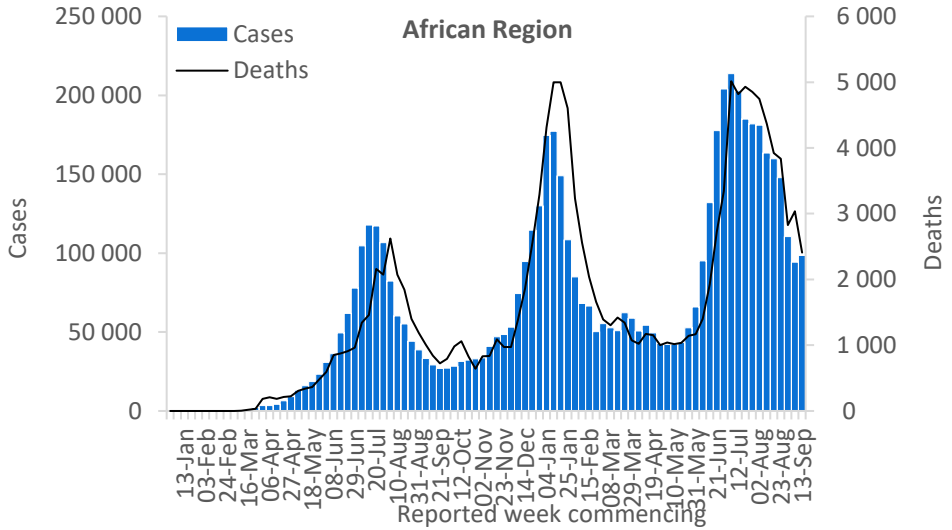
***Countries/territories/areas highlighted include both official and unofficial reports of VOC detections, and do not presently differentiate between detections among travellers (e.g., at Points of Entry) or local community cases. Please see Annex 2 for further details*

WHO regional overviews Epidemiological week 13 – 19 September 2021

African Region

The African Region reported over 98 000 new cases, a case incidence similar to that of the previous week, following a consistent decline in the number of new weekly cases over the past two months. While most of the countries in the region reported a decline in case incidence, several countries reported an increase including Botswana, Burundi and Zimbabwe. The majority of countries in the region reported a decline in the number of new deaths last week.

The highest numbers of new cases were reported from South Africa (26 115 new cases; 44 new cases per 100 000 population; 35% decrease), Uganda (22 511 new cases; 49.2 new cases per 100 000), and Ethiopia (9266 new cases; 8.1 new cases per 100 000; figures similar to those of the previous week). The highest numbers of new deaths were reported from South Africa (1365 new deaths; 2.3 new deaths per 100 000 population; 14% decrease), Ethiopia (208 new deaths; <1 new deaths per 100 000, 18% increase), and Algeria (112 new deaths; <1 new deaths per 100 000; 39% decrease).

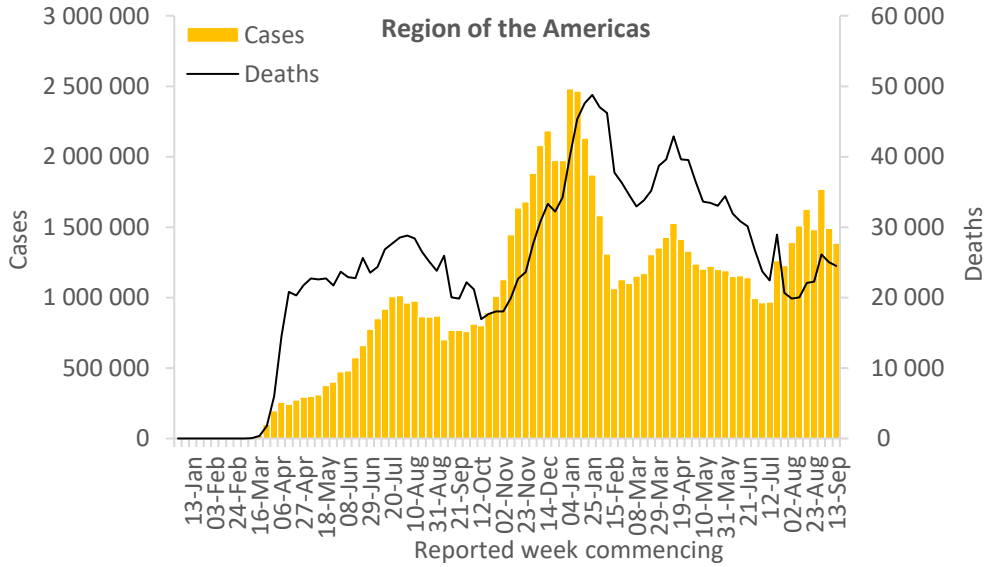


Updates from the African Region

Region of the Americas

The Region of the Americas reported over 1.3 million new cases and over 24 000 new deaths in the past week, a 7% decrease in the number of cases and a number of new deaths similar to that of the previous week. While the majority of countries in the Region reported a decline in weekly case incidence, several countries including Canada, Chile and Suriname reported an increase over the past week. Nearly a third of countries in the Region reported an increase in the number of new deaths in the past week.

The highest numbers of new cases were reported from the United States of America (1 017 644 new cases; 307.4 new cases per 100 000; similar to the numbers reported last week), Brazil (105 369 new cases; 49.6 new cases per 100 000; 11% decrease), and Mexico (58 751 new cases; 45.6 new cases per 100 000; 34% decrease). Similarly, the highest numbers of new deaths were reported from the United States of America (12 896 new deaths; 3.9 new deaths per 100 000; similar to the numbers reported last week), Brazil (3727 new deaths; 1.8 new deaths per 100 000; 17% increase), and Mexico (3689 new deaths; 2.9 new deaths per 100 000; 20% decrease).

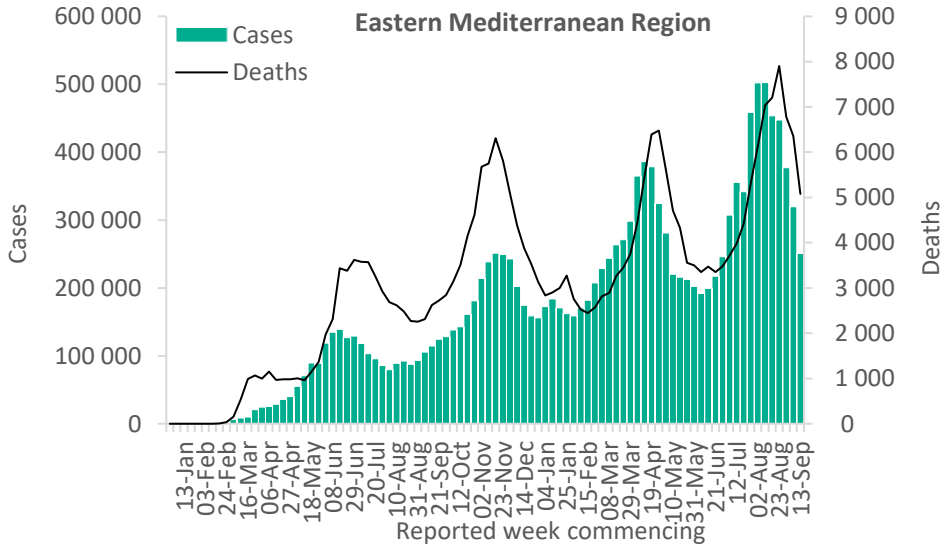


Updates from the Region of the Americas

Eastern Mediterranean Region

The Eastern Mediterranean Region reported a marked decrease of 22% in the number of new weekly cases, with over 250 000 new cases reported this week as compared to the previous week. Although the regional case incidence has continued to decline for over a month, weekly incidence increased in five of 22 (23%) countries in the past week, including in Djibouti, Syrian Arab Republic, and Egypt. The highest numbers of new cases were reported from the Islamic Republic of Iran (133 293 new cases; 158.7 new cases per 100 000; 23% decrease), Iraq (25 494 new cases; 63.4 new cases per 100 000; 27% decrease), and Pakistan (19 894 new cases; 9 new cases per 100 000; 23% decrease).

Similarly, weekly deaths have continued to decline for past three weeks, with over 5000 new deaths reported this week, a 20% decrease as compared to the previous week. The highest numbers of new deaths were reported from the Islamic Republic of Iran (2967 new deaths; 3.5 new deaths per 100 000; 21% decrease), Pakistan (473 new deaths; <1 new deaths per 100 000; 14% decrease), and Morocco (342 new deaths; <1 new deaths per 100 000; 31% decrease).

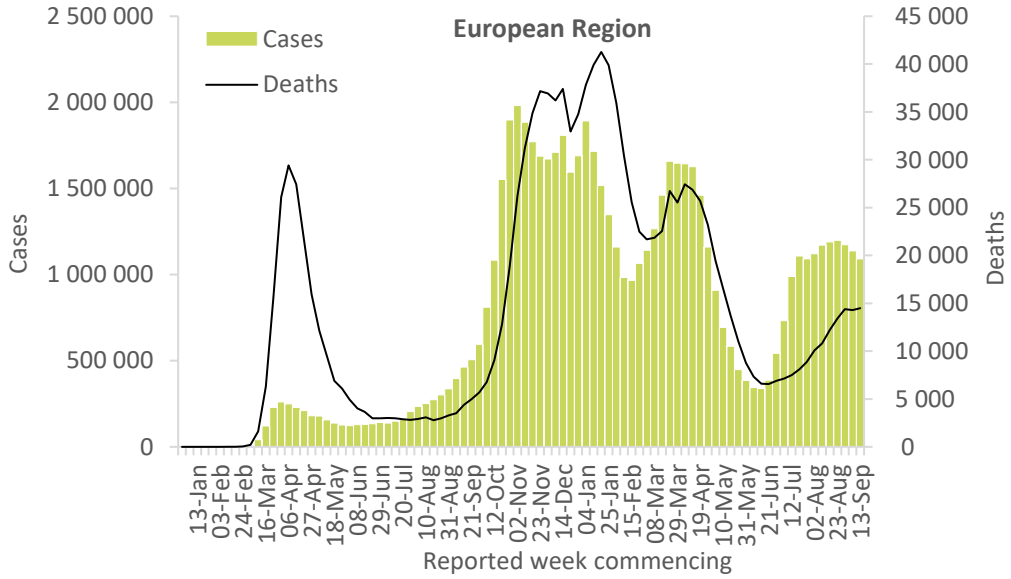


Updates from the Eastern Mediterranean Region

European Region

In the European Region, the weekly incidence in both cases and deaths remained similar to rates reported in the previous week, with just under 1.1 million new cases and over 14 000 new deaths reported this week, as compared to the previous week. The highest numbers of new cases were reported from the United Kingdom (203 077 new cases; 299.1 new cases per 100 000; 21% decrease), Turkey (183 962 new cases; 218.1 new cases per 100 000; 16% increase), and the Russian Federation (134 858 new cases; 92.4 new cases per 100 000; 6% increase).

The highest numbers of new deaths were reported from the Russian Federation (5469 new deaths; 3.7 new deaths per 100 000; similar to last week), Turkey (1718 new deaths; 2 new deaths per 100 000; a 5% decrease), and the United Kingdom (1003 new deaths; 1.5 new deaths per 100 000; similar to last week).

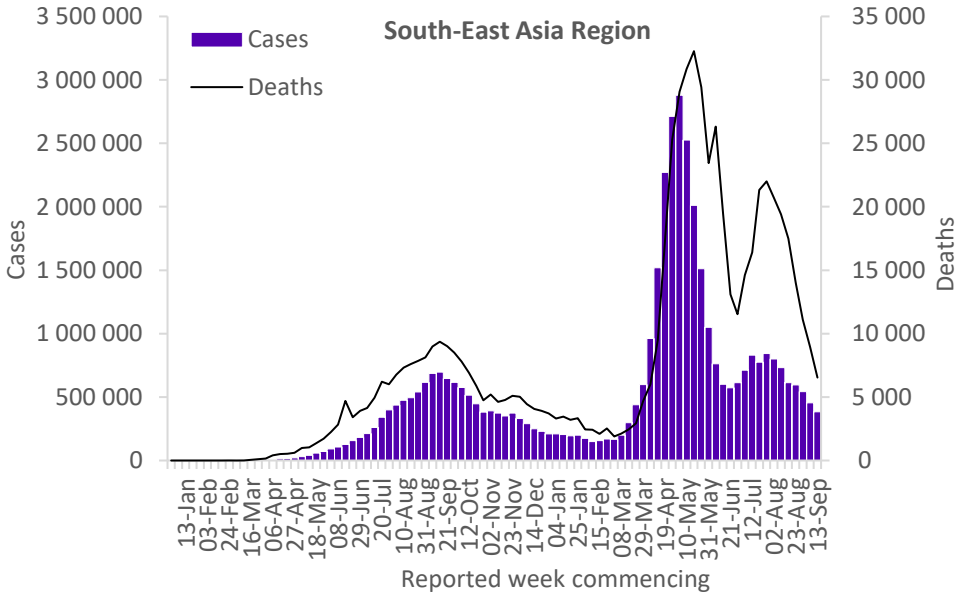


Updates from the European Region

South-East Asia Region

The South-East Asia Region reported over 383 000 new cases and over 6500 new deaths, decreases of 16% and 27% respectively as compared to the previous week. Incidence of cases and deaths has declined for nearly two months, with all countries in the Region reporting a decrease in weekly cases for the past two weeks. This week, notable decreases were reported in Timor-Leste (by 42% for cases and 40% for deaths) and Indonesia (by 40% for cases and 48% for deaths) as compared to last week. The highest numbers of new cases were reported from India (211 242 new cases; 15.3 new cases per 100 000; 15% decrease), Thailand (94 304 new cases; 135.1 new cases per 100 000; 7% decrease), and Indonesia (23 252 new cases; 8.5 new cases per 100 000; 40% decrease).

The highest numbers of new deaths were reported from India (2183 new deaths; <1 new deaths per 100 000; similar to last week), Indonesia (1579 new deaths; <1 new deaths per 100 000; a 48% decrease), and Thailand (1010 new deaths; 1.4 new deaths per 100 000; a 33% decrease).

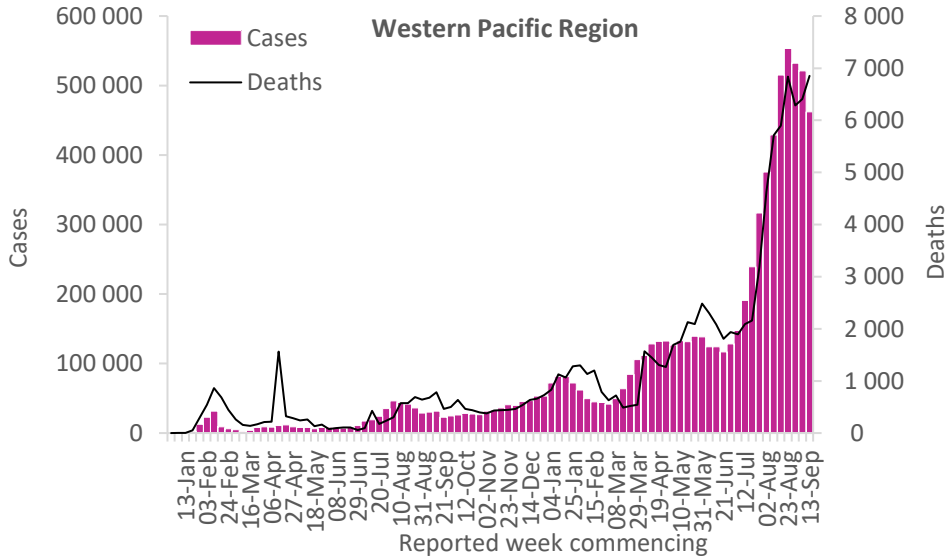


Updates from the South-East Asia Region

Western Pacific Region

Case incidence in the Western Pacific Region has decreased for past three weeks, with just under 462 000 new cases reported this week, a 11% decrease as compared to the previous week. There were notable decreases in weekly case incidence reported in Japan (45%) and French Polynesia (43%). The highest numbers of new cases were reported from the Philippines (141 522 new cases; 129.1 new cases per 100 000; similar to last week), Malaysia (122 376 new cases; 378.1 new cases per 100 000; a 10% decrease), and Viet Nam (75 674 new cases; 77.7 new cases per 100 000; a 16% decrease).

Weekly deaths have continued to increase since early July 2021, with notable increases reported in New Caledonia (by 2000%), Papua New Guinea (by 225%) and Mongolia (by 143%). The highest numbers of new deaths were reported from Malaysia (2648 new deaths; 8.2 new deaths per 100 000; similar to last week), Viet Nam (1839 new deaths; 1.9 new deaths per 100 000; 17% decrease), and the Philippines (1605 new deaths; 1.5 new deaths per 100 000; 75% increase).



Updates from the Western Pacific Region

Summary of the COVID-19 Weekly Operational Update

The Weekly Operational Update (WOU) is a report provided by the COVID-19 Strategic Preparedness and Response Plan (SPRP) monitoring and evaluation team which aims to update on the ongoing global progress against the COVID-19 SPRP 2021 framework.

In this week's edition of the COVID-19 Weekly Operational Update, published on 20 September, highlights of country-level actions and WHO support to countries include:

- Delivering 2 million syringes for Sri Lanka's COVID-19 vaccination drive
- Shipment of WHO life-saving medical supplies to Kabul, Afghanistan with support from Qatar
- WHO logistics hub airlifts largest single shipment of humanitarian cargo to Ethiopia
- WHO/Europe and Germany support children with disabilities in Belarus
- Rebooting COVID-19 response strategy and measures in Cambodia
- Expanding capacity for Integrated Disease Surveillance and Response (IDSR) in the African Region
- External Quality Assessment for laboratories testing for SARS-CoV-2
- Testing Rapid Response Mobile Laboratories (RRML) deployment procedures and minimum standards in first virtual tabletop (V-TTX) exercise for RRML/GOARN
- Connecting countries to share experiences and learnings from their COVID-19 vaccine roll-out using the mini-cPIE (COVID-19 vaccination Intra-Action Review) process
- Progress on a subset of indicators from the SPRP 2021 Monitoring and Evaluation Framework
- Updates on WHO's financing to support countries in SPRP 2021 implementation and provision of critical supplies.

For more information, see the Weekly operational update on COVID-19

Annex

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.

Annex 1. List of countries/territories/areas reporting Variants of Concern as of 21 September 2021

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecif...
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	●	-	-	○	-

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecif
Greece	●	●	●	●	-
Grenada	●	-	-	●	-
Guadeloupe	●	●	●	●	-
Guam	●	●	●	●	-
Guatemala	●	●	●	●	-
Guinea	●	○	-	●	-
Guinea-Bissau	●	●	-	●	-
Guyana	-	-	●	●	-
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	-	●	-	●	-

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecif
Liberia	●	-	-	○	-
Libya	●	●	-	-	-
Liechtenstein	●	-	-	○	-
Lithuania	●	●	●	○	-
Luxembourg	●	●	●	●	-
Madagascar	-	●	-	-	-
Malawi	●	●	-	●	-
Malaysia	●	●	-	●	-
Maldives	●	-	-	●	-
Malta	●	○	●	○	-
Martinique	●	●	●	●	-
Mauritania	●	●	-	●	-
Mauritius	●	●	-	●	-
Mayotte	●	●	-	-	-
Mexico	●	●	●	●	-
Monaco	●	●	-	●	-
Mongolia	●	-	-	●	-
Montenegro	●	-	○	○	-
Montserrat	●	-	●	●	-
Morocco	●	●	-	●	-
Mozambique	●	●	-	●	-
Myanmar	●	-	-	●	-
Namibia	●	●	-	●	-
Nepal	●	-	-	●	-
Netherlands	●	●	●	●	-
New Caledonia	●	-	-	●	-
New Zealand	●	●	○	○	-
Niger	●	-	-	-	-
Nigeria	●	●	-	●	-
North Macedonia	●	●	-	○	-
Northern Mariana Islands (Commonwealth of the)	○	-	-	●	-

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecif
Norway	●	●	●	●	-
Occupied Palestinian Territory	●	●	-	●	-
Oman	●	●	-	●	-
Pakistan	●	●	●	●	-
Panama	●	●	●	●	●
Papua New Guinea	-	-	-	●	-
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	●	●	-	●	-

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecif
Sierra Leone	-	-	-	○	-
Singapore	●	●	●	●	-
Sint Maarten	●	●	●	●	-
Slovakia	●	●	-	●	-
Slovenia	●	●	●	●	-
Somalia	●	●	-	-	-
South Africa	●	●	○	●	-
South Sudan	●	●	-	●	-
Spain	●	●	●	●	-
Sri Lanka	●	●	-	●	-
Sudan	●	●	●	-	-
Suriname	●	●	●	●	-
Sweden	●	●	●	●	-

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecif
Switzerland	●	●	●	●	-
Thailand	●	●	●	●	-
Timor-Leste	●	-	-	●	-
Togo	●	●	-	○	-
Trinidad and Tobago	●	-	●	●	-
Tunisia	●	●	-	●	-
Turkey	●	●	●	●	-
Turks and Caicos Islands	●	-	●	●	-
Uganda	●	●	-	●	-
Ukraine	●	○	-	○	-
United Arab Emirates	●	●	●	●	-
United Kingdom	●	●	●	●	-
United Republic of Tanzania	-	●	-	-	-

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecif
United States Virgin Islands	●	●	-	●	-
United States of America	●	●	●	●	-
Uruguay	●	●	●	●	-
Uzbekistan	●	●	-	○	-
Venezuela (Bolivarian Republic of)	●	-	●	●	-
Viet Nam	●	●	-	●	-
Wallis and Futuna	●	-	-	-	-
Yemen	●	●	-	-	-
Zambia	●	●	-	●	-
Zimbabwe	-	●	-	●	-

**Newly reported in this update.*
"Unspecified B.1.617" reflects countries/territories/areas reporting detection of B.1.617 without further specification of lineage at this time. These will be reallocated as further details become available.
"●" 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 travelers (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.*
**** Alpha was excluded for Comoros this week based on further information.*

See also Annex 2: Data, table and figure notes.

Annex 2. 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 incidence, and variable delays to reflecting these data at 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 which 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 country(ies) of interest, time period(s), 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.

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, number of cases of Serbia and Kosovo (UNSCR 1244, 1999) have been aggregated for visualization purposes.

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
- OpenWHO 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
- Recommendations and advice for the public:
  - Protect yourself
  - Questions and answers
  - Travel advice
- EPI-WIN: tailored information for individuals, organizations and communities

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