COVID-19 Weekly Epidemiological Update

Edition 56, published 7 September 2021

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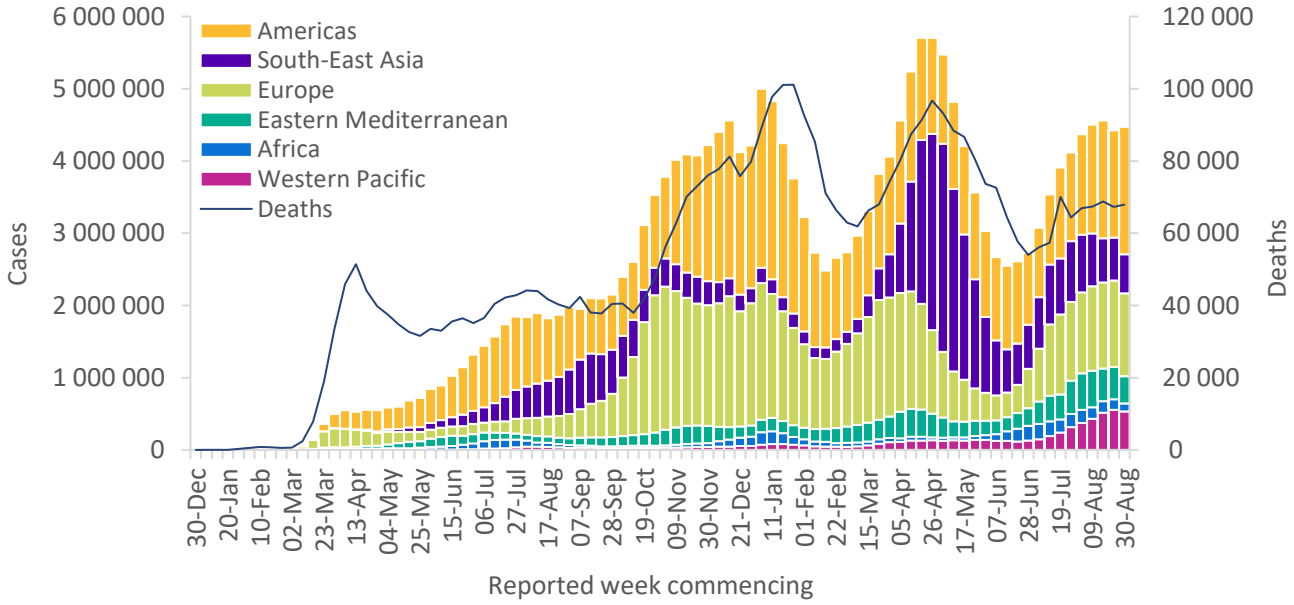
Global overview

Data as of 5 September 2021

Globally, the number of new cases reported this week remained similar to that of the previous week. With over 4.4 million new cases reported this week (30 August-5 September; Figure 1), the global incidence of COVID-19 cases has remained stable over the past month. In the past week, all regions reported either a decline (Regions of Africa, South-East Asia, and the Eastern Mediterranean) or a similar trend in new reported cases, as compared to previous week (Regions of Europe and the Western Pacific); the Region of the Americas reported a 19% increase.

The number of deaths reported globally this week also remained similar to the previous week, with just under 68 000 new deaths reported. The incidence of new deaths declined in all regions apart from the Region of the Americas and Europe where deaths increased by 17% and 20%, respectively. Regionally, the largest proportionate decreases in new deaths this week were observed in the South-East Asia (21% decrease) and African (26% decrease) regions, while the regions of the Western Pacific (8% decrease) and the Eastern Mediterranean (14% decrease) also reported notable declines, as compared to the previous week. The cumulative number of cases reported globally is now just over 220 million and the cumulative number of deaths is over 4.5 million.

Figure 1. COVID-19 cases reported weekly by WHO Region, and global deaths, as of 5 September 2021**



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

The Regions reporting the highest weekly case and deaths incidence rates per 100 000 population remain the same as last week: the Regions of the Americas (172.4 new cases per 100 000 population; 2.5 deaths per 100 000 population) and Europe (122.8 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 (1 297 399 new cases; 38% increase), India (293 643 new cases; 8% increase), the United Kingdom (243 125 new cases; similar to the previous week), the Islamic Republic of Iran (208 089 new cases; 18% decrease), and Brazil (152 154 new cases; 13% decrease).

Globally, cases of the Alpha variant have been reported in 194 countries (one new country since last week), territories or areas (hereafter countries), while 141 countries (no new countries) have reported cases of the Beta variant; 92 countries (one new country) have reported cases of the Gamma variant; and 174 countries (four new countries) have reported cases of the Delta variant.

Table 1. Newly reported and cumulative COVID-19 cases and deaths, by WHO Region, as of 5 September 2021**

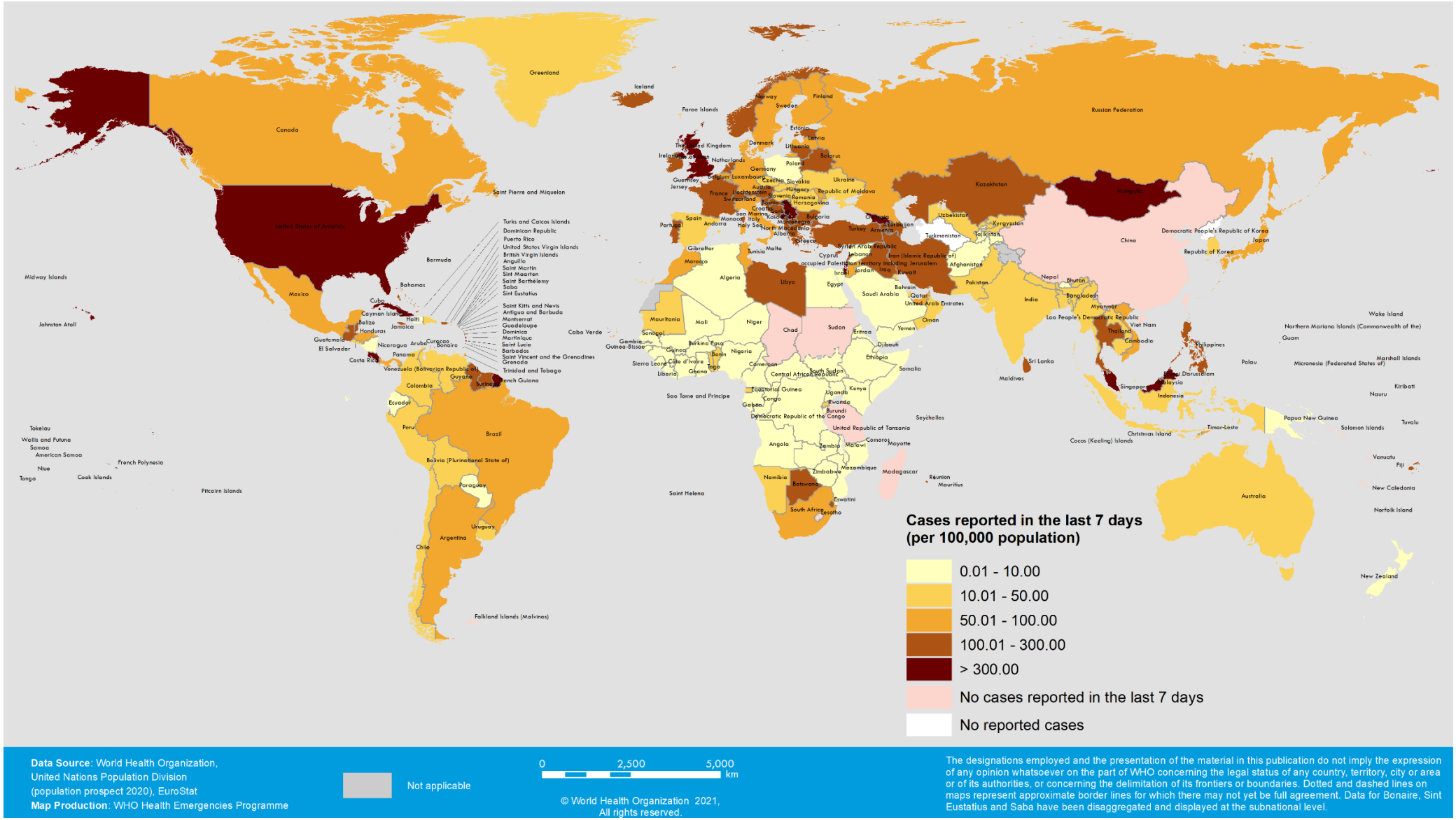
WHO Region	New cases in last 7 days (%)	Change in new cases in last 7 days *	Cumulative cases (%)	New deaths in last 7 days (%)	Change in new deaths in last 7 days *	Cumulative deaths (%)
Americas	1 763 048 (39%)	19%	84 995 058 (39%)	26 028 (38%)	17%	2 120 533 (47%)
Europe	1 146 065 (26%)	-4%	66 029 959 (30%)	14 883 (22%)	20%	1 282 565 (28%)
South-East Asia	543 013 (12%)	-9%	41 662 330 (19%)	11 116 (16%)	-21%	652 990 (14%)
Eastern Mediterranean	377 304 (8%)	-16%	14 879 624 (7%)	6 782 (10%)	-14%	271 279 (6%)
Western Pacific	531 922 (12%)	-4%	6 931 169 (3%)	6 282 (9%)	-8%	94 450 (2%)
Africa	110 594 (2%)	-25%	5 718 668 (3%)	2 826 (4%)	-26%	136 976 (3%)
Global	**4 471 946 (100%)**	**1%**	**220 217 572 (100%)**	**67 917 (100%)**	**1%**	**4 558 806 (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:

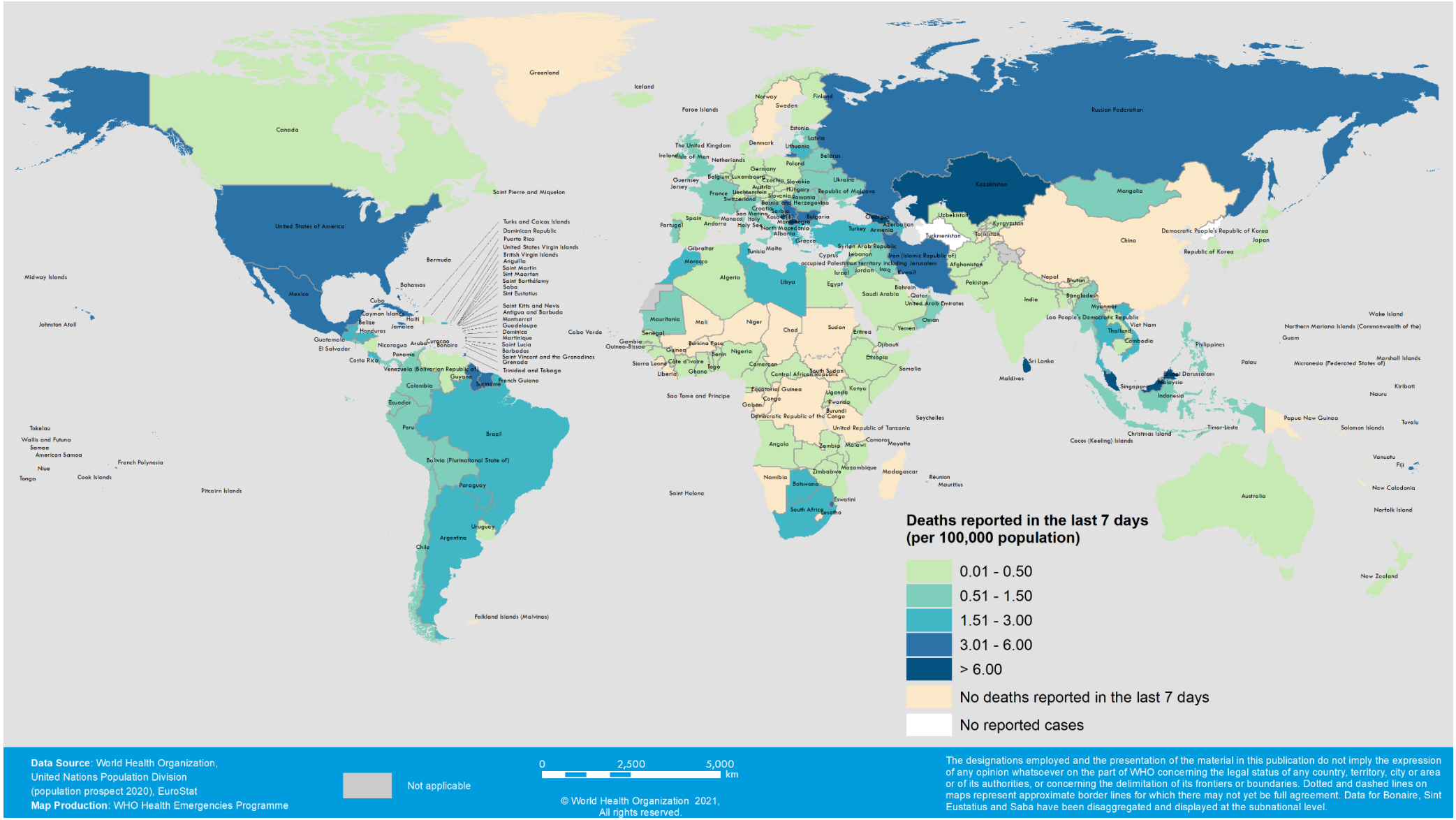
- WHO COVID-19 Dashboard
- WHO COVID-19 Weekly Operational Update and previous editions of the Weekly Epidemiological Update

Figure 2. COVID-19 cases per 100 000 population reported by countries, territories and areas, 30 August – 5 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, 30 August – 5 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 on VOCs and VOIs, and a list of Alerts for Further Monitoring, are available on the WHO Tracking SARS-CoV-2 Variants website.

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 24 August, new evidence has been published on the phenotypic characteristics of VOCs.

A retrospective cohort study, available in preprint, of RT-PCR SARS-CoV-2 positive individuals was conducted using healthcare datasets in the provinces of Ontario and Alberta, Canada, which were the most affected provinces during the resurgence of cases in Canada from February to May 2021. During this time, the 30-day outcomes of those infected with VOCs (n=37 902), of which 91% (34 658/37 902) were infected with the Alpha variant, showed a higher risk of death [adjusted Odds Ratio (aOR) of 1.34 (95% Confidence Interval 1.29-1.39) in Ontario and 1.53 (95% CI: 1.41-1.65) in Alberta] and hospitalization [aOR 1.57 (95% CI: 1.47-1.69) in Ontario and aOR 1.88 (95% CI: 1.74-2.02) in Alberta)] as compared to those infected with non-VOCs.[1]

In a prospective clinical cohort study of hospitalized and community cases (n=1475) conducted between 1 November 2020 to 30 January 2021 in Scotland as part of a larger study in the United Kingdom, and published as a preprint, infection with the Alpha variant was associated with increased clinical severity [cumulative OR 1.40 (95% CI: 1.02-1.93)] as compared to non-Alpha SARS-CoV-2 infection. Additionally, the viral load of samples positive for the Alpha variant, as measured by the cycle threshold (Ct) value, was lower than that of non-Alpha samples [mean change in Ct: -2.46 (95% CI -4.22, -0.70)], where lower Ct value indicates higher viral load of specimens.[2]

A recent study from China, published as a preprint, found a higher viral load and higher risk of pre-symptomatic transmission in patients infected with the Delta variant when compared to those infected with non-VOC SARS-CoV-2.[3] The study identified 167 patients infected with the Delta variant in an outbreak in Guangdong. The mean estimates of the latent period and the incubation period were 4.0 and 5.8 days, respectively. A relatively higher viral load was observed in Delta cases than in the 49 non-VOC SARS-CoV-2

infections. The study also found the secondary attack rate among close contacts of Delta cases was 1.4%, and 73.9% (95% CI: 67.2%- 81.3%) of the transmissions occurred before onset of symptoms. Index cases without vaccination (OR: 2.84, 95% CI: 1.19, 8.45) or with a single dose of vaccination (OR: 6.02, 95% confidence interval: 2.45, 18.16) were more likely to transmit infection to their contacts than those who had received two doses of vaccination.[3] Although this study provides insight into differences in the incubation period and secondary transmission of the Delta variant, these are preliminary findings specific to one outbreak and further studies will aid in understanding how these findings can be generalized to other contexts.

A large national cohort study from the United Kingdom found higher risk of admission to hospital or emergency care for COVID-19 patients infected with the Delta variant as compared to those infected with the Alpha variant.[4] In this study, 2.3% (196/8682) patients infected with the Delta variant versus 2.2% (764/34 656) patients infected with the Alpha variant were admitted to hospital within 14 days after the first positive specimen was collected (adjusted hazard ratio [HR] 2.26 [95% CI 1.32–3.89]). Additionally, the HR for hospital admission with the addition of attendance to emergency care was higher in patients infected with the Delta variant within 14 days (5.7%) than those infected with the Alpha variant (4.2%) (adjusted HR 1.45 [1.08–1.95]).[4] Nearly three quarters (74%) of all individuals, across both groups included in the study, were unvaccinated. Overall, these findings suggest that outbreaks of the Delta variant may lead to a greater burden on health-care services than the Alpha variant, a burden which may be even greater in largely unvaccinated populations.

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

WHO label	Alpha	Beta	Gamma	Delta
Transmissibility	Increased transmissibility[5]	Increased transmissibility[6,7]	Increased transmissibility[7,8]	Increased transmissibility and secondary attack rate[7,9]
Disease severity	Increased risk of hospitalization[10], possible increased risk of severity and mortality[11,2]	Not confirmed, possible increased risk of in-hospital mortality[12]	Not confirmed, possible increased risk of hospitalization[13]	Increased risk of hospitalization[14]
Risk of reinfection	Neutralizing activity retained [15], risk of reinfection remains similar[16]	Reduction in neutralizing activity reported; T cell response elicited by D614G virus remains effective[17]	Moderate reduction in neutralizing activity reported[18]	Reduction in neutralizing activity reported[19–21]
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[22]	No impact on RT-PCR or Ag RDTs observed[21]	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[23,24]												
Summary of VE*						Protection retained against all outcomes						
- Severe disease	-	↓$_1$	-	-	-	-	↔$_1$	↔$_1$	-	↔$_4$	-	-
- Symptomatic disease	-	↔to↓$_3$	-	-	-	-	↔$_1$	↔$_1$	↓$_1$	↔$_3$	-	-
- Infection	-	↔to↓$_2$	-	-	-		↔$_1$	-	-	↔$_2$	-	-
Neutralization	↔$_2$	↓$_5$	↔$_1$	↔$_2$	↔$_3$	↔$_3$	↔to↓$_{11}$	↓$_1$	↓$_1$	↔to↓$_{37}$	↔$_1$	↔to↓$_5$
Beta[25–28]												
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↓↓$_6$	↔to↓$_2$	↓$_2$	↓to↓↓$_3$	↓to↓↓$_5$	↓to↓↓$_{13}$	↓↓↓$_1$	↓↓↓$_1$	↓to↓↓$_{34}$	↓$_1$	↓to↓↓$_4$
Gamma												
Summary of VE*						Unclear impact; very limited evidence						
- Severe disease	-	-	-	-	-	-	-	-	-	-	-	-
- Symptomatic disease	-	-	-	-	-	-	-	-	-	-	-	-
- Infection	-	-	-	-	-	-	-	-	-	-	-	↔$_1$
Neutralization	↔$_1$	↓$_2$	-	-	↓$_2$	↓$_2$	↓$_6$	-	-	↔to↓$_{18}$	-	↔to↓$_3$
Delta[29]												
Summary of VE*						Protection retained against severe disease; possible reduced protection against symptomatic disease and infection; limited evidence						
- Severe disease	-	↔$_1$	-	-	-	-	↔$_1$	-	-	↔$_4$	-	-
- Symptomatic disease	-	↓↓$_2$	-	↓$_1$	-	-	-	-	-	↔to↓$_3$	-	-
- Infection	-	↓$_1$	-	-	-	-	-	-	-	↓$_1$	-	-
Neutralization	↔to↓$_2$	↓to↓↓$_5$	-	↔to↓$_3$	↓$_2$	↓$_3$	↓$_4$	↓↓$_1$	-	↓to↓↓$_{10}$	↓$_2$	↓to↓↓↓$_2$

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.

Since the 24 August update, three studies have been published that have assessed vaccine effectiveness against SARS-CoV-2 variants of concern.

A retrospective cohort study (preprint) from the United States of America evaluated the effectiveness of the Pfizer BioNTech-Comirnaty vaccine against documented infection and hospitalization due to the Delta variant seven or more days after receiving the second dose, among persons ≥ 12 years of age in a large healthcare system.[30] VE against Delta infection was lower than that against infection due to non-Delta variants [75%, (95% CI: 71-78%) vs. 91% (95% CI: 88-92%)]. The decreased VE for Delta infection is likely explained by multiple factors including but not limited to confounding effect of waning VE and inherent properties of Delta variants that influence immune escape. Given that the Delta variant became dominant in June, the timing of most Delta infections included in this study likely occurred after longer intervals post-vaccination as compared to that of non-Delta infections. When stratifying by time since vaccination, VE against infection due to Delta was high (93%) one month after full vaccination but dropped to 53% four or more months after full vaccination. While a decrease in VE was also observed for non-Delta variants as the time since full vaccination increased, this decrease was less pronounced (97% at one month vs. 67% at four months post vaccination), which, although not statistically significantly different from the findings for Delta, could suggest that waning may be more pronounced for Delta than other variants. VE against hospitalization due to Delta remained high at 90% (95% CI: 89-92%) and was comparable to the VE against hospitalization due to non-Delta variants of 95% (95% CI: 90-98%).

A second retrospective cohort study (preprint) of over 9 million individuals ≥ 16 years of age in Israel assessed the effectiveness of Pfizer BioNTech-Comirnaty in preventing infection and severe disease during the month of July when Delta was the predominant variant.[31] The study evaluated the VE among persons vaccinated more recently compared to those vaccinated earlier. For persons fully vaccinated two months prior, VE against infection ranged from 73%-80% by age group, whereas VE for persons vaccinated six months prior ranged from 50-58% by age group. For all age groups, VE against infection decreased with increasing age at time of vaccination. However, consistent with the above study from the United States of America, investigators found that VE against severe disease remained high for persons 40 years and older vaccinated six months prior. (VE of 94% for persons 40-59 years and 86% for persons ≥ 60 years of age). Of note, this study did not compare VE for Delta against other variants, so the relative VE by variant was not presented.

A third study (preprint) used a test-negative design to evaluate the effectiveness of Pfizer BioNTech-Comirnaty against infection and severe disease due to Alpha, Beta, and Delta variants, separately, among individuals ≥ 16 years in Qatar.[32] VE against infection due to Alpha, Beta, and Delta five to nine weeks post second dose was 82.2% (95% CI: 72.1-89.0%), 52.7% (95% CI: 40.3-62.7%), and 72.0% (95% CI: 60.5-80.5%), respectively. VE against infection showed a general trend of decreasing VE after five to nine weeks post second dose for all variants through to ≥ 25 weeks post second dose, with 0% VE for the Alpha and Delta variants beyond 20 weeks. VE against infection due to each of the variants was lower than that observed in other studies, although the Qatar study was different in that most infections were asymptomatic. VE against severe, critical and fatal disease at five to nine weeks post second dose was high for all variants: 100.0% (95% CI: 0.0-100%), 94.6% (95% CI: 63.5-99.9%), and 100% (95% CI: 74.3-100%) for the Alpha, Beta, and Delta variants, respectively. VE against hospitalization and at later time points after vaccination remained high, but it is not possible to interpret the waning VE against severe disease because there were very small numbers of subjects and wide confidence intervals for these later time points.

In addition to the above studies, two recent studies from Israel evaluated the short-term relative effectiveness of a third dose of Pfizer BioNTech-Comirnaty in preventing infection and severe disease compared to those who received two doses of vaccine, during the past month when Delta was the dominant circulating strain.[33,34] One study found that a third dose of the vaccine decreased the relative risk of infection

and of severe disease ≥ 12 or more days post vaccination by 11.4- and 15.5-fold, respectively compared to persons receiving two doses of the vaccine. In a second study, 79% (95% CI: 72-84%) of infections 14-20 days post vaccination were estimated to have been prevented by a third dose of the vaccine compared to persons receiving two doses. Of note, neither of these studies provide the absolute VE compared to an unvaccinated group, as was done in the previously mentioned studies of fully vaccinated persons.

Similar to the studies included in the 24 August update, these studies provide additional evidence for continued high VE of Pfizer BioNTech-Comirnaty against severe COVID-19 due to the Delta variant. There is some evidence from multiple studies that VE against SARS-CoV-2 infection and non-severe disease may be reduced with Delta. However, it is challenging to separate the effect of Delta from the effect of potential waning immunity, as Delta circulation in most countries became dominant several months after vaccine introduction. In addition, differential risk of exposure profiles between vaccinated and unvaccinated populations, as well as early versus late vaccines, increasing levels of natural immunity in the unvaccinated population over time, or other potential confounding factors, complicate interpretation of VE estimates over time. Furthermore, the study from Qatar provides additional evidence of reduced Pfizer BioNTech-Comirnaty effectiveness against infection due to Beta, consistent with previous studies. Additional studies, over longer time periods and in different settings are needed to further support these initial findings.

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, 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 severe disease (phase 3 RCT efficacy estimates against severe disease are used as comparator since a within study comparator is unavailable) and for infection (when 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%).

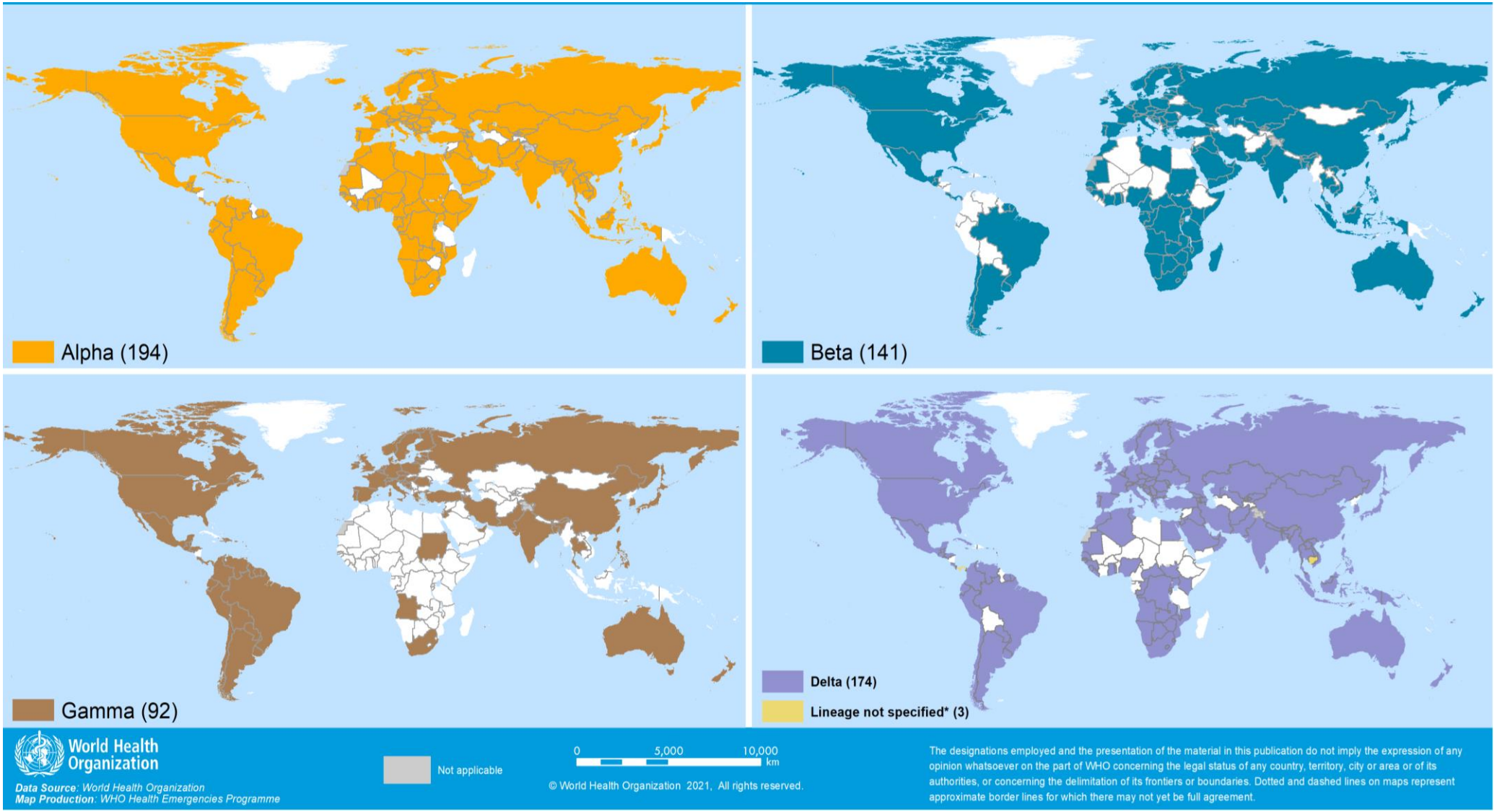
- It is also important to note that studies vary in population, outcome definitions, study design and other methodological considerations, which may in part explain differences when comparing VE estimates for a product between different studies. In addition, the reductions summarized in the table represent 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.

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 7 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.*

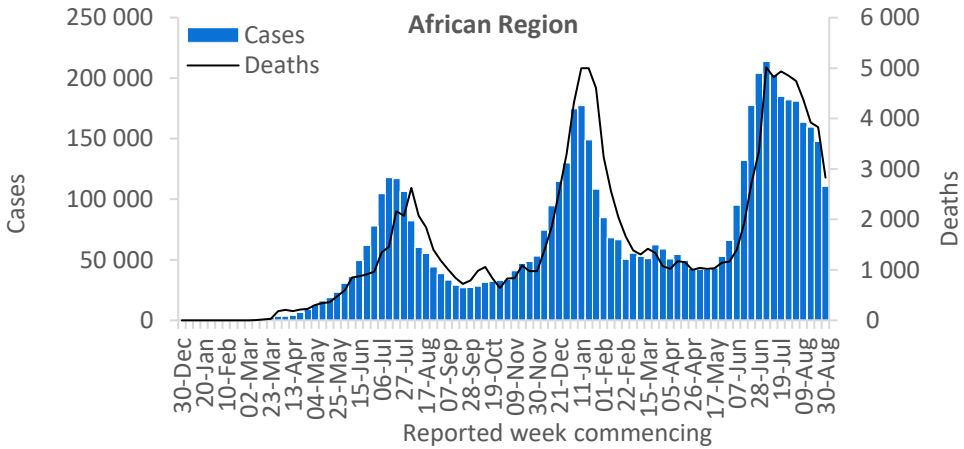
***Countries/territories/areas highlighted include both official and unofficial reports of VOC detections, and do not presently differentiate between detections among travellers (e.g., at Points of Entry) or local community cases. Please see Annex 2 for further details.*

WHO regional overviews – Epidemiological week 30 Aug–5 Sep 2021

African Region

The African Region continued to report substantial declines in incidence of both cases and deaths. This week the Region reported over 110 000 new cases and over 2800 new deaths, decreases of 25% and 26%, respectively, as compared to the previous week. These declining trends for the Region's third wave are encouraging, and largely driven by continued declines in South Africa. Nonetheless, several countries continued to report increasing trends in cases (> 30%) this week while mortality continued to increase, albeit at a lower proportion (>10%) in five countries. The highest numbers of new cases were reported from South Africa (56 823 new cases; 95.8 new cases per 100 000 population; a 26% decrease), Ethiopia (8391 new cases; 7.3 new cases per 100 000; a 17% decrease), and Botswana (5524 new cases; 234.9 new cases per 100 000; a 25% decrease).

The highest numbers of new deaths were reported from South Africa (1700 new deaths; 2.9 new deaths per 100 000 population; a 23% decrease), Algeria (194 new deaths; <1 new death per 100 000; similar to the previous week), and Nigeria (127 new deaths; <1 new death per 100 000; a 26% increase).

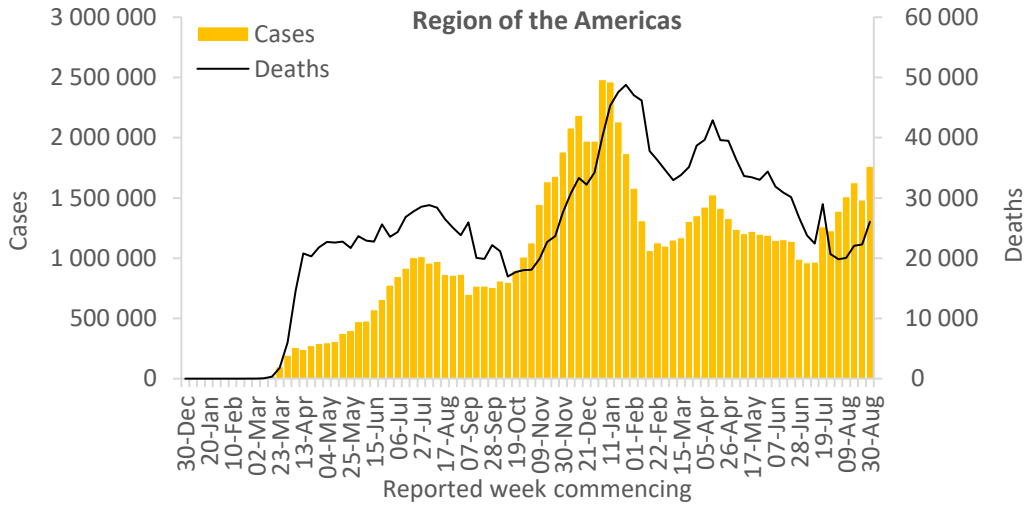


Updates from the African Region

Region of the Americas

The Region of the Americas reported marked increases in the number of cases and deaths in the past week. With over 1.7 million new cases and over 26 000 new deaths, increases of 19% and 17%, respectively. These are the largest regional proportionate increases in cases at the regional level as compared to the previous week. The highest numbers of new cases were reported from the United States of America (1 297 399 new cases; 392.0 new cases per 100 000; a 38% increase), Brazil (152 154 new cases; 71.6 new cases per 100 000; a 13% decrease), and Mexico (93 977 new cases; 72.9 new cases per 100 000; an 18% decrease).

The highest numbers of new deaths were reported from the United States of America (11 946 new deaths; 3.6 new deaths per 100 000; a 63% increase), Mexico (5071 new deaths; 3.9 new deaths per 100 000; similar to the previous week), and Brazil (4344 new deaths; 2.0 new deaths per 100 000; a 10% decrease).

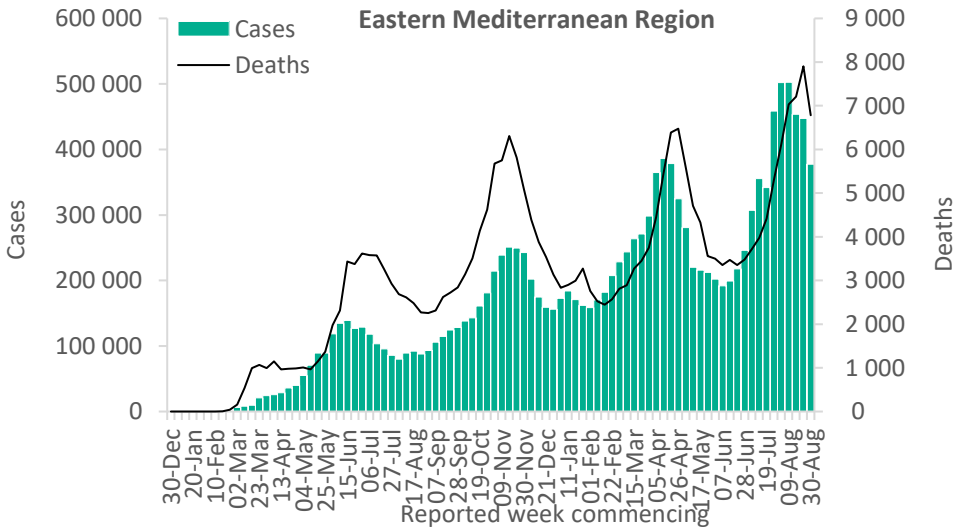


Updates from the Region of the Americas

Eastern Mediterranean Region

The Eastern Mediterranean Region reported over 377 000 new cases and over 6700 new deaths, decreases of 16% and 14%, respectively, as compared to the previous week. The downward trend in the number of new cases reflects the decrease in case incidence from the top three countries reporting the highest numbers in the Region; the Islamic Republic of Iran (208 089 new cases; 247.7 new cases per 100 000; an 18% decrease), Iraq (44 043 new cases; 109.5 new cases per 100 000; a 10% decrease), and Morocco (31 510 new cases; 85.4 new cases per 100 000; a 27% decrease). These three countries accounted for over 75% of all new cases in the Eastern Mediterranean. However, six of 22 countries in the Region, including Djibouti, Egypt, occupied Palestinian territory, Oman, Syrian Arab Republic and Yemen reported increases in case incidence.

The highest numbers of new deaths were reported from the Islamic Republic of Iran (4163 new deaths; 5.0 new deaths per 100 000; an 8% decrease), Morocco (632 new deaths; 1.7 new deaths per 100 000; an 8% decrease), and Pakistan (579 new deaths; 0.3 new deaths per 100 000; a 16% decrease).

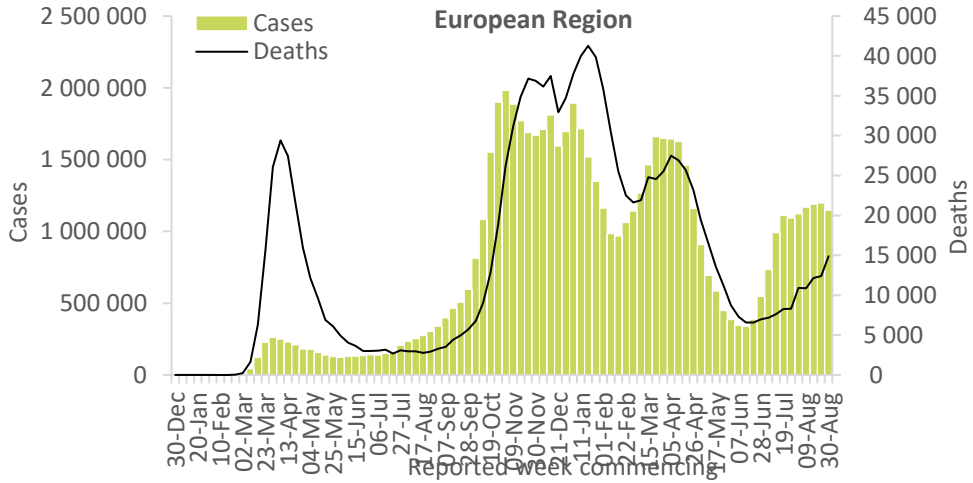


Updates from the Eastern Mediterranean Region

European Region

While the European Region reported a number of new cases similar to that of the past week, with over 1.1 million new cases, the number of deaths increased by 20% with over 14 000 new deaths as compared to the previous week. Almost half (29/61) of the countries reported an increase in death incidence compared to last week. However, in a few countries in the Region where relatively high vaccination coverage and high case incidence were reported, death incidence was relatively low compared to that of countries with low vaccination coverage. The highest numbers of new cases were reported from the United Kingdom (243 125 new cases; 358.1 new cases per 100 000; similar to the previous week), Turkey (149 114 new cases; 176.8 new cases per 100 000; a 13% increase), and the Russian Federation (129 772 new cases; 88.9 new cases per 100 000; similar to the previous week).

The highest numbers of new deaths were reported from the Russian Federation (5563 new deaths; 3.8 new deaths per 100 000; similar to the previous week), Turkey (1879 new deaths; 2.2 new deaths per 100 000; a 15% increase), and Kazakhstan (1768 new deaths; 9.4 new deaths per 100 00).

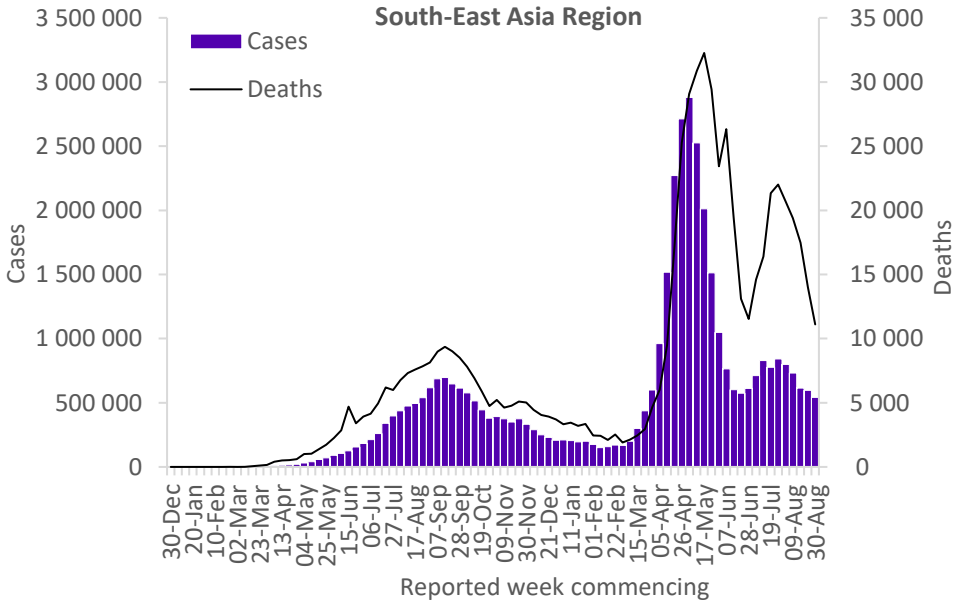


Updates from the European Region

South-East Asia Region

The South-East Asia Region reported over 543 000 new cases and over 11 000 new deaths, decreases of 9% and 21%, respectively, as compared to the previous week. Despite the overall regional decline in case incidence, India, Myanmar and the Maldives reported increases in the number of cases of 8%, 24% and 43%, respectively, as compared to the previous week. The highest numbers of new cases were reported from India (293 643 new cases; 21.3 new cases per 100 000; an 8% increase), Thailand (106 443 new cases; 152.5 new cases per 100 000; a 15% decrease), and Indonesia (55 189 new cases; 20.2 new cases per 100 000; a 42% decrease).

All countries except for Sri Lanka and Timor-Leste reported decreases in weekly mortality by more than 5%. The highest numbers of new deaths were reported from Indonesia (3938 new deaths; 1.4 new deaths per 100 000; a 29% decrease), India (2703 new deaths; <1 new deaths per 100 000; a 22% decrease), and Thailand (1712 new deaths; 2.5 new deaths per 100 000; a 6% decrease).

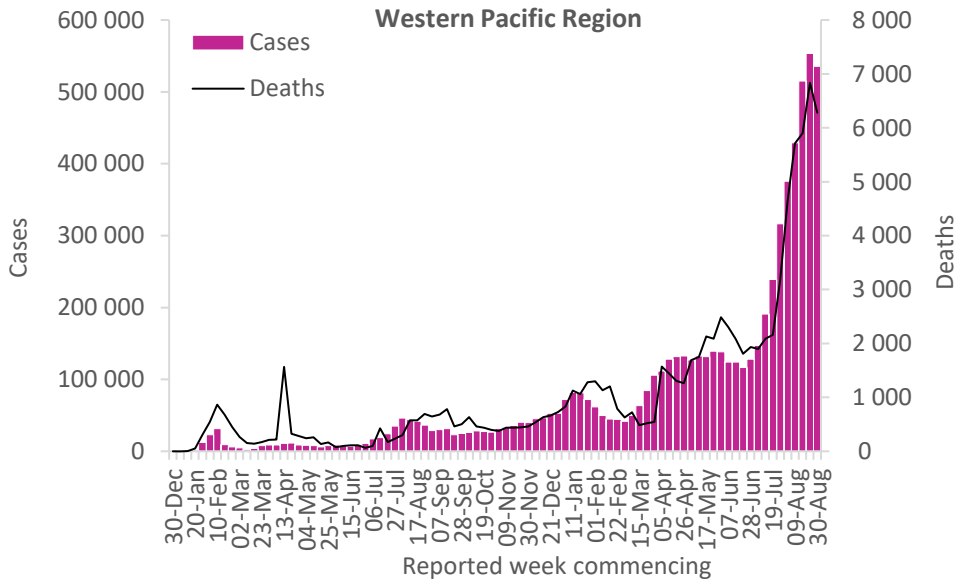


Updates from the South-East Asia Region

Western Pacific Region

The Western Pacific Region reported over 531 000 new cases, a similar number as the previous week, and over 6200 new deaths, an 8% decrease compared to the previous week. Although the absolute numbers of cases and deaths remain very high, this is the first week in over two months in which declining trends in the number of deaths were reported. The highest numbers of new cases were reported from Malaysia (138 929 new cases; 429.2 new cases per 100 000; an 8% decrease), the Philippines (125 470 new cases; 114.5 new cases per 100 000; a 12% increase), and Japan (122 628 new cases; 97.0 new cases per 100 000; a 22% decrease).

The highest numbers of new deaths were reported from Viet Nam (2388 new deaths; 2.5 new deaths per 100 000; a 17% decrease), Malaysia (2081 new deaths; 6.4 new deaths per 100 000; a 12% increase), and the Philippines (1054 new deaths; 1.0 new deaths per 100 000; a 25% decrease).



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 6 September, highlights of country-level actions and WHO support to countries include:

- Shipment of medical supplies to Viet Nam
- Engagement of the African Regional Monitoring of Vaccine Effectiveness (AFRO-MoVE) in 17 countries
- Scale-up capacity for real-time PCR testing for SARS-CoV-2 and biosafety in Montenegro at the subnational level
- Risk Communications and Community Engagement support hotline in Thailand
- Civil Society engagement in North-West Syria
- Updates on WHO's Early AI-Powered Social Listening Tool (EARS) to support country infodemic management
- Inauguration of the WHO Hub for Pandemic and Epidemic Intelligence in Berlin
- 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 7 September 2021**

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecified B.1.617
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	●	●	●	●	-

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecified B.1.617
France	●	●	●	●	-
French Guiana	●	●	●	●	-
French Polynesia	●	●	●	●	-
Gabon	●	●	-	-	-
Gambia	●	-	-	●	-
Georgia	●	○	-	●	-
Germany	●	●	●	●	-
Ghana	●	●	-	●	-
Gibraltar	●	-	-	○	-
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	-	●	-	●	-
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)	○	-	-	●	-
Norway	●	●	●	●	-
Occupied Palestinian Territory	●	●	-	●	-
Oman	●	●	-	●	-
Pakistan	●	●	●	●	-
Panama	●	●	●	●	●
Papua New Guinea	-	-	-	●	-
Paraguay	●	-	●	●	-
Peru	●	-	●	●	-
Philippines	●	●	●	●	-
Poland	●	○	●	●	-
Portugal	●	●	●	●	-
Puerto Rico	●	●	●	●	-
Qatar	●	●	-	●	-
Republic of Korea	●	●	●	●	-

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecified B.1.617
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	●	●	●	●	-
Somalia	●	●	-	-	-
South Africa	●	●	○	●	-
South Sudan	●	●	-	●	-
Spain	●	●	●	●	-
Sri Lanka	●	●	-	●	-
Sudan	●	●	●	-	-
Suriname	●	●	●	●	-
Sweden	●	●	●	●	-
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	-	●	-	-	-
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*

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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COVID-19 Weekly Epidemiological Update

Edition 57, published 14 September 2021

In this edition:

- Global overview
- Special focus: Update on SARS-CoV-2 Variants of Interest and Variants of Concern
- Special focus: COVID-19 in children and adolescents
- WHO regional overviews
- Summary of the Weekly Operational Update

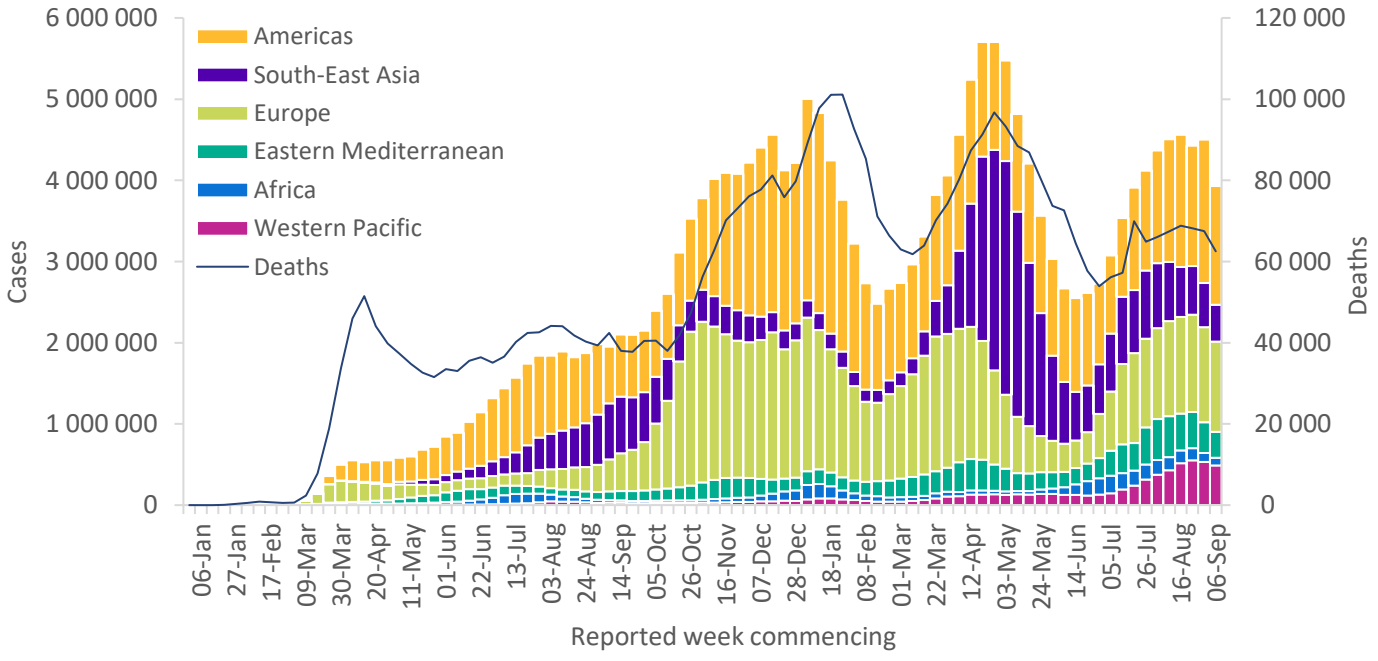
Global overview

Data as of 12 September 2021

With nearly 4 million new cases reported globally in the past week (6-12 September), this represents the first substantial decline in weekly cases in more than two months (Figure 1). All regions reported declines in new cases as compared to the previous week.

The number of deaths reported globally in the past week also decreased as compared to previous week, with just over 62 000 new deaths. The African Region reported an increase in the number of weekly deaths (7%), while the South-East Asia Region reported the largest decrease (20%). The American and Eastern Mediterranean Regions reported slightly smaller decreases, 9% and 6% respectively, while the numbers of deaths reported in the European and the Western Pacific Regions were similar to last week. The cumulative number of cases reported globally is now over 224 million and the cumulative number of deaths is just over 4.6 million.

Figure 1. COVID-19 cases reported weekly by WHO Region, and global deaths, as of 12 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 of deaths remain the same as in the previous week: the Region of the Americas (143 new cases per 100 000 population; 2.3 deaths per 100 000 population) and European Region (119.4 new cases per 100 000 population; 1.5 deaths per 100 000 population).

The highest numbers of new cases were reported from the United States of America (1 034 836 new cases; 20% decrease), the United Kingdom (256 051 new cases; 5% increase), India (248 248 new cases; 15% decrease), the Islamic Republic of Iran (172 030 new cases; 17% decrease), and Turkey (158 236 new cases; 6% increase).

Globally, cases of the Alpha variant have been reported in 193 countries, territories or areas (hereafter countries; no new country added since last week), 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. For the Delta variant, since it was first reported in October 2020, it has been reported in 180 (six new countries since last week) countries across all six WHO regions as of 14 September.

Table 1. Newly reported and cumulative COVID-19 cases and deaths, by WHO Region, as of 12 September 2021**

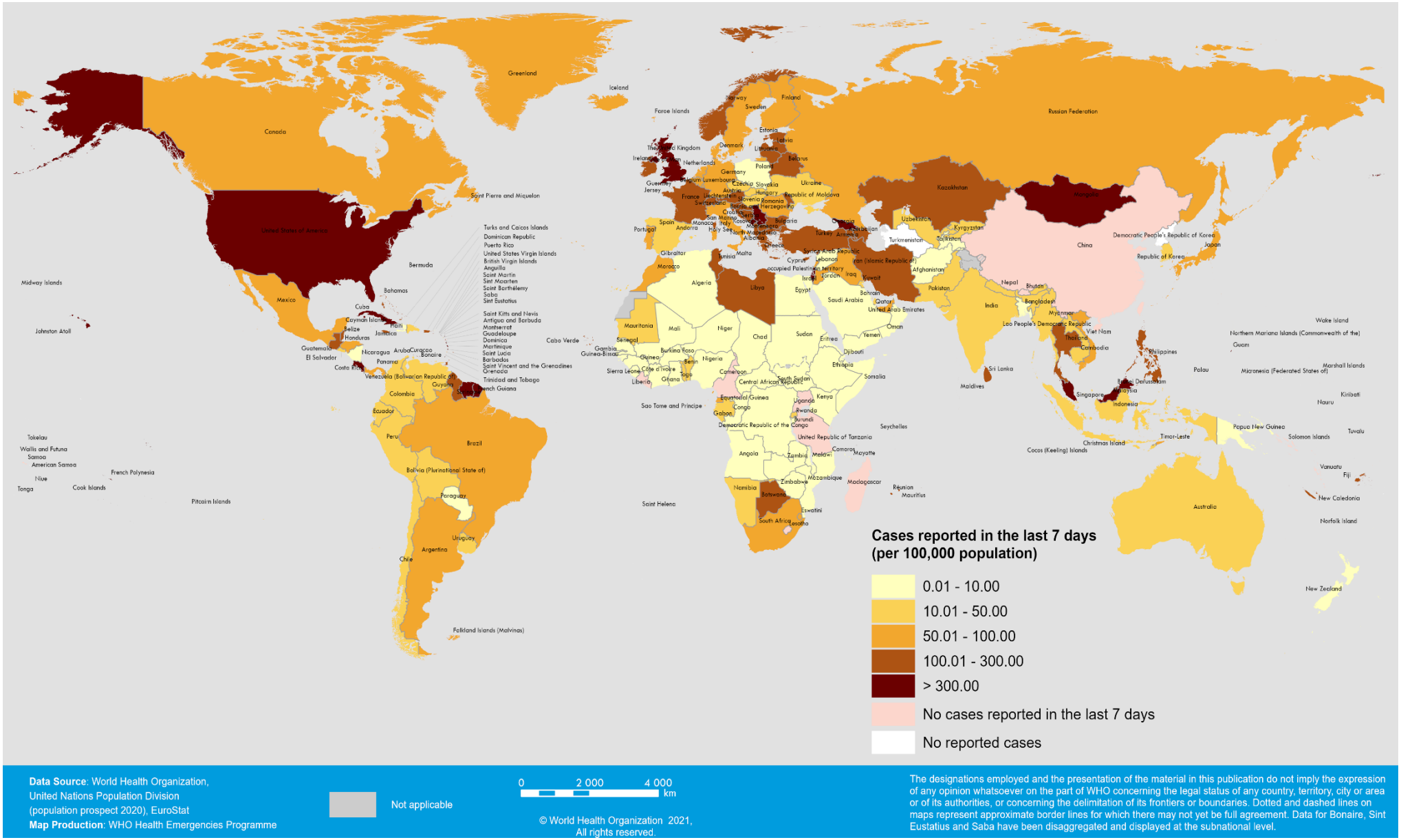
WHO Region	New cases in last 7 days (%)	Change in new cases in last 7 days *	Cumulative cases (%)	New deaths in last 7 days (%)	Change in new deaths in last 7 days *	Cumulative deaths (%)
Americas	1 462 450 (37%)	-17%	86 462 003 (39%)	23 689 (38%)	-9%	2 144 336 (46%)
Europe	1 113 722 (28%)	-5%	67 170 804 (30%)	14 117 (23%)	-2%	1 296 421 (28%)
South-East Asia	453 539 (12%)	-16%	42 115 869 (19%)	8 938 (14%)	-20%	661 928 (14%)
Eastern Mediterranean	319 572 (8%)	-15%	15 199 196 (7%)	6 358 (10%)	-6%	277 637 (6%)
Western Pacific	487 586 (12%)	-8%	7 418 755 (3%)	6 410 (10%)	2%	100 860 (2%)
Africa	94 352 (2%)	-15%	5 813 020 (3%)	3 034 (5%)	7%	140 010 (3%)
Global	**3 931 221 (100%)**	**-13%**	**224 180 411 (100%)**	**62 546 (100%)**	**-7%**	**4 621 205 (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:

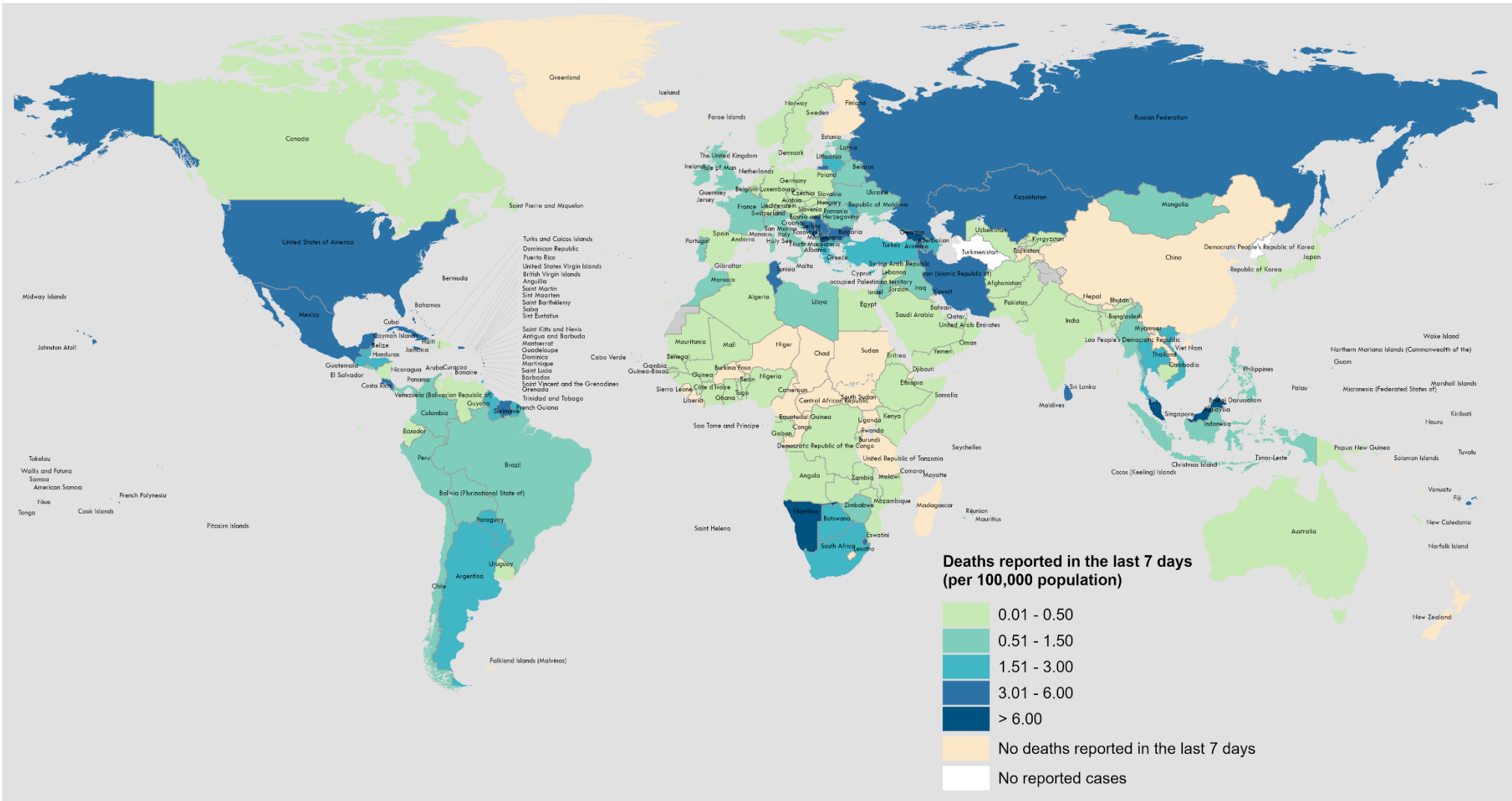
- WHO COVID-19 Dashboard
- WHO COVID-19 Weekly Operational Update and previous editions of the Weekly Epidemiological Update

Figure 2. COVID-19 cases per 100 000 population reported by countries, territories and areas, 6 – 12 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, 6 -12 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.

As variants evolve, WHO will continue to update lists of global VOIs and VOCs to support setting priorities for surveillance and research, and ultimately guide response strategies (for more information, please see the 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 impacts of these variants.

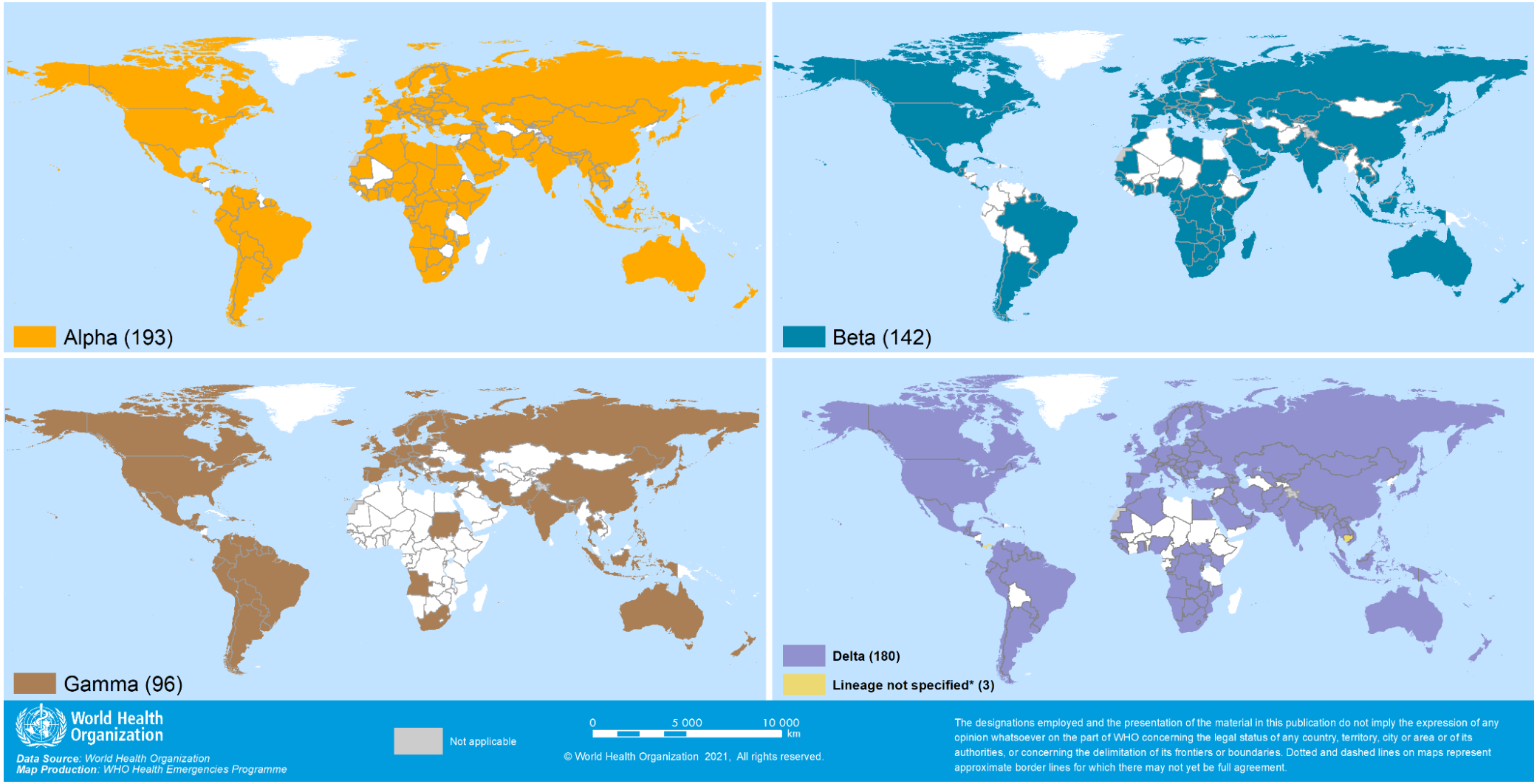
As surveillance activities to detect SARS-CoV-2 variants are strengthened at national and subnational levels, including through the expansion of genomic sequencing capacities, the number of countries, territories or areas (hereafter countries) reporting VOCs continues to increase (Figure 4, Annex 1).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

As countries gradually resume non-essential international travel, the introduction of risk mitigation measures aiming to reduce travel-associated exportation, importation and onward transmission of SARS-CoV-2 should be based on thorough risk assessments conducted systematically and routinely.

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 14 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*

Special Focus: COVID-19 in children and adolescents

SARS-CoV-2 infections among children and adolescents typically cause less severe illness and fewer deaths as compared to adults. While a less severe course of disease is a positive outcome, there are concerns that mild symptoms may have led to less testing, resulting in fewer identified cases of SARS-CoV-2 infection in children and adolescents. If children and adolescents with mild or no symptoms also transmit the disease, they may also contribute to transmission in the community. Consequently, understanding symptoms, infectivity and patterns of SARS-CoV-2 transmission in children and adolescents is essential for developing, adapting and improving control measures for COVID-19 across all ages, especially since vaccination is not currently available or authorized for those under the age of 12 years in most contexts.

This report summarizes the current knowledge around SARS-CoV-2 infection acquisition and transmission and COVID-19 disease in children under the age of five years, older children (5 to 9 years old), younger adolescents (10 to 14 years old) and older adolescents (15 to 19 years old). Some information on incidence and mortality is also provided for young adults (20 to 24 years old). It aims to inform decisions, based on local contexts, on how best to keep schools, kindergarten and day-care facilities open and what advice to apply to intergenerational mixing.

Incidence and mortality in children, adolescents and young adults

Overall, there are proportionally fewer cases and deaths from COVID-19 among children, adolescents and young adults as compared to adults (Table 1). Based on age-disaggregated case data reported to WHO from 30 December 2019 to 6 September 2021[1], the proportion of global cases increased with age category: children under the age of five represented the smallest proportion of cases among individuals up to 24 years old, while older adolescents (15 to 19 years old) and young adults (20 to 24 years old) grouped together had the highest proportion of the global cases. Deaths for all age groups represented less than 0.5% of the proportion of global deaths.

Table 1. Global epidemiological overview on children and adolescents (information from 30 December 2019 to 06 September 2021; Data cleaning is continuous, please interpret with caution).

Age group	Number of cases	Proportion (%) to global cases*	Number of deaths	Proportion (%) to global deaths**
<5 years	1 599 073	1.8	1704	0.1
5 to 14 years	5 622 295	6.2	1218	0.1
15 to 24 years	13 071 320	14.3	6327	0.4

*Total global cases reported to WHO through case-based reporting, all ages: 90 011 040
**Total global deaths reported to WHO through case-based reporting, all ages: 1 752 008

What are the symptoms of COVID-19 in children and adolescents?

Younger children (under five years old), older children and adolescents (10 to 19 years old) usually have fewer and milder symptoms of SARS-CoV-2 infection than adults >25 years old and are less likely than adults to experience severe COVID-19 [1-9]. Milder symptoms and asymptomatic presentation often mean less frequent care-seeking for these groups; thus, children and adolescents tend to be tested less frequently and cases may go unreported. Early reports suggested an age-dependent risk of severe disease with those under one year experiencing more severe disease[6, 10], although several reviews show that neonates (first 28 days of life) have mild disease as compared to other paediatric patients[11-14]. However, it is important to note that children under the age of one year and within the neonatal period (first 28 days after birth) have a higher risk

[1]WHO Coronavirus (COVID-19) Dashboard | WHO Coronavirus (COVID-19) Dashboard with Vaccination Data; last accessed 06 September 2021.

of diseases which have overlapping presentation with COVID-19, such as pneumonia and malaria. Additionally, age disaggregation has not been systematically provided in the current literature and the results of these studies are context-specific such as timing within the pandemic and an emphasis on hospitalized patients.

Children and adolescents can experience prolonged clinical symptoms (known as post COVID-19 condition, or post-acute sequelae of SARS-CoV-2 infection), however, the frequency and characteristics of these are still under investigation[15].

Additionally, a hyperinflammatory syndrome, referred to as paediatric inflammatory multisystem syndrome, temporally associated with SARS-CoV-2 (PIMS-TS) in Europe and multisystem inflammatory syndrome in children (MIS-C) in the United States of America, although rare, can occur, and complicates recovery from COVID-19[16-19]. The severity of disease in children and adolescents caused by SARS-CoV-2 variants of concern (VOC), in comparison with non-VOC lineages, remains under investigation.

Are children and adolescents less susceptible to SARS-CoV-2 infection than adults?

The risk of becoming infected with SARS-CoV-2 depends on a combination of susceptibility (host biological factors), biological properties of the virus, environmental factors associated with exposure type (going to work, or school etc.) and exposure intensity (level of community transmission and adherence to public health and social measures (PHSM)).

Multiple population-based SARS-CoV-2 seroprevalence and viral shedding studies have investigated whether children and adolescents are infected at the same rate as adults, but the results have been mixed, possibly because of the studies being conducted at different time points in the pandemic when populations were subjected to different levels of PHSM[20]. Even so, we do know that children of all ages can become infected and can spread the virus to others.

Data on the global incidence of COVID-19 in adolescents suggests they test positive for SARS-CoV-2 at a higher proportion than children, however, seroprevalence surveys are needed to provide more information. Additionally, more detailed epidemiological information about the factors influencing susceptibility of children and adolescents to the new SARS-CoV-2 variants is urgently needed.

What about transmission of infection? Is there a difference between young children, older children and adolescents in transmitting SARS-CoV-2?

Outbreaks of COVID-19 have been identified in secondary schools, summer camps and day care centres, particularly when neither physical distancing nor masks were used to reduce risk [21-24]. There is some preliminary evidence that children may be less infectious, than adolescents and adults, as measured by secondary attack rates [25].

Children and adolescents who become infected with SARS-CoV-2 shed the virus in their respiratory tract and may also shed virus in their faeces [26-29]. Among individuals who were positive for SARS-CoV-2 who were tested at the same time point after symptom onset, SARS-CoV-2 viral RNA shedding in the respiratory track appeared similar in children, adolescents and adults [30].

The relationship between age, viral load and transmission across the full symptom spectrum of SARS-CoV-2 infection has not been comprehensively investigated because people with no, or mild, symptoms are seldom tested systematically.

Thus, the relative transmissibility of SARS-CoV-2 at different ages remains uncertain, largely due to the challenges involved in disentangling the influences of biological, host, virus and environmental factors [31-35].

Conclusions

Children and adolescents infected with SARS-CoV-2 generally present with milder symptoms of COVID-19 disease; although infection with the variants of SARS CoV-2, including the Delta variant, require more investigation to determine if this will remain the case. The risk of transmission to and from children and adolescents depends on contextual factors such as the level of community transmission and the measures implemented to control the virus, host factors in the child, as well as biological factors related to the virus itself. However, children and adolescents of all ages become infected and also transmit SARS-CoV-2 to others. Younger children may be less susceptible than older children and adolescents, but the precise role of children and adolescents in the overall transmission of SARS-CoV-2 still requires further investigation.

The use of public health and social measures (PHSM), including physical distancing, cleaning hands, coughing into a bent elbow or a tissue, adequate ventilation in indoor settings, and masks (for older children - see guidance below), should be consistently and appropriately implemented for all ages in schools, especially since children under the age of 12 years are generally not yet eligible for vaccination.

Resources: WHO guidance and reports on COVID-19 and children and adolescents

- Advice on the use of masks for children in the community in the context of COVID-19 - Guidance document (21 August 2020)
- Breastfeeding and COVID-19 – Scientific brief (23 June 2020), IRIS Link
- Estimating mortality from COVID-19 disease- Scientific brief
- Severe disease and Multi-symptom COVID-19 Syndrome

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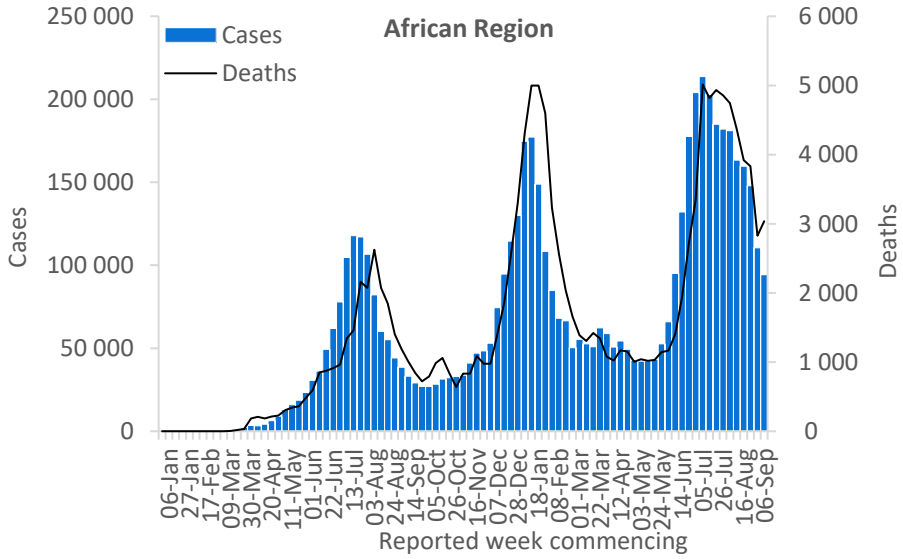
WHO regional overviews – Epidemiological week 6 – 12 September 2021

African Region

The African Region reported over 94 000 new cases and over 3000 new deaths, a 15% decrease and a 7% increase respectively as compared to the previous week. Although the regional case incidence has continued to decline for over two months, weekly incidence increased in 18 of 49 (37%) countries in the past week, including in Ethiopia and Nigeria. The highest numbers of new cases were reported from South Africa (40 220 new cases; 67.8 new cases per 100 000 population; a 29% decrease), Ethiopia (9269 new cases; 8.1 new cases per 100 000; a 10% increase), and Nigeria (5061 new cases; 2.5 new cases per 100 000; a 90% increase).

The highest numbers of new deaths were reported from South Africa (1590 new deaths; 2.7 new deaths per 100 000 population; a 6% decrease), Namibia (187 new deaths; 7.4 new deaths per 100 000), and Algeria (185 new deaths; 0.4 new deaths per 100 000; a 5% decrease).

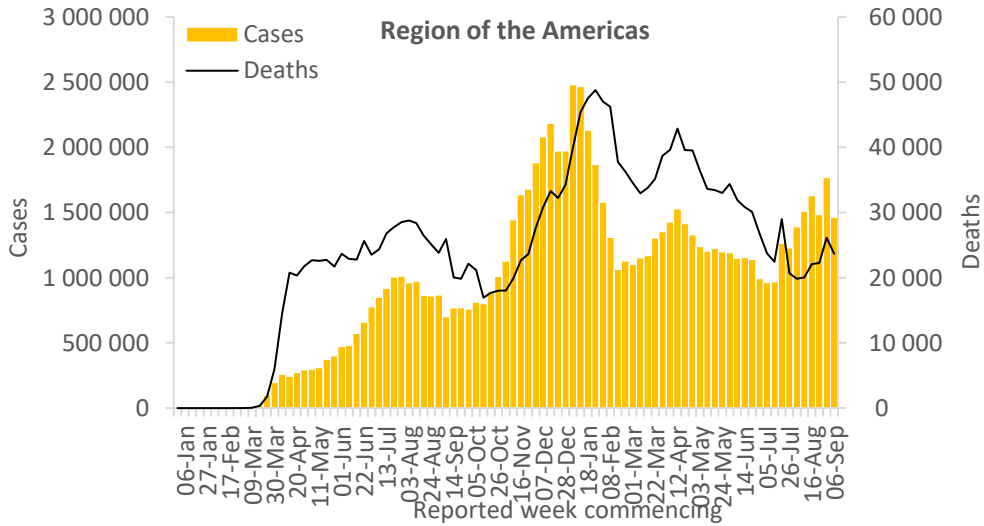


Updates from the African Region

Region of the Americas

The Region of the Americas reported the largest proportional decrease in cases and the second largest proportional decrease in deaths this week, decreases of 17% and 9%, respectively, as compared to the previous week. However, the Region also reported the highest number of weekly cases and deaths as compared to other Regions, with notable increases observed in Cuba (22% increase) and Ecuador (72% increase) for cases, and Honduras (55% increase) and Haiti (50% increase) for deaths. The highest numbers of new cases were reported from the United States of America (1 034 836 new cases; 312.6 new cases per 100 000; a 20% decrease), accounting for 70% of all new cases reported in the Region this week, Brazil (118 790 new cases; 55.9 new cases per 100 000; a 22% decrease), and Mexico (88 938 new cases; 69.0 new cases per 100 000; a 5% decrease).

Similarly, the highest numbers of new deaths were reported from the United States of America (11 371 new deaths; 3.4 new deaths per 100 000; a 5% decrease), Mexico (4628 new deaths; 3.6 new deaths per 100 000; a 9% decrease), and Brazil (3176 new deaths; 1.5 new deaths per 100 000; a 27% decrease).

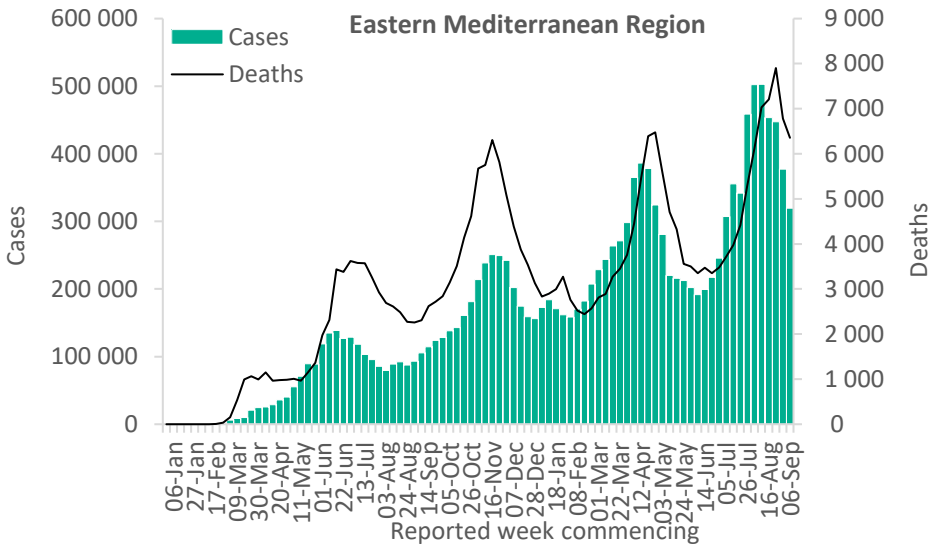


Updates from the Region of the Americas

Eastern Mediterranean Region

The Eastern Mediterranean Region reported a marked decrease (15%) in the number of new cases reported this week, with over 319 000 new cases. The Region reported a slight decrease (6%) in the number of new deaths reported, with over 6300 new deaths this week. These decreasing trends in cases and deaths reflect decreases in 13 of the 22 countries (59%) for cases and 15 out of 22 (68%) for deaths in the region this week. The highest numbers of new cases were reported from the Islamic Republic of Iran (172 030 new cases; 204.8 new cases per 100 000; a 17% decrease), Iraq (34 816 new cases; 86.6 new cases per 100 000; a 21% decrease), and Pakistan (25 819 new cases; 11.7 new cases per 100 000; a 4% decrease).

The highest numbers of new deaths were reported from the Islamic Republic of Iran (3760 new deaths; 4.5 new deaths per 100 000; a 10% decrease), Pakistan (548 new deaths; <1 new deaths per 100 000; a 5% decrease), and Tunisia (497 new deaths; 4.2 new deaths per 100 000; a 47% increase).

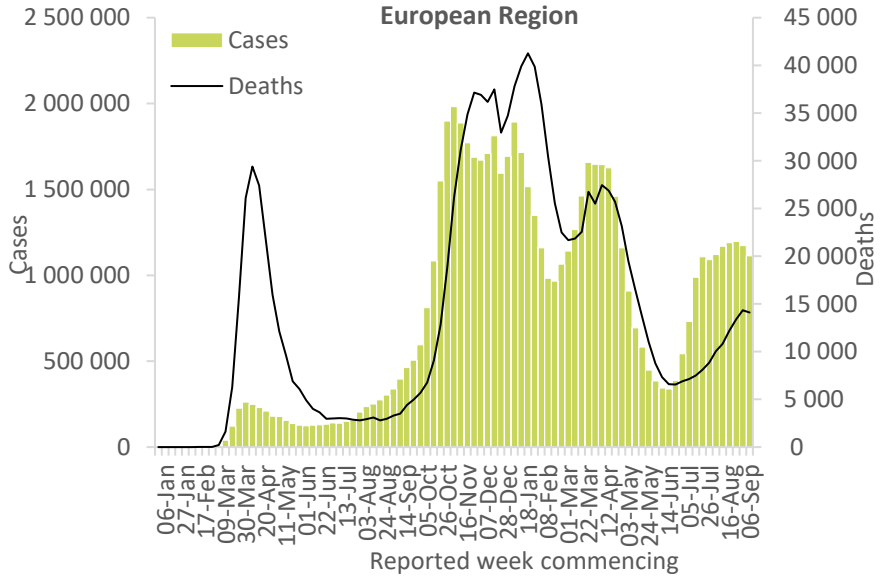


Updates from the Eastern Mediterranean Region

European Region

Case incidence in the European Region decreased by 5% with just over 1.1 million new cases, while death incidence remained similar to that of the previous week with over 14 000 deaths. The highest numbers of new cases were reported from the United Kingdom (256 051 new cases; 377.2 new cases per 100 000; a 5% increase), Turkey (158 236 new cases; 187.6 new cases per 100 000; a 6% increase), and the Russian Federation (127 471 new cases; 87.3 new cases per 100 000; similar to the previous week's figures).

Similarly, the highest numbers of new deaths were reported from the Russian Federation (5549 new deaths; 3.8 new deaths per 100 000; similar to the previous week's figures), Turkey (1806 new deaths; 2.1 new deaths per 100 000; similar to the previous week's figures), and the United Kingdom (983 new deaths; 1.4 new deaths per 100 000; a 25% increase). These three countries accounted for almost half (49%) of new weekly cases and 59% of new weekly deaths reported in the Region.

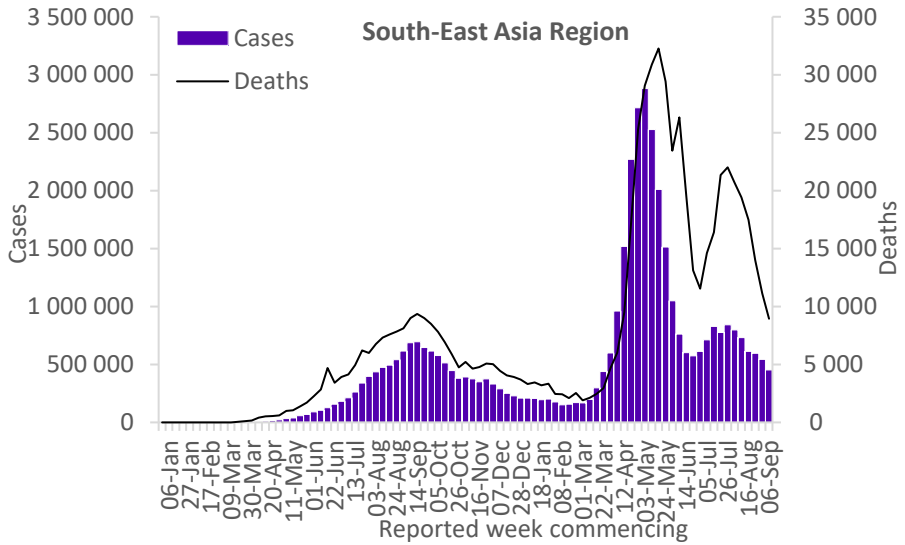


Updates from the European Region

South-East Asia Region

The South-East Asia Region reported substantial decreases in new cases and deaths with over 453 000 new cases and over 8900 new deaths, decreases of 16% and 20%, respectively as compared to the previous week. Overall, regional cases and deaths have declined consistently over the past month and a half. This week all countries in the Region reported a decrease in weekly cases and deaths as compared to last week, with a notable decrease reported in Indonesia (30% decrease) for cases and Bangladesh (33% decrease) for deaths. The highest numbers of new cases were reported from India (248 248 new cases; 18.0 new cases per 100 000; a 15% decrease), Thailand (101 639 new cases; 145.6 new cases per 100 000; a 5% decrease), and Indonesia (38 491 new cases; 14.1 new cases per 100 000; a 30% decrease).

Similarly, the highest numbers of new deaths were reported from Indonesia (3028 new deaths; 1.1 new deaths per 100 000; a 23% decrease), India (2122 new deaths; <1 new deaths per 100 000; a 21% decrease), and Thailand (1498 new deaths; 2.1 new deaths per 100 000; a 13% decrease).

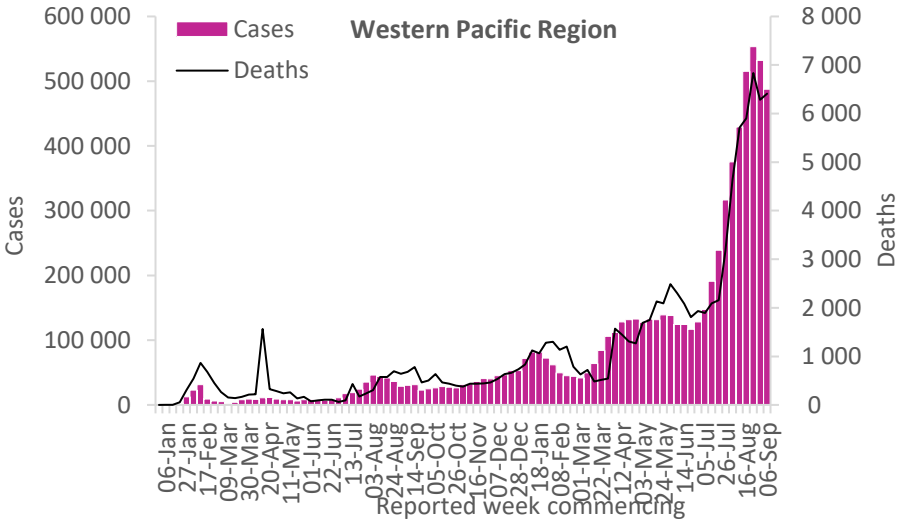


Updates from the South-East Asia Region

Western Pacific Region

Case incidence in the Western Pacific Region decreased by 8% with just over 487 000 new cases, while death incidence remained similar to that of the previous week with over 64 00 deaths. After reporting a continuous increase in cases since 21 June 2021, the Region has begun to show a declining trend in weekly cases over the past two weeks, mainly driven by declines in cases reported in Japan (46% decrease), Mongolia (46% decrease) and Fiji (45% decrease). However, the weekly deaths continue to show an increasing trend since 19 July 2021, with notable increases in weekly deaths reported for Guam (33% increase), and Malaysia (22% increase) this week.

The highest numbers of new cases were reported from the Philippines (144 991 new cases; 132.3 new cases per 100 000; a 16% increase), Malaysia (136 061 new cases; 420.4 new cases per 100 000; similar to the previous week's figures), and Viet Nam (90 179 new cases; 92.6 new cases per 100 000; similar to the previous week's figures). The highest numbers of new deaths were reported from Malaysia (2536 new deaths; 7.8 new deaths per 100 000; a 22% increase), Viet Nam (2225 new deaths; 2.3 new deaths per 100 000; a 7% decrease), and the Philippines (916 new deaths; <1 new deaths per 100 000; a 13% decrease).



Updates from the Western Pacific Region

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 14 September 2021

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecified B.1.617
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	●	-	●	●	-

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecified B.1.617
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	●	●	-	○	-

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecified B.1.617
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	●	○	-	●	-

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecified B.1.617
Germany	●	●	●	●	-
Ghana	●	●	-	●	-
Gibraltar	●	-	-	○	-
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	-	●	-	●	-
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)	○	-	-	●	-
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	-	-	-	●	-

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecified B.1.617
Saint Vincent and the Grenadines	-	-	●*	●	-
Sao Tome and Principe	○	-	-	-	-
Saudi Arabia	●	●	-	●	-
Senegal	●	●	-	●	-
Serbia	●	-	-	●	-
Seychelles	●	●	-	●	-
Sierra Leone	-	-	-	○	-
Singapore	●	●	●	●	-
Sint Maarten	●	●	●	●	-
Slovakia	●	●	-	●	-
Slovenia	●	●	●	●	-
Somalia	●	●	-	-	-
South Africa	●	●	○	●	-
South Sudan	●	●	-	●	-
Spain	●	●	●	●	-
Sri Lanka	●	●	-	●	-
Sudan	●	●	●	-	-
Suriname	●	●	●	●	-
Sweden	●	●	●	●	-
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	-	●	-	-	-
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

COVID-19 Weekly Epidemiological Update

Edition 58, published 21 September 2021

In this edition:

- Global overview
- Special focus: Update on SARS-CoV-2 Variants of Interest and Variants of Concern
- WHO regional overviews
- Summary of the Weekly Operational Update

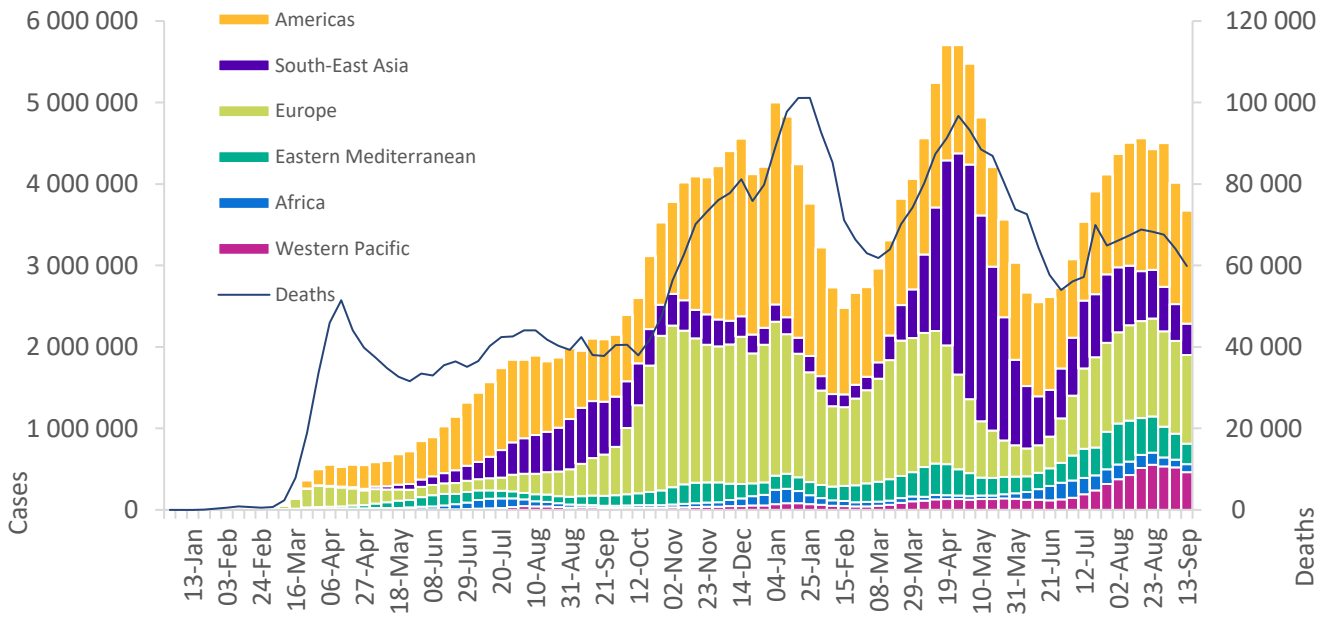
Global overview

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**

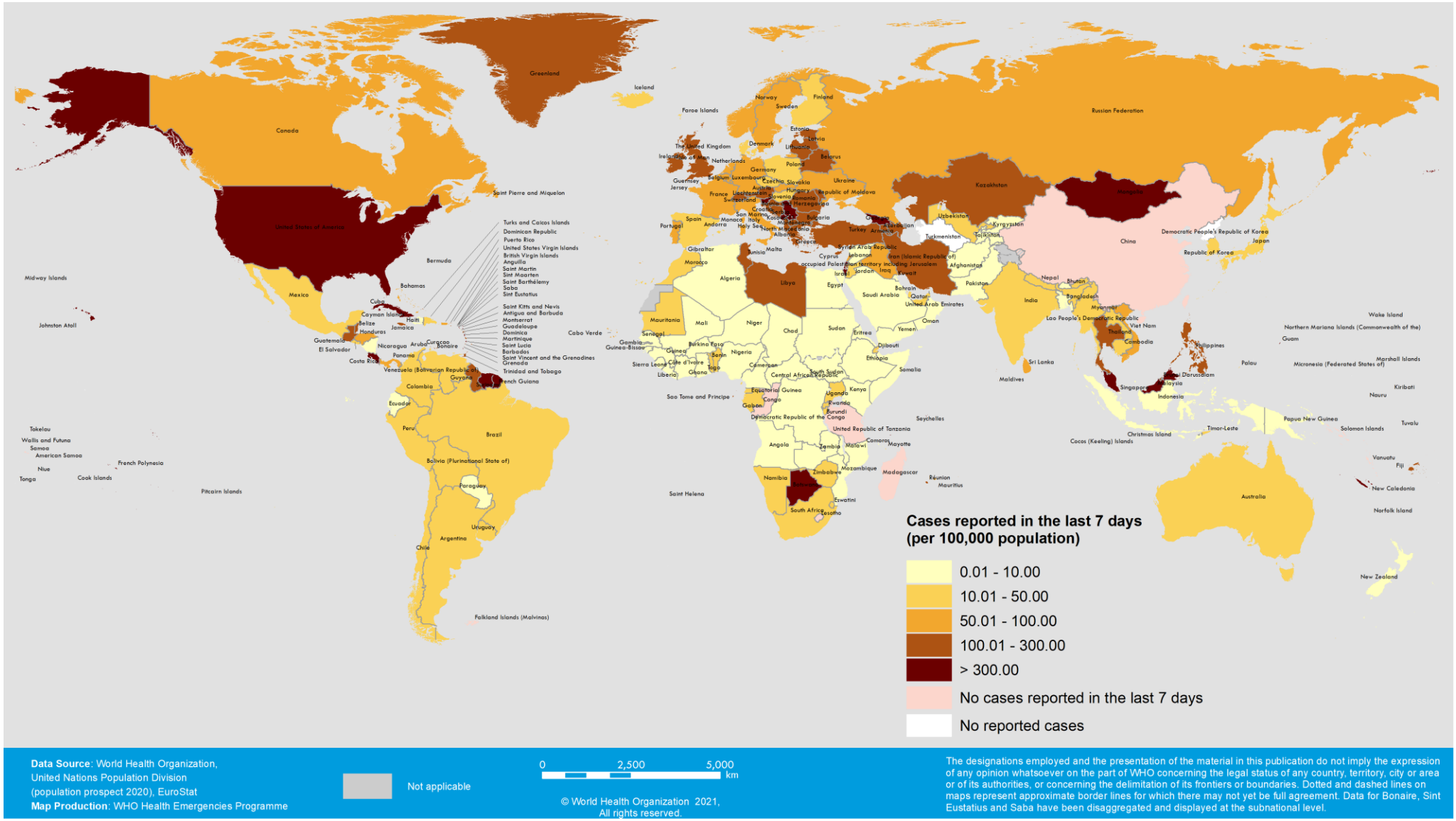
WHO Region	New cases in last 7 days (%)	Change in new cases in last 7 days *	Cumulative cases (%)	New deaths in last 7 days (%)	Change in new deaths in last 7 days *	Cumulative deaths (%)
Americas	1 386 267 (38%)	-7%	87 874 973 (39%)	24 489 (41%)	-2%	2 170 188 (46%)
Europe	1 090 667 (30%)	-4%	68 290 457 (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:

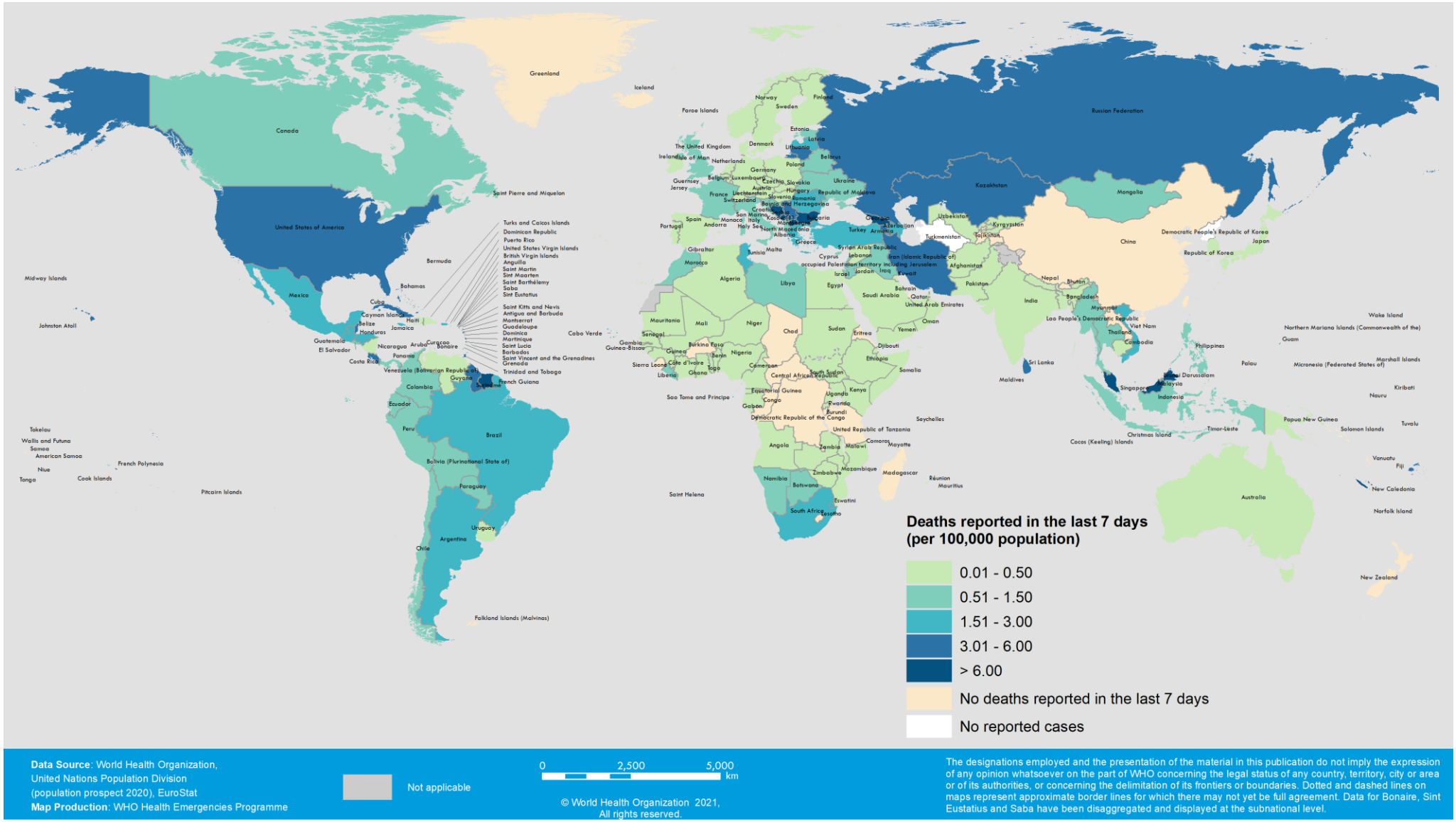
- WHO COVID-19 Dashboard
- WHO COVID-19 Weekly Operational Update and previous editions of the Weekly Epidemiological Update

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.

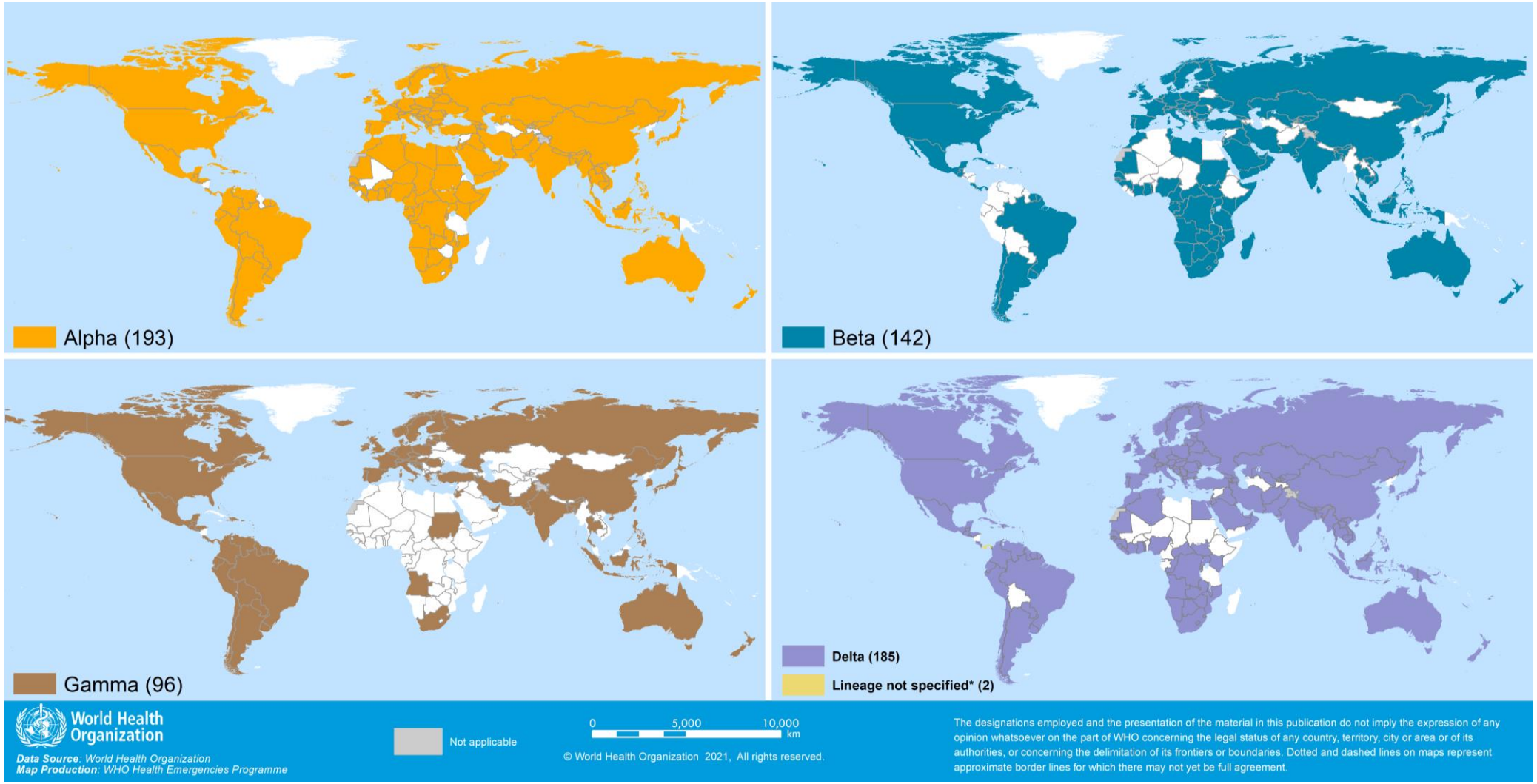
Five studies (including peer-reviewed journals and preprint) from the USA assessed VE of COVID-19 vaccines during periods of high Alpha and/or high Delta prevalence. A retrospective cohort study linking insurance claims data to health data sources assessed the effectiveness of Janssen-Ad26.COV2.S vaccine 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.*

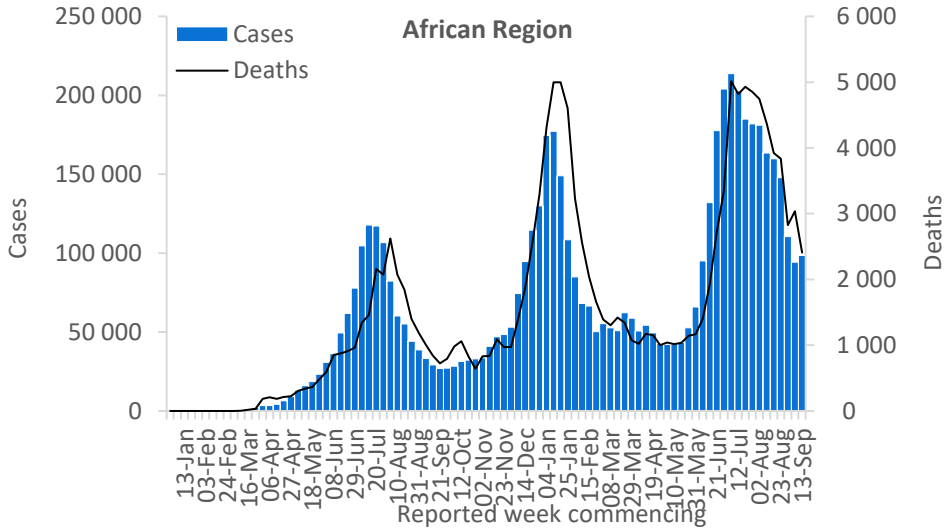
***Countries/territories/areas highlighted include both official and unofficial reports of VOC detections, and do not presently differentiate between detections among travellers (e.g., at Points of Entry) or local community cases. Please see Annex 2 for further details*

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).

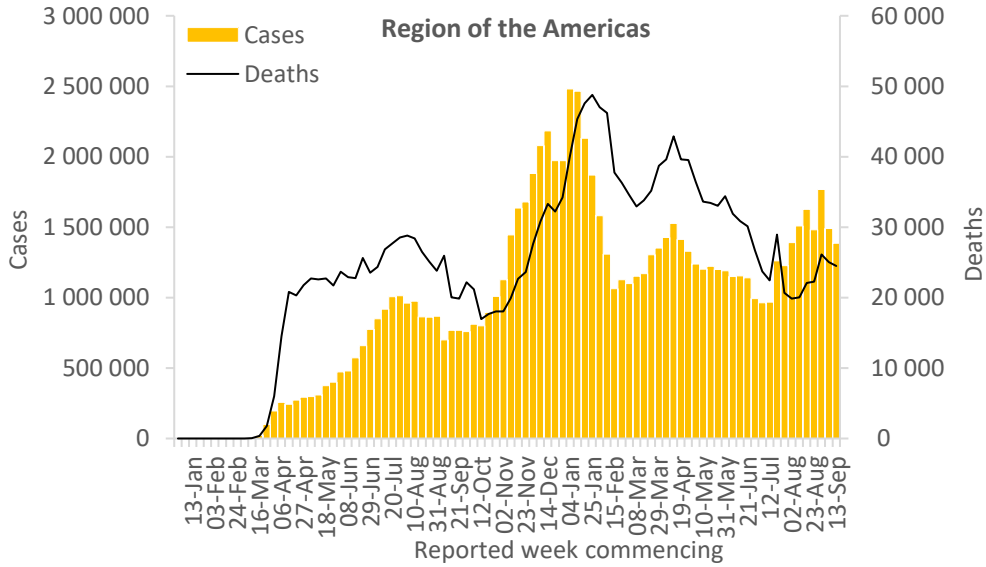


Updates from the African Region

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).

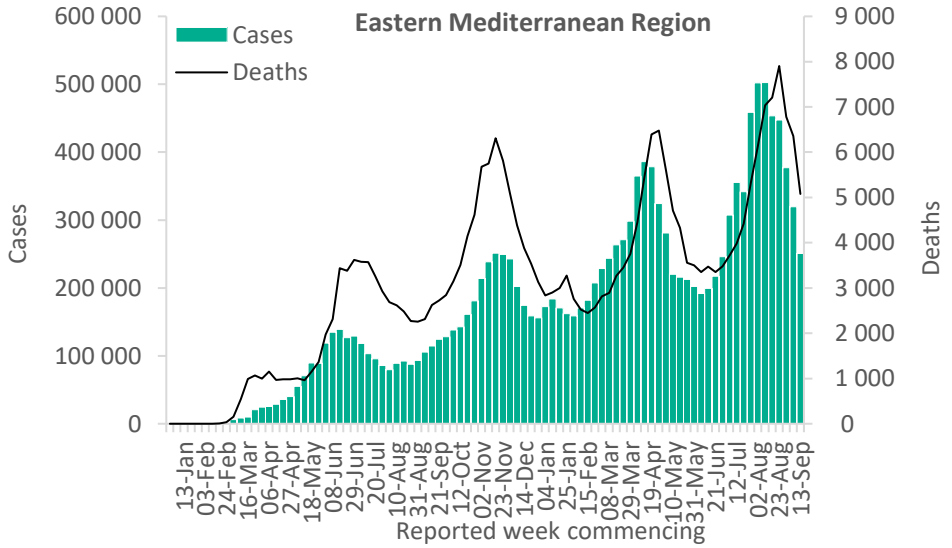


Updates from the Region of the Americas

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).

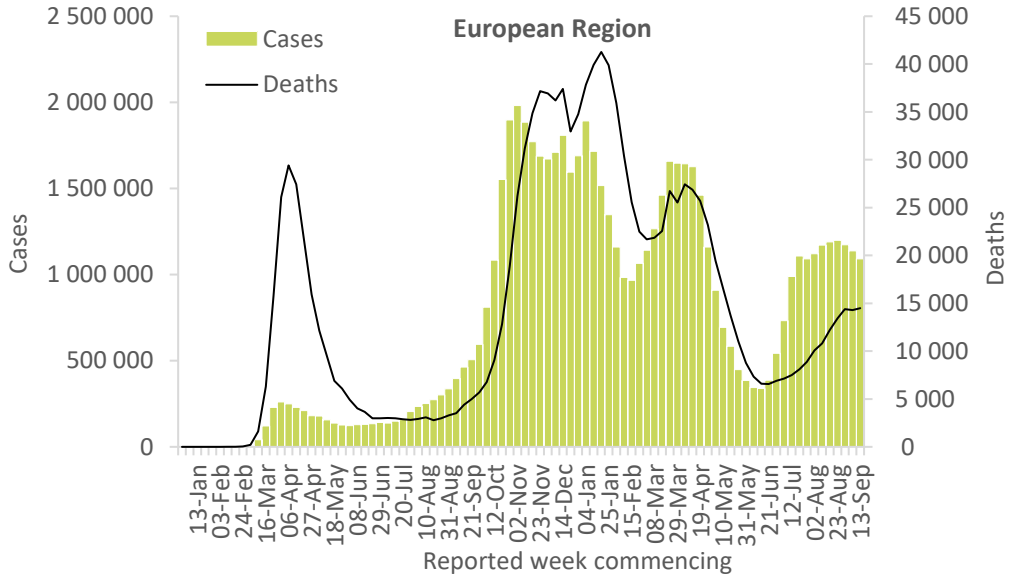


Updates from the Eastern Mediterranean Region

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).

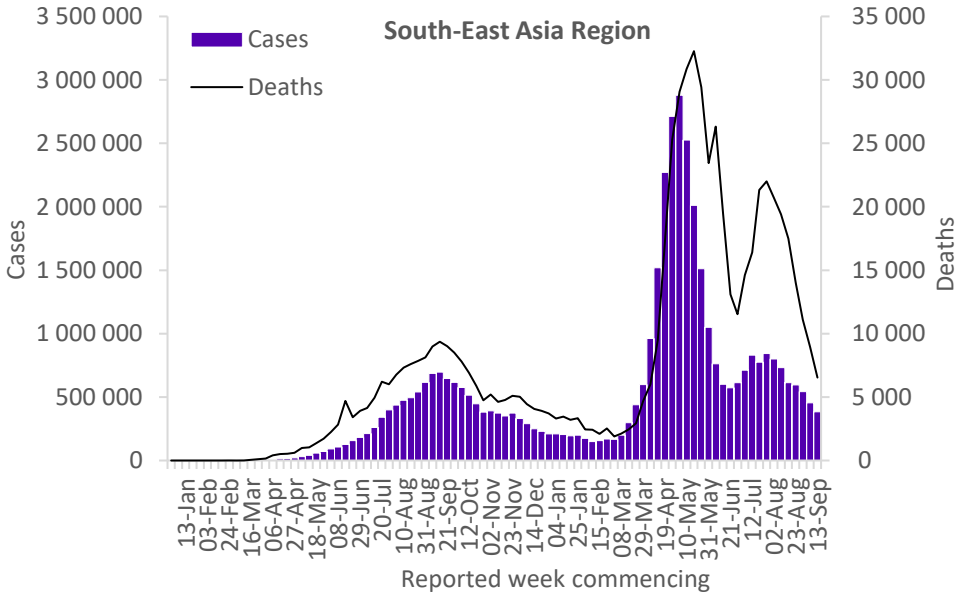


Updates from the European Region

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).

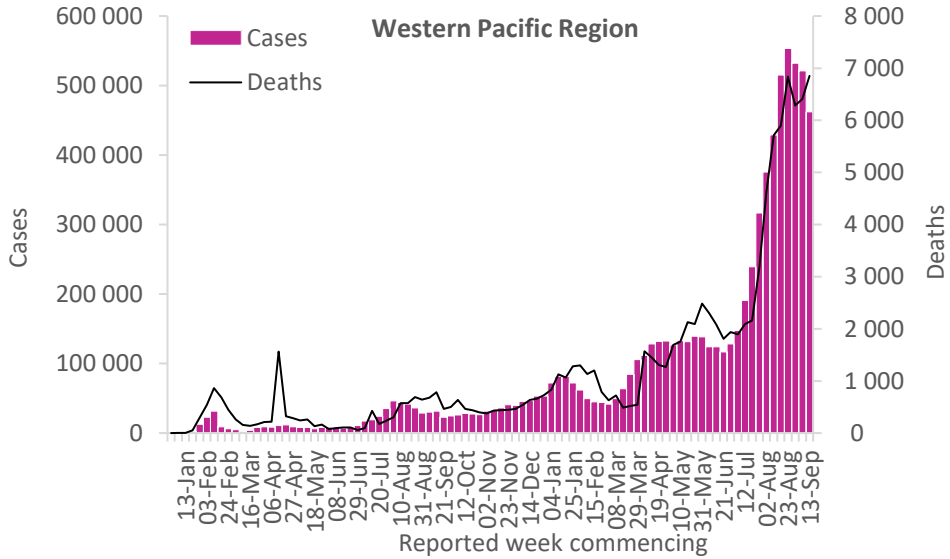


Updates from the South-East Asia Region

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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COVID-19 Weekly Epidemiological Update

Edition 59, published 28 September 2021

In this edition:

- Global overview
- Special focus: Approaches to determining waning COVID-19 vaccine effectiveness
- Special focus: Update on SARS-CoV-2 Variants of Interest and Variants of Concern
- WHO regional overviews
- Summary of the Weekly Operational Update

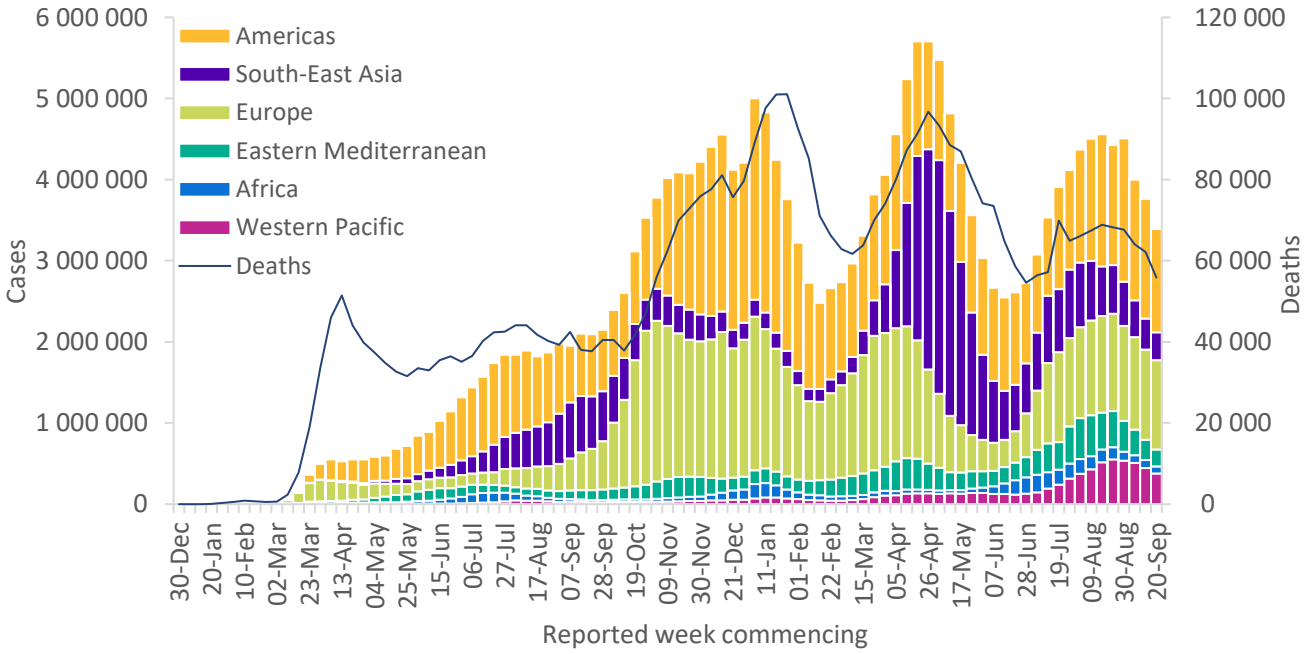
Global overview

Data as of 26 September 2021

Globally, the numbers of weekly COVID-19 cases and deaths continued to decline (Figure 1). Over 3.3 million new cases and over 55 000 new deaths were reported during the week of 20 – 26 September 2021, decreases of 10% as compared to the previous week for both cases and deaths (Table 1). The largest decrease in new weekly cases was reported from the Eastern Mediterranean Region (17%), followed by the Western Pacific Region (15%), the Region of the Americas (14%), the African Region (12%) and the South-East Asia Region (10%); while weekly cases in the European Region were similar to the previous week. The cumulative number of confirmed cases reported globally is now over 231 million and the cumulative number of deaths is more than 4.7 million.

The number of new weekly deaths reported showed a large (>15%) decline for all regions except for the European Region, which reported a similar number of weekly deaths compared to previous week, and the African Region which reported a slight increase (5%). The largest decline in weekly deaths was reported from the Western Pacific Region, with a 24% decline as compared to the previous week.

Figure 1. COVID-19 cases reported weekly by WHO Region, and global deaths, as of 26 September 2021**



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

The regions reporting the highest weekly case and death incidence rates per 100 000 population remain the same as in the previous weeks: the Region of the Americas (124.6 new cases per 100 000 population; 2.3 deaths per 100 000 population) and the European Region (117.6 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 (765 827 new cases; 31% decrease), Brazil (247 397 new cases; 135% increase due to changes in reporting), the United Kingdom (230 494 new cases; 14% increase), India (204 582 new cases; similar to previous week), and Turkey (192 778 new cases; similar to previous week), while the highest numbers of new deaths were from the United States of America (14 842 new deaths, a 17% decrease), the Russian Federation (5469 new deaths, similar to the previous week), Mexico (3689 new deaths, a 13% increase), Brazil (3727 new deaths, a 10% increase), and the Islamic Republic of Iran (2967 new deaths, a 23% decrease) respectively.

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 (no new country since last week) have reported cases of the Beta variant; and 96 countries (no new countries since last week) have reported cases of the Gamma variant. The Delta variant has been reported in 187 countries (two new countries since last week), across all six WHO regions as of 28 September.

Table 1. Newly reported and cumulative COVID-19 cases and deaths, by WHO Region, as of 26 September 2021**

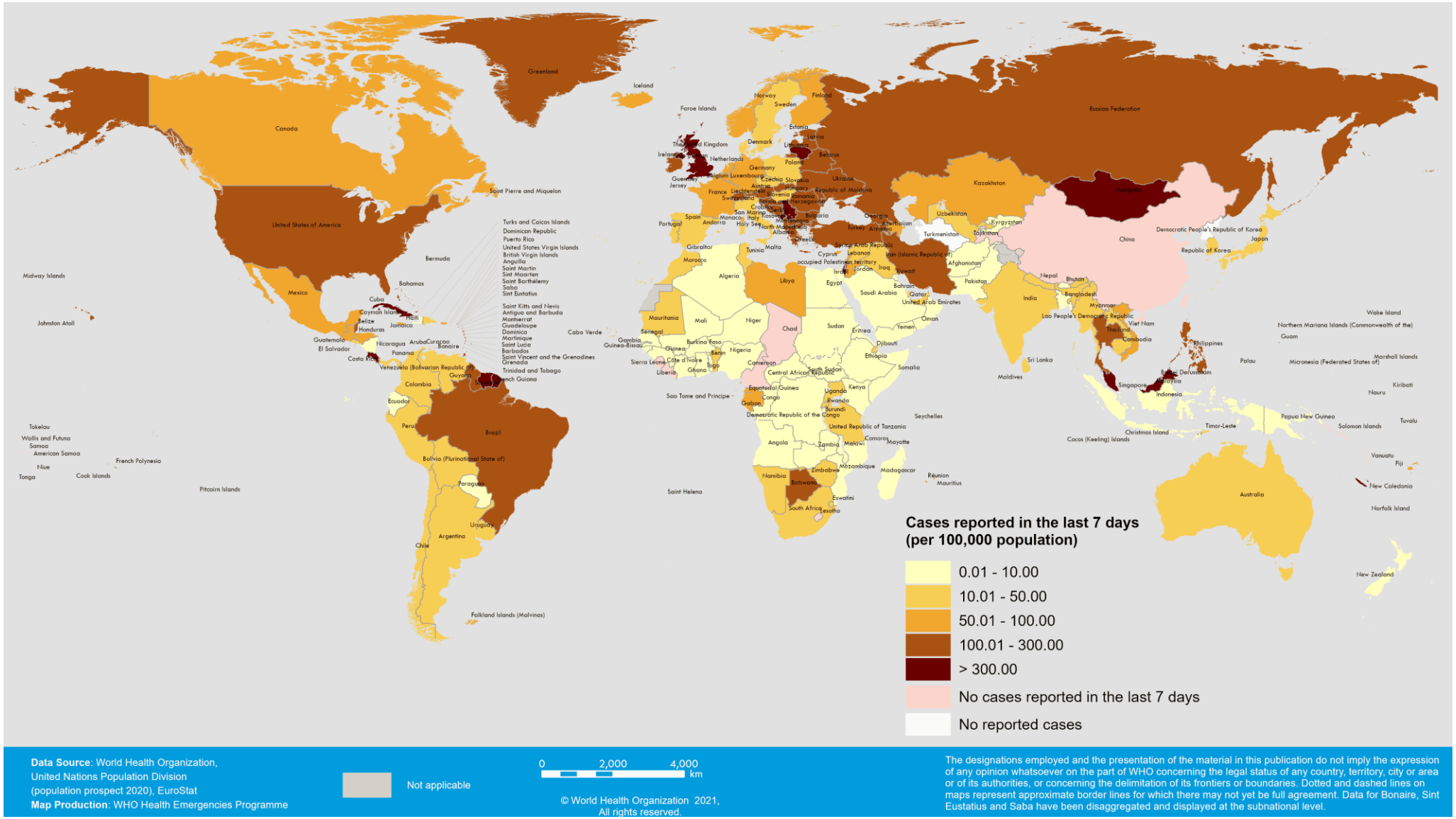
WHO Region	New cases in last 7 days (%)	Change in new cases in last 7 days *	Cumulative cases (%)	New deaths in last 7 days (%)	Change in new deaths in last 7 days *	Cumulative deaths (%)
Americas	1 273 971 (38%)	-14%	89 236 517 (39%)	23 890 (43%)	-10%	2 196 144 (46%)
Europe	1 097 735 (32%)	-1%	69 411 718 (30%)	14 638 (26%)	-1%	1 326 559 (28%)
South-East Asia	344 305 (10%)	-10%	42 843 227 (19%)	5 249 (9%)	-20%	673 717 (14%)
Eastern Mediterranean	209 329 (6%)	-17%	15 659 306 (7%)	4 284 (8%)	-16%	286 995 (6%)
Western Pacific	378 919 (11%)	-15%	8 266 265 (4%)	5 233 (9%)	-24%	112 945 (2%)
Africa	87 135 (3%)	-12%	5 998 863 (3%)	2 536 (5%)	5%	144 957 (3%)
Global	**3 391 394 (100%)**	**-10%**	**231 416 660 (100%)**	**55 830 (100%)**	**-10%**	**4 741 330 (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:

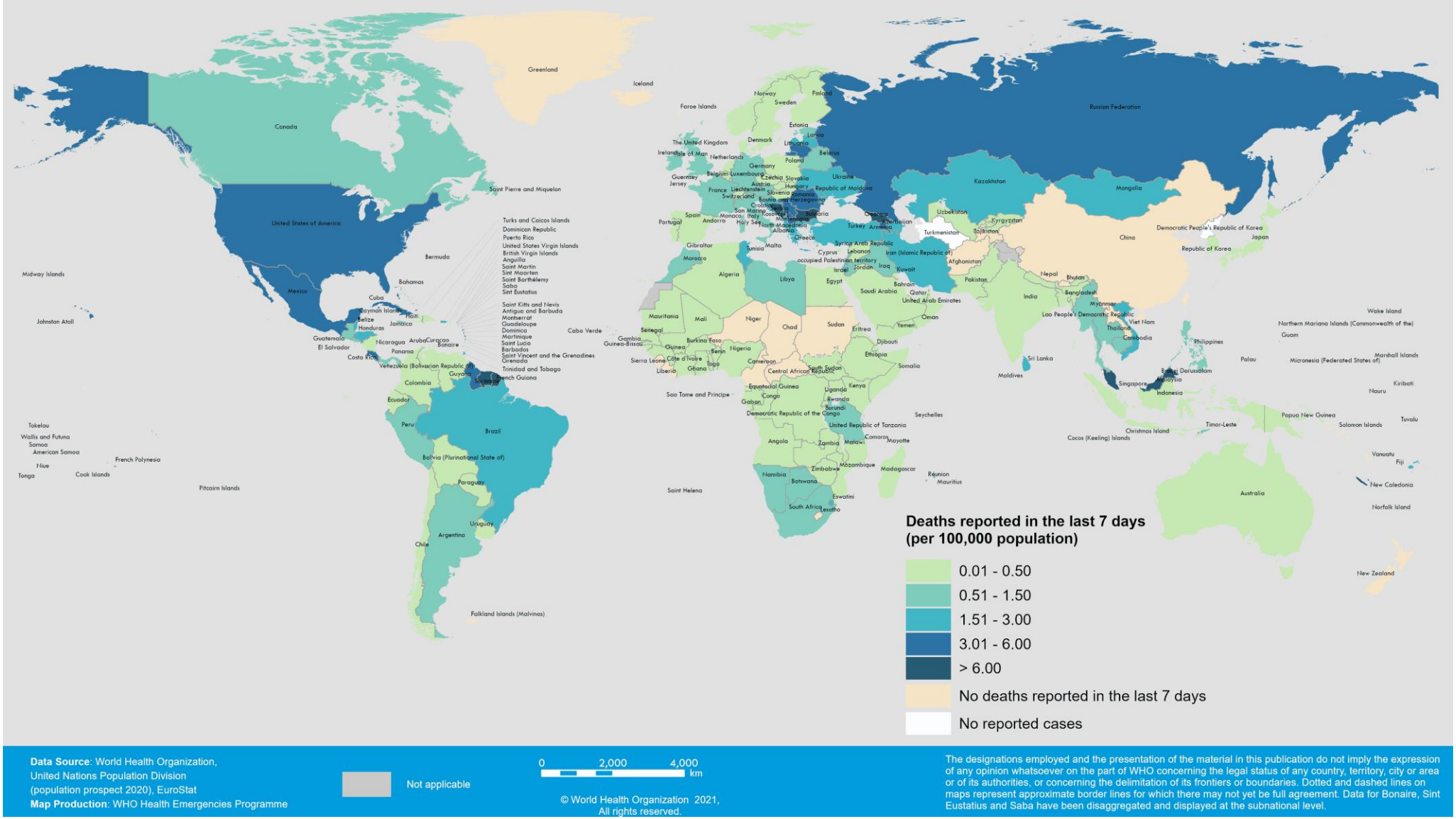
- WHO COVID-19 Dashboard
- WHO COVID-19 Weekly Operational Update and previous editions of the Weekly Epidemiological Update

Figure 2. COVID-19 cases per 100 000 population reported by countries, territories and areas, 20 – 26 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, 20 -26 September 2021**



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

Special Focus: Approaches to determining waning COVID-19 vaccine effectiveness

Why should we be concerned about waning immunity?

More than 21 months into the pandemic, there remains critical information that remains unknown about SARS-CoV-2 and the disease it causes: COVID-19. One of these topics is whether immunity conferred after vaccination or infection wanes over time. Knowing whether and to what extent immunity may wane in the mid- to long-term is critical to inform the public health response and policy decisions. Here, we focus on waning immunity following vaccination – we describe the different ways in which scientists have studied changes in vaccine effectiveness in people who have been vaccinated over time and provide a summary of the findings thus far.

Does immunity wane after vaccination?

Multiple COVID-19 vaccines have received Emergency Use Listing (EUL) from WHO based on vaccine efficacy results from randomized controlled clinical trials[1]. However, the follow-up time of the clinical trials used to assess vaccine efficacy for EUL was shorter than the usual follow-up time for trials of other new vaccines, with most efficacy results having a median follow-up time of two months. Outside clinical trial settings, vaccine effectiveness (VE) results among persons immunized as part of national vaccine roll-outs were similar to the findings of the clinical trials in the first few months after vaccines began to be administered[2]. However, despite the encouraging results of early VE studies, the duration of reported protection for COVID-19 vaccines require continued monitoring because in vitro studies of neutralization by vaccine-induced antibodies showed that, levels of most vaccine-derived antibodies declined over time (for more details, please see Special Focus published in Weekly Epidemiological Update on 27 July)[3]. However, it is important to consider that the antibody response is only one part of the immune response. It is not known what level of antibodies in the body is needed to provide protection against SARS-CoV-2 infection or severe disease, nor whether vaccine-derived memory cells will be activated in response to subsequent exposure to SARS-CoV-2, nor whether any observed decline in antibodies correspond to decreases in VE and if so, over what timeframe[4].

Approaches to assess waning vaccine effectiveness against infection and all symptomatic disease

Interval-based estimates

Most VE studies provide estimates of cumulative VE to represent VE from 7-14 days after full vaccination through a defined follow-up period, the duration of which varies by study[5]. However, cumulative VE estimates can obscure any waning VE during the latter part of the follow-up period, particularly in situations when most cases occur in the months soon after vaccination. Several approaches have been taken to address this limitation, the most common being to measure the VE at fixed intervals after vaccination. As of 21 September 2021, an interval-based assessment of efficacy from one randomized controlled trial[6] and VE from eight real-world studies have identified waning VE for infection and symptomatic disease in several settings, for four COVID-19 vaccines[7-14] (Figure 4). Vaccine effectiveness appears to peak 1-2 months after vaccination and then starts to decline from the third month after vaccination for Pfizer BioNTech-Comirnaty and AstraZeneca-Vaxzevria vaccines in some studies[6-8,12-13]. Only one study has assessed VE at different time intervals up to 3.5 months post-vaccination for the Moderna-mRNA-1273 vaccine and, unlike the studies mentioned above, did not show any apparent waning against symptomatic infection[7].

A potential problem with the interval-based approach to VE estimates is that circulation of a new variant with more pronounced immune escape characteristics, such as the Beta or Delta variants, during the follow-up period can confound the later VE estimates. Limiting the analysis to only cases caused by a single variant over time can disaggregate waning VE from reduced VE due to a specific variant. To address this potential confounding factor, a study from the United Kingdom, using a test-negative design, demonstrated waning VE against symptomatic disease caused by the Delta variant for both the Pfizer BioNTech-Comirnaty and AstraZeneca-Vaxzevria vaccines from 10 weeks after full vaccination[7]. A study conducted in Qatar, found

waning VE against infection with Alpha, Beta and Delta variants three to four months after complete vaccination with Pfizer BioNTech-Comirnaty; however, confidence intervals for some time periods were wide and overlapping[8]. Most VE studies do not conduct genomic characterization for all cases as the studies in the United Kingdom and Qatar did, which limits the ability to differentiate waning VE from reduced VE due to variants.

Case-only analysis of vaccinated cases

Another approach to the interval-based approach is to undertake a case-only analysis of vaccinated cases, comparing rates of breakthrough infections and disease during a defined time period, stratified by the time of vaccination. A recent study from Israel measured incidence during a 3-week period in July 2021 when the Delta variant was the predominant variant, stratified by the month of vaccination[12]. It found rates of SARS-CoV-2 infection in July 2021 were two-fold or higher for those vaccinated in late January 2021 compared to May 2021. A case-only approach does not yield a VE estimate, which requires a comparison to unvaccinated persons, so this study did not provide estimates of waning VE.

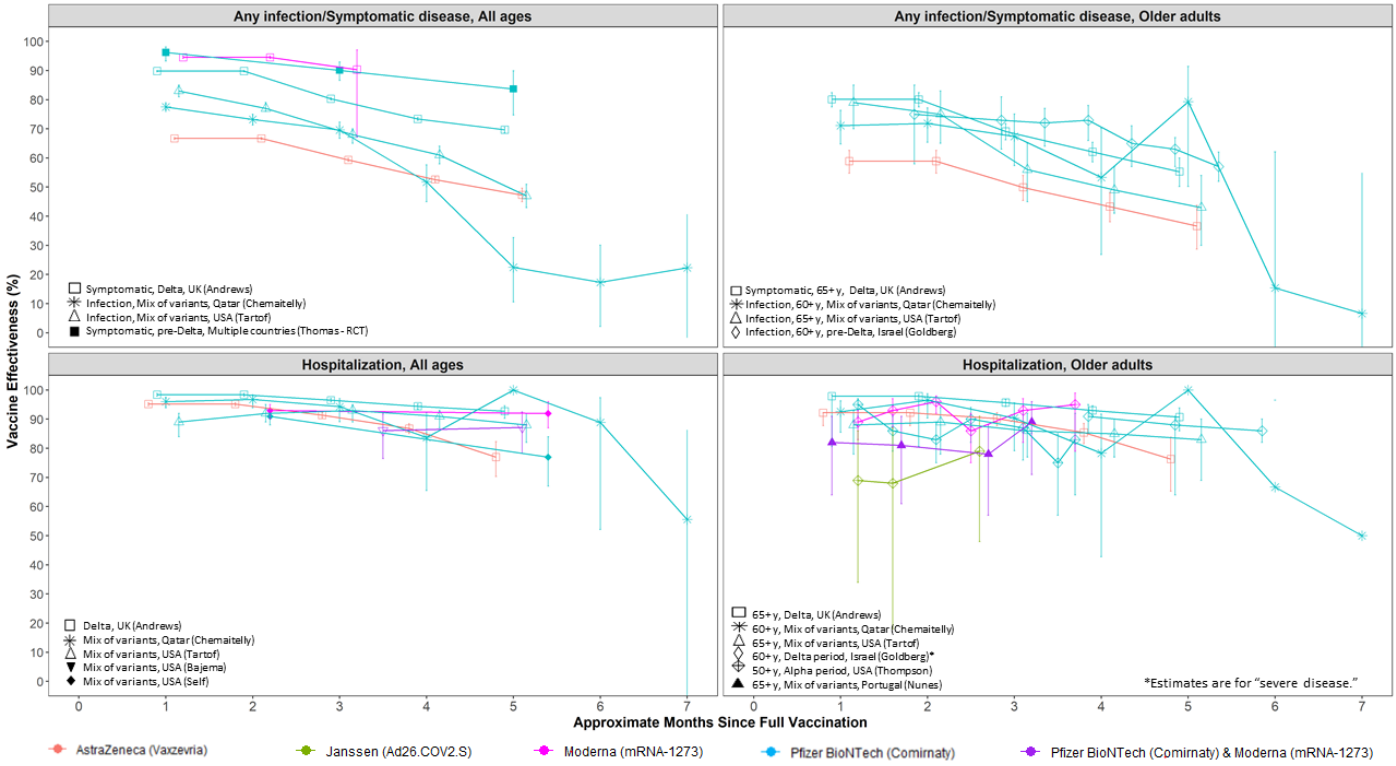
Comparison of disease occurrence

Another methodology to assess waning VE is using rates of breakthrough cases to compare the incidence rate ratio (IRR) between vaccinated and unvaccinated persons at different time points. This approach was used in 13 jurisdictions the United States of America where the age-standardized IRR for all COVID-19 symptomatic disease between those not fully vaccinated and those who were fully vaccinated decreased from 11.1 (95% CI, 7.8-15.8) between 5 April – 19 June 2021, to 4.6 (95% CI, 2.5-8.5) between 20 June - 17 July 2021[15]. A limitation of this study was the inability to disaggregate the effect of waning due to time since vaccination versus the increased circulation of the Delta variant in the later time period. An additional limitation was the challenge of accounting for confounding.

Approaches to assess waning immunity against hospitalization and severe disease

These same approaches described above have also been used to assess waning VE against hospitalization/severe disease. In contrast to the findings for infection and symptomatic disease, the VE against severe outcomes remains high ($\geq$75%) over time for Pfizer BioNTech-Comirnaty, AstraZeneca-Vaxzevria, Moderna-mRNA-1273, and $\geq$68% for Janssen-Ad26.COV2.S. (Figure 1)[9, 10, 11, 14]. However, some studies, done in settings where the Delta variant was predominant, have shown that VE against severe disease dropped by 5-15 percentage points from four months after vaccination with Pfizer BioNTech-Comirnaty in Israel, the United Kingdom, Qatar and the United States of America[7, 8, 12, 13], and AstraZeneca-Vaxzevria in the United Kingdom[7]. No waning was seen for Moderna-mRNA-1273, and Janssen-Ad26.COV2.S, although there was less follow-up time for these vaccines. Further follow-up of the VE against severe disease for all vaccines is needed to clarify if and how much waning VE might occur after more time has elapsed since full vaccination.

Figure 4: Vaccine effectiveness against infection and symptomatic disease and hospitalization for all ages and older adults[6-14]



What type of biases must be considered?

There are multiple sources of bias that are present in observational studies of VE and that need to be considered by researchers who design and conduct the studies, as well as media professionals and the public when interpreting the study results. While none of these biases invalidate findings from observational studies which assess VE, we should pay close attention to them to understand results from studies. These potential biases include:

- Individuals prioritized for vaccination early in vaccination campaigns were often those at higher risk for SARS-CoV-2 infection and/or severe COVID-19, such as frontline workers, older people and long-term care facility residents. These people may continue to be at higher risk of exposure, infection, and/or severe disease over time and they will be over-represented among individuals with the longest follow-up time after vaccination, resulting in apparent waning VE.

- Those who have been vaccinated may change their behavior, engaging in activities that may increase their exposure to the virus as they gain a sense of increased protection.

- Those who have been vaccinated may differ from those who remain unvaccinated with respect to their propensity to get tested for COVID-19 over time. The use of a test-negative study design partially addresses this potential bias[16] through accounting, in part, for health seeking behaviours.

- As more time elapses since vaccination, it is possible that there may be more misclassification of vaccine status, whereby vaccination status is not documented for some people, falsely assigning them to the unvaccinated group, even though they may indeed have vaccine-derived protection.

- The cause of death may be misclassified as being COVID-19, particularly in elderly individuals who have a higher likelihood of dying from *any* cause, as compared to other age groups.

- SARS-CoV-2 infection and subsequent infection-derived immunity will increase over time in the unvaccinated group, resulting in protection from further infection, leading to some apparent waning of VE[17].

- In settings with high vaccine coverage, the risk for the remaining unvaccinated comparison group may differ from the general population in terms of risk behaviour, among other factors, resulting in distorted VE estimates.

Despite these limitations, when different methodologies, carefully employed in different settings, yield similar results by outcome, target group and vaccine platform, it provides a more consistent picture of waning VE; information which is critical for public health response and policy decisions.

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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.

As these risks evolve, WHO will continue to update lists of global VOIs and VOCs to support setting priorities for surveillance and research, and ultimately guide response strategies (for more information, please see the 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 impacts of these variants.

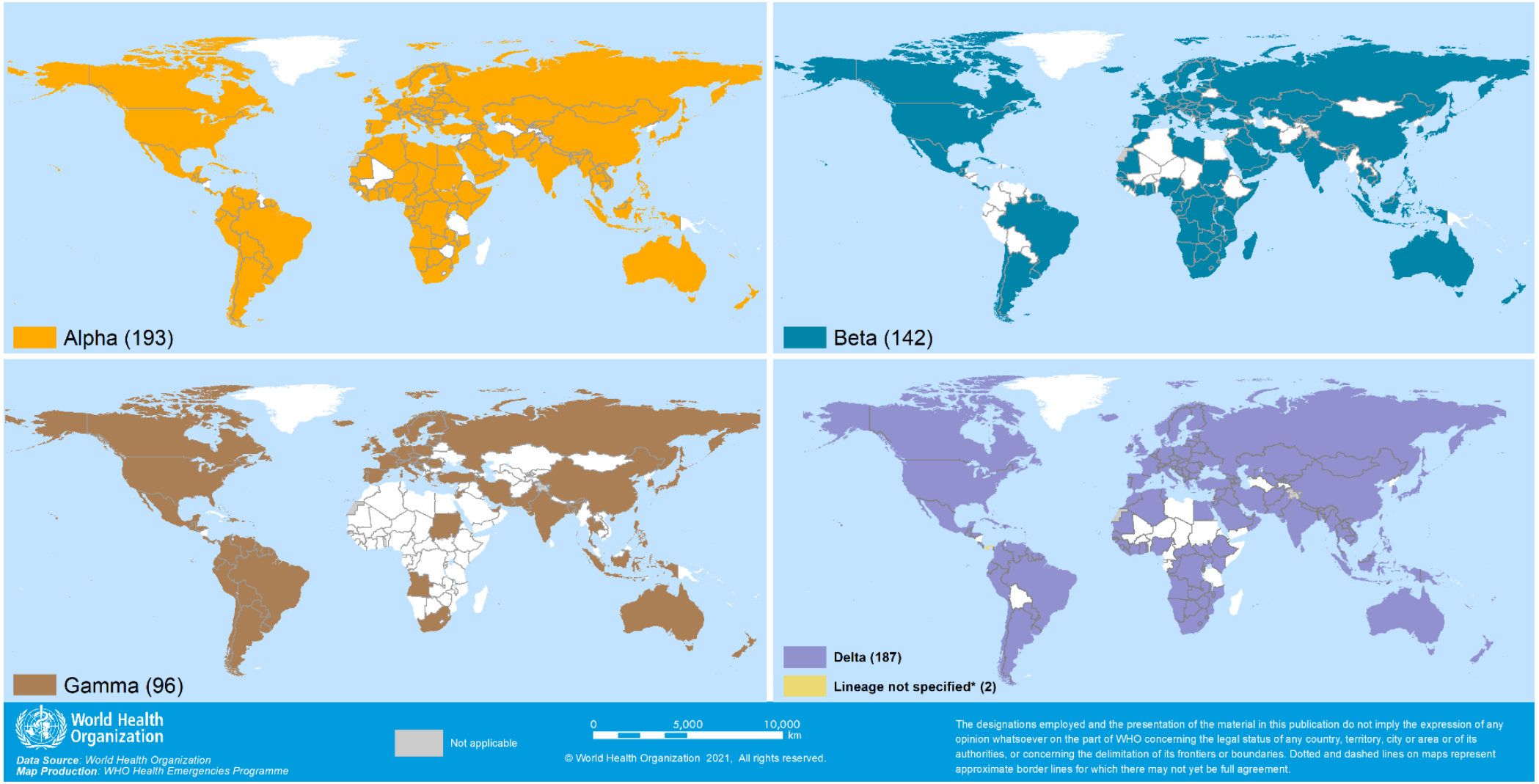
As surveillance activities to detect SARS-CoV-2 variants are strengthened at national and subnational levels, including through the expansion of genomic sequencing capacities, the number of countries/areas/territories (hereafter countries) reporting VOCs continues to increase (Figure 5, Annex 1). This distribution should nonetheless be interpreted with due consideration of surveillance limitations, including differences in sequencing capacities and sampling strategies between countries.

As countries gradually resume non-essential international travel, the introduction of risk mitigation measures aiming to reduce travel-associated exportation, importation and onward transmission of SARS-CoV-2 should be based on thorough risk assessments conducted systematically and routinely.

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 5. Countries, territories and areas reporting variants Alpha, Beta, Gamma and Delta, as of 28 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.*

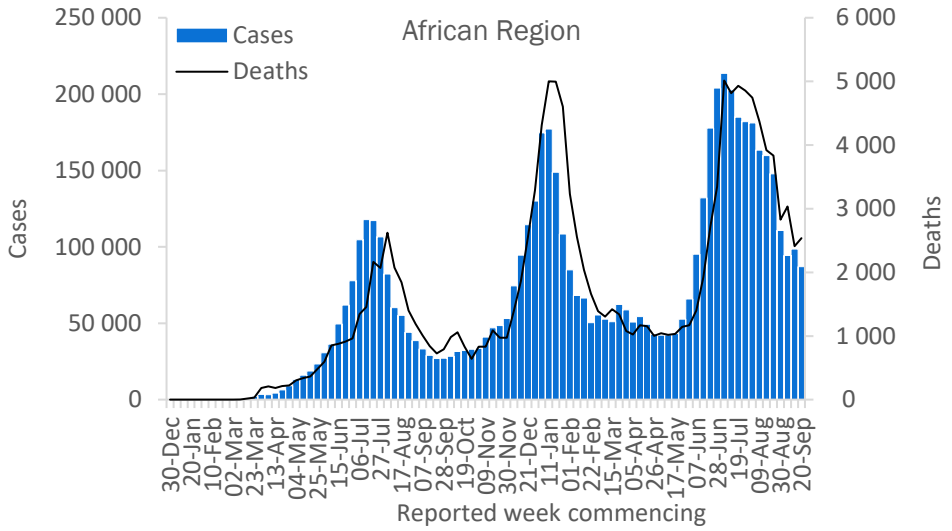
***Countries/territories/areas highlighted include both official and unofficial reports of VOC detections, and do not presently differentiate between detections among travellers (e.g., at Points of Entry) or local community cases. Please see Annex 2 for further details*

WHO regional overviews Epidemiological week 20 – 26 September 2021

African Region

The African Region reported over 87 000 new cases and over 2500 new deaths, a 12% decrease and a 5% increase respectively as compared to the previous week. Since the latest peak early July, the number of weekly cases has been decreasing continuously for almost three months; while weekly deaths remain elevated. Approximately one third of countries (29%; 14/49) in the Region reported an increase in new cases, ranging from 17 to 61%, highlighting the heterogeneity of trends in the Region.

The highest numbers of new cases were reported from the United Republic of Tanzania (24 307 new cases, a country which has not reported regularly), South Africa (15 627 new cases; 26.3 new cases per 100 000; a 40% decrease), and Ethiopia (8842 new cases; 7.7 new cases per 100 000; a 5% decrease). The highest numbers of new deaths were reported from South Africa (885 new deaths; 1.5 new deaths per 100 000 population; a 35% decrease), the United Republic of Tanzania (664 new deaths this week), and Ethiopia (254 new deaths; <1 new deaths per 100 000; a 22% increase).

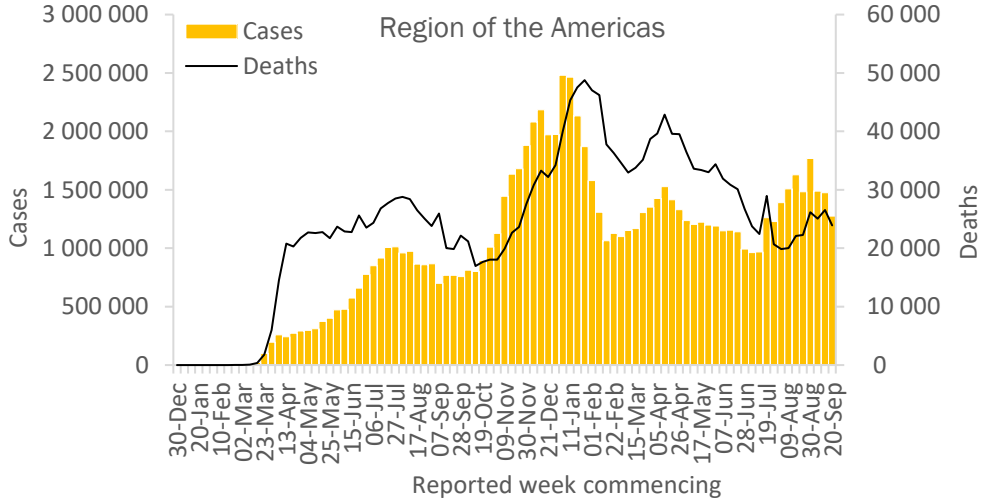


Updates from the African Region

Region of the Americas

The Region of the Americas reported over 1.2 million new cases and over 23 000 new deaths, decreases of 14% and 10% respectively as compared to the previous week. Despite the declining trend in new weekly cases and deaths, the overall epidemiological situation has not improved significantly since a surge in mid-July 2021. While the case incidence in the Region has decreased, in some countries, such as Dominica and French Guiana, the number of cases and the case incidence per 100 000 population have increased in the past week. Dominica reported 610 new cases/100 000 population this week, as compared to 361 the previous week. Similarly, French Guiana reported 510 new cases/100 000 population this week as compared to 471 the previous week.

The highest numbers of new cases were reported from the United States of America (765 827 new cases; 231.4 new cases per 100 000; a 31% decrease), Brazil (247 397 new cases; 116.4 new cases per 100 000; a 135% increase due to changes in reporting), and Mexico (66 132 new cases; 51.3 new cases per 100 000; a 13% increase). The highest numbers of new deaths were reported from the United States of America (12 312 new deaths; 3.7 new deaths per 100 000; a 17% decrease), Mexico (4165 new deaths; 3.2 new deaths per 100 000; a 13% increase), and Brazil (4090 new deaths; 1.9 new deaths per 100 000; a 10% increase).

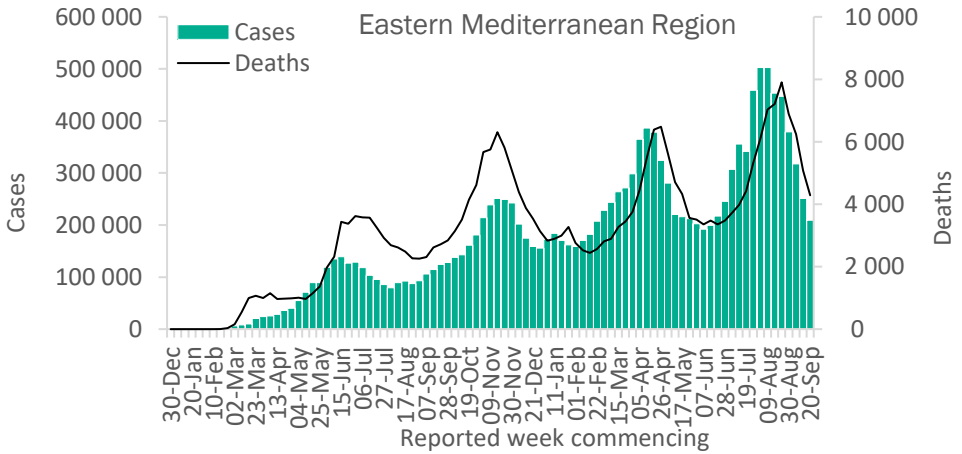


Updates from the Region of the Americas

Eastern Mediterranean Region

The Eastern Mediterranean Region continued to report decreases in case and death incidences this week, with over 209 000 new cases and over 4200 new deaths, decreases of 17% and 16% respectively as compared to the previous week. The decline in the number of weekly cases was driven by decreases reported from the three countries reporting the highest numbers of new cases: the Islamic Republic of Iran (110 868 new cases; 132.0 new cases per 100 000; a 17% decrease), Iraq (18 923 new cases; 47.0 new cases per 100 000; a 26% decrease), and Pakistan (15 627 new cases; 7.1 new cases per 100 000; a 21% decrease). Together these countries accounted for 69% of new cases reported in the Region.

A decrease in death incidence was reported from 9 of the 22 countries in the Region, including the three countries which reported the highest numbers of new deaths in the past week: the Islamic Republic of Iran (2281 new deaths; 2.7 new deaths per 100 000; a 23% decrease), Pakistan (389 new deaths; 0.2 new deaths per 100 000; an 18% decrease), and Morocco (302 new deaths; 0.8 new deaths per 100 000; a 12% decrease).

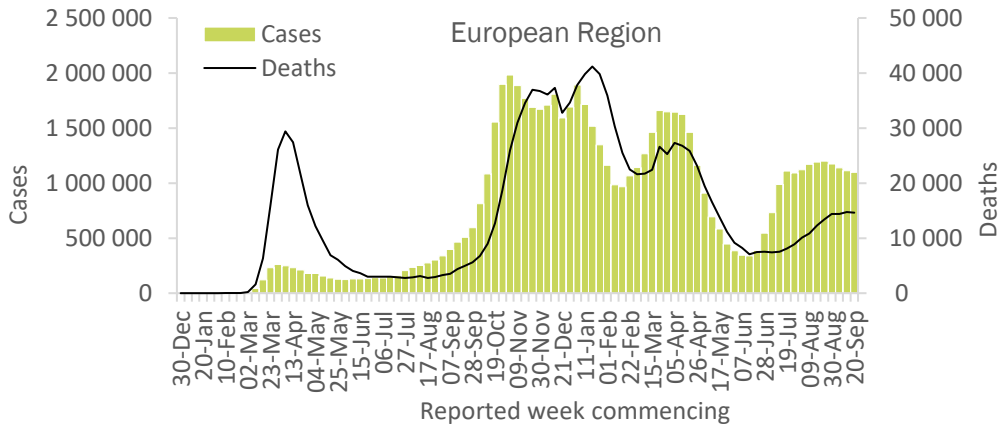


Updates from the Eastern Mediterranean Region

European Region

The European Region reported just under 1.1 million new cases and over 14 000 new deaths, similar numbers to those reported during the previous week. For over two months, the number of new weekly cases in the Region has oscillated within range of a <5% change week-on-week, although within the Region, countries have reported varying trends. For example, case incidence in Romania and Serbia have increased sharply, while case incidence has decreased in Israel over the past month. The highest numbers of new cases were reported from the United Kingdom (230 494 new cases; 339.5 new cases per 100 000; a 14% increase), Turkey (192 778 new cases; 228.6 new cases per 100 000; a 5% increase), and the Russian Federation (145 985 new cases; 100.0 new cases per 100 000; an 8% increase).

Death incidence has plateaued over the past month, after the Region reported a gradual increase in weekly deaths from mid-July to late-August. The three countries reporting the highest numbers of new deaths in the Region accounted for 56% of the Region's deaths this week: the Russian Federation (5682 new deaths; 3.9 new deaths per 100 000; a 4% increase), Turkey (1577 new deaths; 1.9 new deaths per 100 000; an 8% decrease), and the United Kingdom (958 new deaths; 1.4 new deaths per 100 000; a 4% decrease).

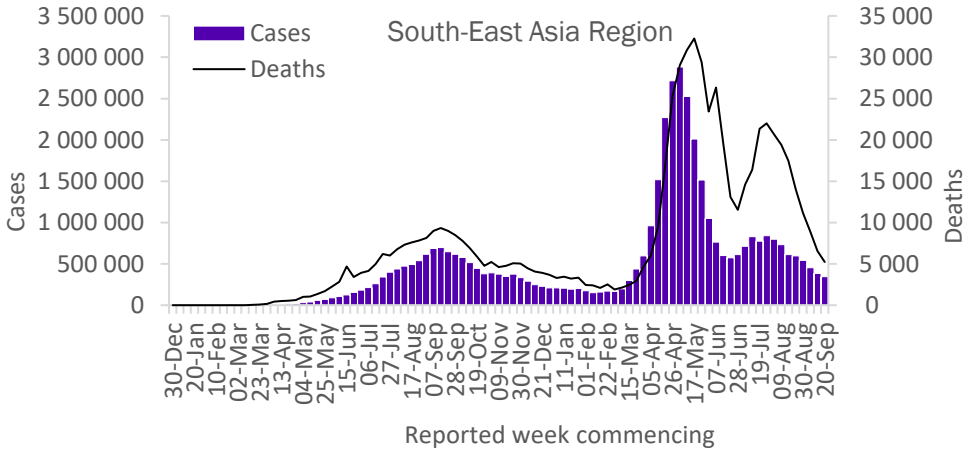


Updates from the European Region

South-East Asia Region

In the South-East Asian Region, both case and death incidence have declined for the past two months. In the past week, over 344 000 new cases and 5200 new deaths were reported, decreases of 10% and 20% respectively as compared to the previous week. All but two countries in the Region have reported declines in new cases over the past several weeks. This week, the highest numbers of new cases were reported from India (204 582 new cases; 14.8 new cases per 100 000; similar to last week's figures), Thailand (85 143 new cases; 122.0 new cases per 100 000; a 10% decrease), and Indonesia (17 250 new cases; 6.3 new cases per 100 000; a 26% decrease).

Seven of the 10 countries in the Region reported a decline in weekly deaths, with notable decreases reported from Nepal (by 38%) and Indonesia (by 37%). Bhutan did not report any new deaths, while the Maldives and Timor-Leste reported similar weekly figures as last week. The highest numbers of new deaths were reported from India (2080 new deaths; <1 new deaths per 100 000; similar to last week's figures), Indonesia (999 new deaths; <1 new deaths per 100 000; a 37% decrease), and Thailand (905 new deaths; 1.3 new deaths per 100 000; a 10% decrease).

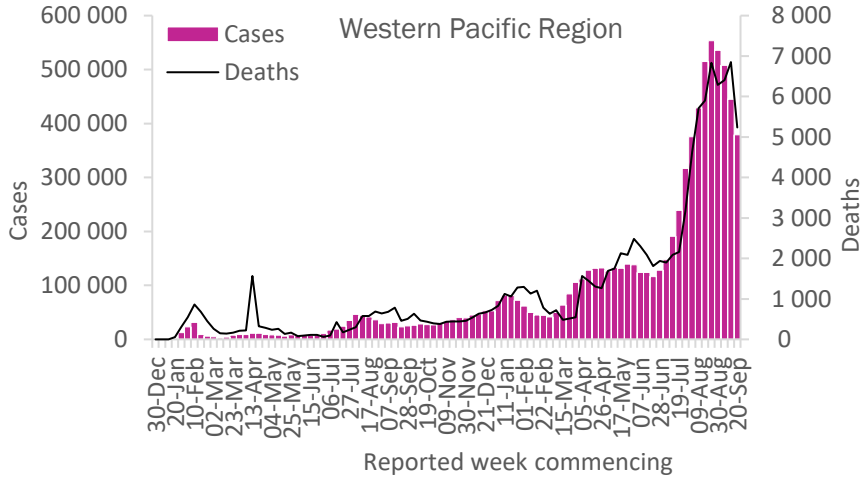


Updates from the South-East Asia Region

Western Pacific Region

The Western Pacific Region reported just under 379 000 new cases and over 5200 new deaths, decreases of 15% and 24% respectively as compared to the previous week. Although the regional case incidence has continued to decline for a month, weekly incidence increased in 5 of 26 (19%) countries, including in Singapore (63% increase) and Lao People's Democratic Republic (62% increase). The highest numbers of new cases were reported from the Philippines (122 625 new cases; 111.9 new cases per 100 000; a 13% decrease), Malaysia (102 255 new cases; 315.9 new cases per 100 000; a 16% decrease), and Viet Nam (69 655 new cases; 71.6 new cases per 100 000; an 8% decrease).

While there was a marked decline in the number of weekly deaths reported this week, four countries including Singapore, New Caledonia, Mongolia and China reported over 100% increase in new deaths as compared to the previous week. The highest numbers of new deaths were reported from Malaysia (2092 new deaths; 6.5 new deaths per 100 000; a 21% decrease), Viet Nam (1543 new deaths; 1.6 new deaths per 100 000; a 16% decrease), and the Philippines (822 new deaths; <1 new deaths per 100 000; a 49% decrease).



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 28 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 28 September 2021

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecified B.1.617
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	●	●	●	●	-

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecified B.1.617
Gabon	●	●	-	-	-
Gambia	●	-	-	●	-
Georgia	●	○	-	●	-
Germany	●	●	●	●	-
Ghana	●	●	-	●	-
Gibraltar	●	-	-	○	-
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	-	●	-	●	-
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)	○	-	-	●	-
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	-	-	-	●	-

Country/Territory/Area	Alpha	Beta	Gamma	Delta	Unspecified B.1.617
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	●	●	●	●	-
Somalia	●	●	-	-	-
South Africa	●	●	○	●	-
South Sudan	●	●	-	●	-
Spain	●	●	●	●	-
Sri Lanka	●	●	-	●	-
Sudan	●	●	●	-	-
Suriname	●	●	●	●	-
Sweden	●	●	●	●	-
Switzerland	●	●	●	●	-
Syrian Arab Republic	-	-	-	○*	-
Thailand	●	●	●	●	-
Timor-Leste	●	-	-	●	-
Togo	●	●	-	●	-
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	●	●	●	●	-
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.*

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