COVID-19 Weekly Epidemiological Update

Edition 70, published 14 December 2021

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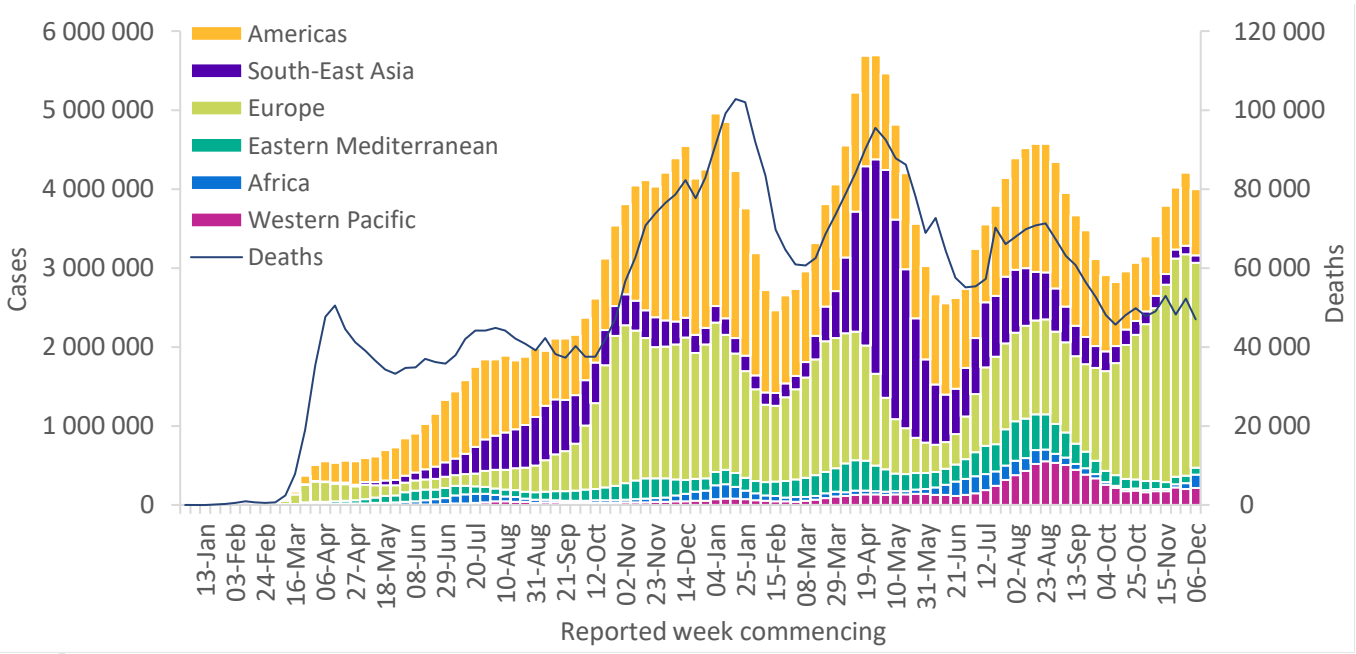
Global overview

Data as of 12 December 2021

Globally, the weekly incidence of both cases and deaths declined during the past week (6-12 December 2021), with decreases of 5% and 10% respectively, as compared to the previous week. Nonetheless, this still corresponded to over 4 million new confirmed cases and just under 47 000 new deaths. As of 12 December, nearly 269 million confirmed cases and nearly 5.3 million deaths have been reported globally.

The African Region reported the largest increase in new cases last week (111%) followed by and the Western Pacific Region which reported an increase of 7%. The Region of the Americas and South-East Asia Region both reported decreases of 10% and the European Region reported a 7% decrease. The number of new weekly cases reported by the Eastern Mediterranean Region was similar to the numbers reported in the previous week. New weekly deaths decreased by 50% in the South-East Asia Region (due to an artificial increase in deaths from batch reporting in the previous week) and 14% in the Region of the Americas, while the number of weekly deaths in all other regions remained similar to those reported in the previous week.

Figure 1. COVID-19 cases reported weekly by WHO Region, and global deaths, as of 12 December 2021**



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

The regions reporting the highest weekly case incidence per 100 000 population continue to be the European Region (277.9 new cases per 100 000 population) and the Region of the Americas (81.9 new cases per 100 000 population). Both regions also reported the highest weekly incidence in deaths of 3.0 and 1.0 per 100 000 population, respectively while <1 new death per 100 000 was reported in all other regions.

The highest numbers of new cases were reported from the United States of America (674 019 new cases; 9% decrease), Germany (351 738 new cases; 11% decrease), the United Kingdom (350 340 new cases; 13% increase), France (335 972 new cases; 19% increase), and the Russian Federation (215 283 new cases; 7% decrease).

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

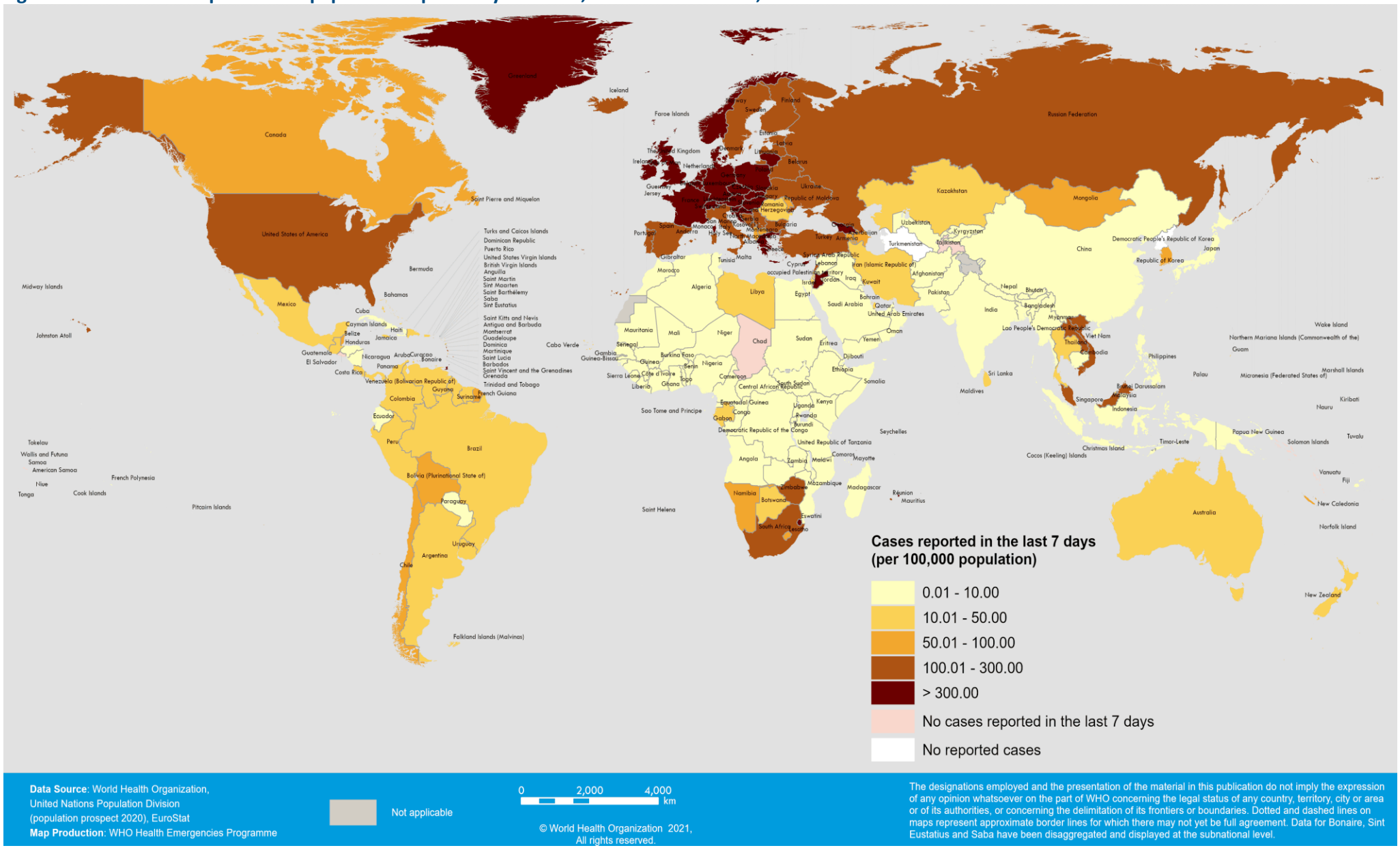
WHO Region	New cases in last 7 days (%)	Change in new cases in last 7 days *	Cumulative cases (%)	New deaths in last 7 days (%)	Change in new deaths in last 7 days *	Cumulative deaths (%)
Europe	2 593 221 (65%)	-7%	91 631 852 (34%)	28 362 (60%)	-3%	1 598 688 (30%)
Americas	837 345 (21%)	-10%	98 521 311 (37%)	10 562 (22%)	-14%	2 371 246 (45%)
Western Pacific	213 915 (5%)	7%	10 584 344 (4%)	3 335 (7%)	4%	147 539 (3%)
Africa	167 682 (4%)	111%	6 522 517 (2%)	491 (1%)	-1%	153 766 (3%)
South-East Asia	98 021 (2%)	-10%	44 737 006 (17%)	2 643 (6%)	-50%	714 303 (13%)
Eastern Mediterranean	90 633 (2%)	-4%	16 936 781 (6%)	1 568 (3%)	-3%	312 295 (6%)
Global	**4 000 817 (100%)**	**-5%**	**268 934 575 (100%)**	**46 961 (100%)**	**-10%**	**5 297 850 (100%)**

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

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

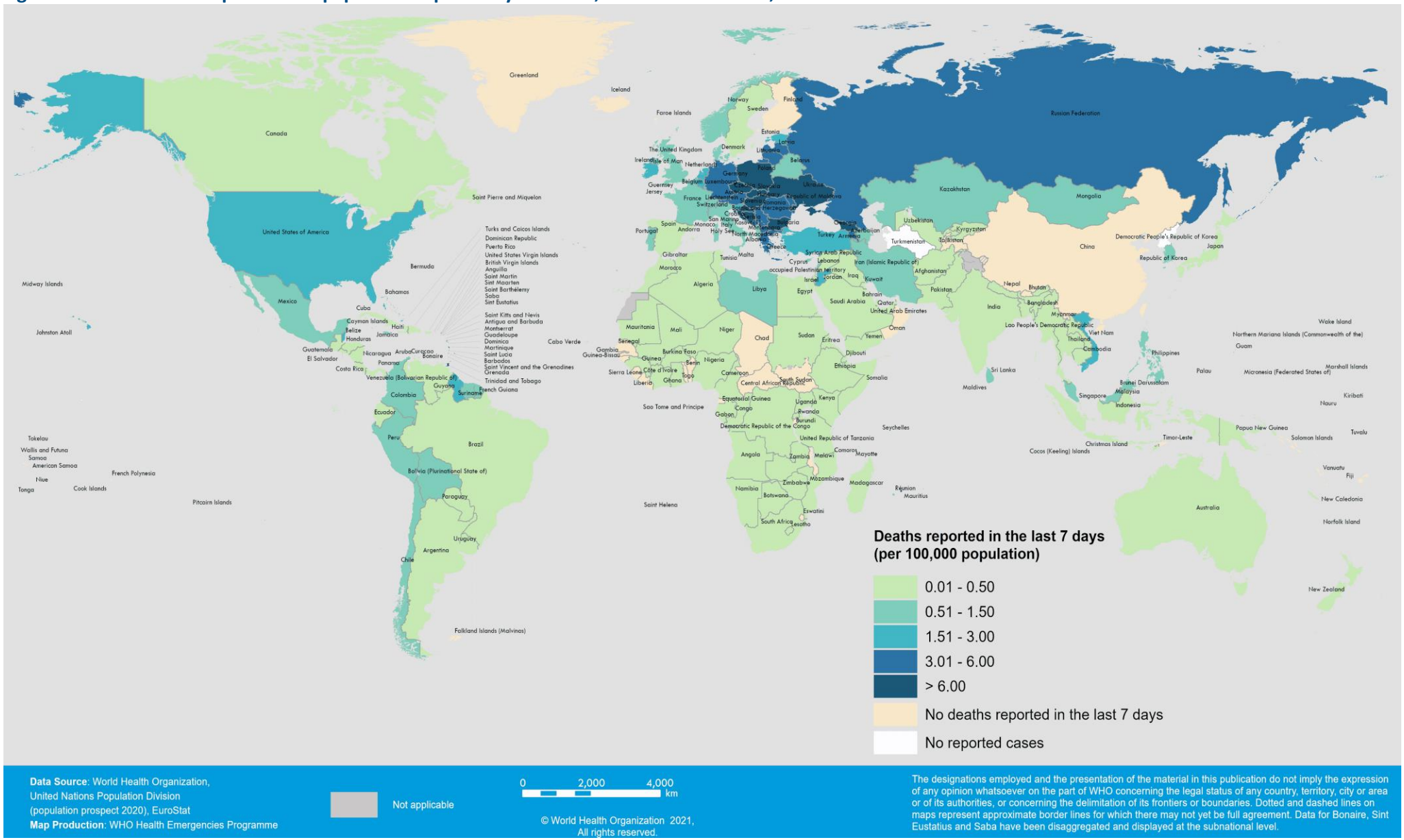
- WHO COVID-19 Dashboard
- WHO COVID-19 Weekly Operational Update and previous editions of the Weekly Epidemiological Update

Figure 2. COVID-19 cases per 100 000 population reported by countries, territories and areas, 6 December - 12 December 2021**



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

Figure 3. COVID-19 deaths per 100 000 population reported by countries, territories and areas, 6 December - 12 December 2021**



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

Special Focus: Update on SARS-CoV-2 Variants of Interest and Variants of Concern

WHO, in collaboration with national authorities, institutions and researchers, routinely assesses if variants of SARS-CoV-2 alter transmission or disease characteristics, or impact effectiveness of vaccines, therapeutics, diagnostics or public health and social measures (PHSM) applied by national authorities to control disease spread. Potential Variants of Concern (VOCs), Variants of Interest (VOIs) or Variants Under Monitoring (VUMs) are regularly assessed based on the risk posed to global public health. As evidence becomes available, classifications of variants will be revised to reflect the continuous evolution of circulating variants and their changing epidemiology. Criteria for variant classification, and the current lists of VOCs, VOIs and VUMs, are available on the WHO Tracking SARS-CoV-2 variants website. National authorities may choose to designate other variants of local interest/concern and are encouraged to investigate and report on the impacts of these variants.

Geographic spread and prevalence of VOCs

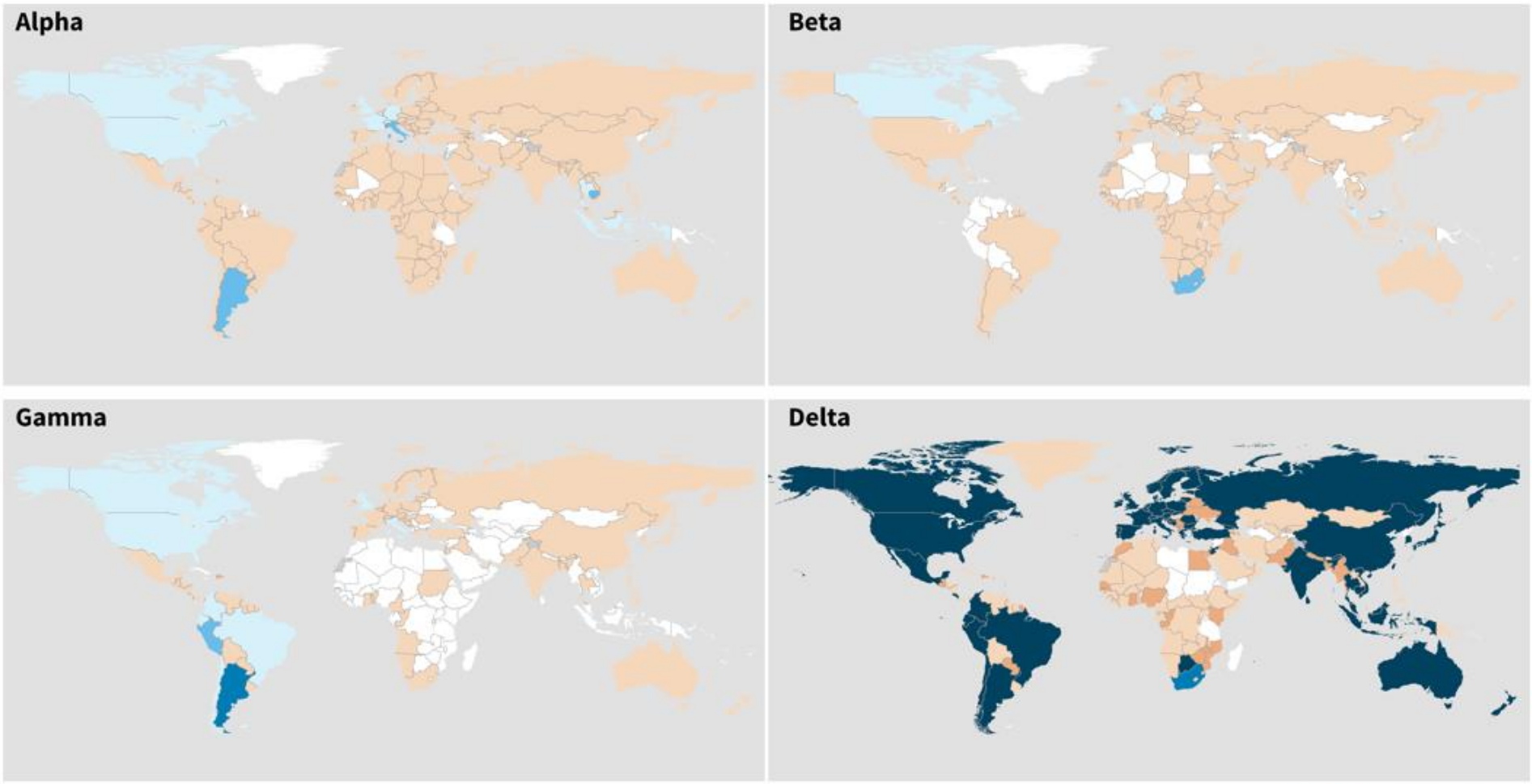
The current global epidemiology of SARS-CoV-2 is characterized by a predominance of the Delta variant, declining trend in the proportion of Alpha, Beta and Gamma, and the emergence of Omicron variant; however, regional and country-level variations continue to be observed (Figure 4 and 5; Annex 2). While most of the Omicron cases identified in November 2021 were travel-related, community transmission with associated clusters has now been reported in several countries. Of 879 779 sequences uploaded to GISAID with specimens collected in the last 60 days, 872 876 (99.2%) were Delta, 3 755 (0.4%) were Omicron, 206 (<0.1%) Alpha, 179 (<0.1%) Gamma, 16 (<0.1%) Beta, and <0.1% comprised other circulating variants (including VOIs Mu and Lambda). This week, for the first time since Delta was classified as a VOC in April 2021, the percentage of Delta sequences has declined in respect to other VOCs. However, this observation needs to be interpreted with caution as countries may perform targeted sequencing for Omicron and therefore upload fewer sequences on all other variants, including Delta.

To note, global VOCs distribution should be interpreted with due consideration of surveillance limitations, including differences in sequencing capacities and sampling strategies between countries, as well as delays in reporting.

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 PHSM in the context of COVID-19

Figure 4: Prevalence of Variants of Concern (VOCs) Alpha, Beta, Gamma and Delta in the last 60 days and historic detections, data as of 14 December 2021



*Prevalence calculated as a proportion of VOC sequences among total sequences uploaded to GISAID with sample collection dates within the past 60 days prior to the latest date of collection, excluding low coverage sequences, limited to countries with ≥100 total sequences in the same period. Countries assigned by location of sample collection.
**Includes both official reports to WHO and unofficial reports of VOC detections.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city 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.

Proportion of VOC among total sequences*
0.501 - 1.000
0.101 - 0.500
0.011 - 0.100
>0.000 - 0.010

VOC detected, too few sequences to estimate proportion
No new VOC sequences, VOC previously reported**
No presence of VOC reported to WHO
Not applicable

World Health Organization

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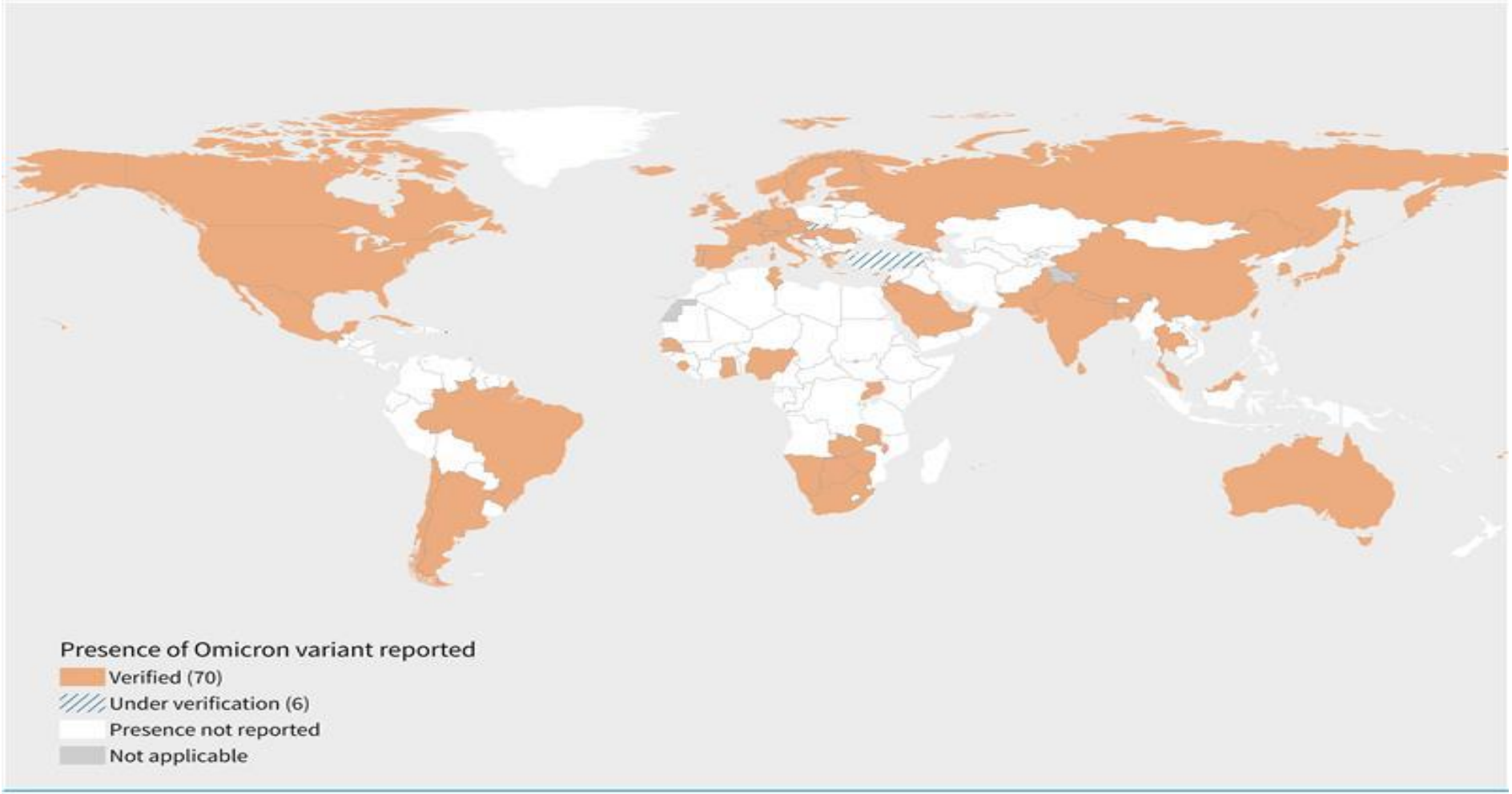
Data Source: World Health Organization, GISAID
Map Production: WHO Health Emergencies Programme

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

Figure 5. Presence of Variant of Concern (VOC) Omicron, data as of 14 December 2021 (4 pm CET)



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Data Source: World Health Organization, GISAID
Map Production: WHO Health Emergencies Programme

World Health Organization

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Presence of the Omicron variant is based on information reported to WHO. It includes countries/territories/areas reporting the detection of VOCs among travellers (e.g., imported cases detected at points of entry), or local cases (detected in the community). See also Annex 2 for reported VOC detections by country/territory/area.

Update on Omicron VOC

Since the last update published on 7 December, additional countries across all six WHO Regions have reported confirmed cases of the Omicron variant. As of 14 December 2021 (2 pm CET), the Omicron variant has been confirmed in 76 countries.

Based on current limited evidence Omicron appears to have a growth advantage over Delta. It is spreading faster than the Delta variant in South Africa where Delta circulation was low, but also appears to be spreading more quickly than the Delta variant in countries where the incidence of Delta is high, such as in the United Kingdom.

The data on the clinical severity of Omicron remains limited. More information on case severity associated with Omicron is expected in the coming weeks due to the time lag between an increase in the incidence of cases and an increase in the incidence of severe cases, and deaths.

Preliminary evidence suggests that there may be a reduction in vaccine efficacy and effectiveness against infection and transmission associated with Omicron, as well as an increased risk of reinfection. More data are needed to better under the extent to which Omicron may evade vaccine and/or infection derived immunity and the extent to which current vaccines continue to protect against severe disease and death associated with Omicron.

Diagnostic accuracy of routinely used PCR and antigen-based rapid diagnostic test (Ag-RDT) assays does not appear to be impacted by Omicron, and therapeutic interventions for the management of patients with severe or critical COVID-19 associated with the Omicron variant are expected to remain effective

As a result of this, the overall risk related to the new variant of concern Omicron remains very high. More information on Omicron variant can be found in the updated Technical Brief and Priority Actions for Member States that was published on 10 December 2021 by WHO.

Phenotypic characteristics

Available evidence on the phenotypic impacts of VOCs is summarized in Table 2, as well as in previous editions of the COVID-19 Weekly Epidemiological Update. Since the last detailed update on 30 November, there are several new publications on the phenotypic characteristics of VOCs**,** including recent literature on Omicron. Reported studies might have not been formally peer-reviewed and findings must be interpreted in the light of this limitation.

A cohort analysis reported by UK Health Security Agency[1], estimated the odds of household transmission for Omicron variant index cases as compared with Delta variant index cases. The analysis included 72,761 index cases of Delta and 121 of Omicron in residential households with a specimen collection date between 15 and 28 November 2021. Household transmission was defined as an index (first) case followed by one or more laboratory confirmed SARS-CoV-2 cases at the same private dwelling within a 14-day period (minimum 7 days follow-up). Multivariable logistic regression model found the adjusted odds ratio for household transmission from an Omicron index case was 3.2 (95%CI 2.0-5.0, p <0.001) compared to Delta index cases.

Reports describing Omicron cases among partially and fully vaccinated individuals have been recently released:

- The US CDC[2] reported the characteristics of the 43 investigated cases attributed to the Omicron variant. Twenty-five of them (58%) were in persons aged 18–39 years, and 14 (33%) persons reported international travel during

the 14 days preceding symptom onset or receipt of a positive test result. Thirty-four cases (79%) occurred in persons who completed the primary series of an FDA-authorized or approved COVID-19 vaccine ≥14 days before symptom onset or receipt of a positive SARS-CoV-2 test result, including 14 who had received an additional or booster dose; five of the 14 persons had received the additional dose <14 days before symptom onset. Six (14%) persons also had a documented previous SARS-CoV-2 infection. The most commonly reported symptoms were cough, fatigue, and congestion or runny nose. One vaccinated patient was hospitalized for 2 days, and no deaths among the 43 cases reported by US CDC have been reported to date. Case investigations have identified exposures associated with international and domestic travel, large public events, and household transmission.

- Preliminary findings published by the Norwegian Institute of Public Health (NIPH)[3], described the result of the investigation of an Omicron outbreak that occurred during a Christmas party. Of 111 participants at the Christmas party, 73% (80 people) were subsequently diagnosed with SARS-CoV-2. Of these, 17 were confirmed with the Omicron variant by sequencing as of 8 December 2021. Analysis of additional samples is ongoing. Over 70% of cases reported cough, lethargy, headache, sore throat and over half of them reported fever. No hospital admissions have been reported. According to NIPH, most of the cases (the report does not specify the number) were aged between 30 and 50 years and were vaccinated with two doses of an mRNA vaccine between May and November 2021.
- A report from South Africa[4] described seven cases of breakthrough infection with the Omicron variant among visitors who received three doses of SARS-CoV-2 vaccines. On arrival in South Africa during the first half of November, all cases provided a negative SARS-CoV-2 PCR test and a record of complete vaccination including the third dose. Six cases were fully vaccinated with Pfizer BioNTech-Comirnaty and five of them also received a third dose of the same vaccine in October or early November 2021. One person received a third dose of Moderna-mRNA-1273 at the beginning of October. The seventh subject received an initial dose of AstraZeneca-Vaxzevria, followed by two doses of Pfizer BioNTech-Comirnaty for completion of primary immunization and as a third dose. None of them had a previous history of a SARS-CoV-2 infection. The cases developed onset of mild respiratory symptoms from 30 November to 2 December 2021 while in Cape Town and samples were collected between 2 to 4 days after onset of symptoms. Genome sequencing confirmed 5 of the cases to be due to Omicron variant; in two cases sequencing failed but they are inferred to be Omicron, too, based on their very close epidemiological links to the others.

Preliminary evidence shows that sera obtained from vaccinated and previously infected individuals has lower neutralization activity on Omicron VOC than with any other circulating VOCs of SARS-CoV-2 and the ancestral strain:

- A study (not yet peer reviewed) conducted in South Africa[5], investigated whether the Omicron variant escapes antibody neutralization elicited by the Pfizer BioNTech-Comirnaty vaccine. Plasma samples from 12 participants fully vaccinated were tested. Six participants had a record of previous infection from the first SARS-CoV-2 wave in South Africa that was due to the ancestral SARS-Cov-2 strain. The other six participants had no previous record of SARS-CoV-2 infection nor detectable nucleocapsid antibodies indicative of previous infection. Overall, the geometric mean titer 50% focus reduction neutralization test (GMT FRNT50) was 1321 for the ancestral strain, indicating a very strong neutralization. However, the GMT FRNT50 for the Omicron variant was 32, a 41-fold reduction compared to the ancestral strain. Those participants who had a previous infection in addition to vaccination, had a higher GMT FRNT50, both versus Omicron variant and the ancestral strain.
- Another preprint study[6] analysed titers of neutralizing antibodies of sera from convalescent or vaccinated individuals against Omicron and compared them with titers against other VOCs (Alpha, Beta and Delta). Sera were selected from patients after an infection with Alpha (n=10), Beta (n=8) and Delta variants (n=7); from individuals

fully vaccinated with no previous SARS-CoV-2 infection (n=60) and fully vaccinated with previous SARS-CoV-2 infection (n=10). Sera from fully vaccinated individuals without previous SARS-CoV-2 infection neutralized the Omicron variant to a much lesser extent (not specified by authors) than any other VOCs analysed. Sera from fully vaccinated persons with previous SARS-CoV-2 infection, were able to neutralize Omicron variant, although to a lesser degree (not specified by authors) than the other VOCs.

- A study from Karolinska Institute[7] (not yet published) assessed neutralization activity against the Omicron variant. Two cohorts with laboratory confirmed SARS-CoV-2 in May 2020 and serum samples collected in November 2021, were included. Cohort 1 comprised serum samples with detectable neutralization against the ancestral SARS-CoV-2 strain from 17 anonymized blood donors. Cohort 2 comprised 17 serum samples from hospital workers with previous SARS-Cov-2 infection and that were fully vaccinated (the report does not specify with which vaccine) . Almost all serum samples evaluated, retained some neutralization activity against the Omicron variant. Fold-reduction in the neutralization of Omicron relative to the ancestral strain, ranged from 1 to 23, with quartiles of 2.5, 5.5, and 11, measured by lentiviral pseudotype neutralization assay. As compared with Delta, Omicron showed a further reduction in neutralization activity, but that was not significant.

If specific antibodies neutralizing activity seems to be reduced versus the Omicron VOC, preliminary studies suggest that CD8+ T-cell responses may still maintain capability to recognize the Omicron VOC. A study from United States[8] not yet published, examined SARS-CoV-2 CD8+ T-cell responses from 30 recovered COVID-19 convalescent patients, evaluating if the previously identified viral epitopes targeted by CD8+ T-cells in these individuals (n=52 distinct epitopes) are mutated in the newly described Omicron variant. Within this population, only one low-prevalence (found in 2/30 (7%) of participants) epitope restricted to two HLA alleles from the Spike protein was found to be mutated in Omicron and contains only a single amino acid change. These data suggest that individuals with existing anti-SARS-CoV-2 CD8+ T-cell responses should recognize the Omicron variant, and that SARS-CoV-2 has not evolved extensive T-cell escape mutations.

A retrospective cohort study[9] was conducted in the United States to evaluate the duration of immunity to the Delta variant following infection. Of the samples tested prior from 9 March-31 December 2020, 15.5% (50 327/ 325 157) individuals were positive for SARS-CoV-2. During the Delta dominant period, protection of prior SARS-CoV-2 infection (defined as 1 minus the ratio of the infection rate for those initially positive to those initially negative) against reinfection was 85.4% (95%CI 80.0-89.3%) however, was lower for asymptomatic compared to symptomatic infection (66.6% (95%CI 40.6-81.2%). From 30 August 2020 to 9 September 2021, prior infection provided an overall 85.7% (95%CI 82.2-88.5%) protection against reinfection and again, protection against asymptomatic infection was lower than for symptomatic infection (52.2% (95%CI 35.3-64.7%) and 92.0% (95%CI 89.1-94.2%, respectively). Additionally, long-term protection among those aged 65 years and over was lower than for those aged under 65 years (76.3% compared to 88.9%, $p<0.001$).

A study conducted in the Republic of Korea[10] evaluated the transmissibility of the Delta variant among household contacts. A total of 405 cases with a median age of 19 years (1-71 years) who were infected with the Delta variant between 22 June to 31 July from Daejeon metropolitan city were included the study, of whom 325 (80.2%) were symptomatic. From these cases, six local clusters (two or more confirmed infections) were identified, all of which were associated with indoor facilities with the largest related to a sports academy (n=249 cases) and the second largest, a karaoke centre (n=47 cases). It was also estimated that 80% of all local transmission was caused by 15% (95%CI 13-18%) of cases and from 258 infector-infectee transmission pairs, an estimated mean serial interval (the time between which the infector and infectee show symptoms) of 3.26 days (95% credible interval of 2.92-3.60 days) was calculated. A secondary attack rate of 63.4% (52/82 cases) was calculated based on data from 23 household

contacts in 32 homes. The study demonstrates the high transmissibility of the Delta variant in indoor settings and households. Contact tracing and isolation and the use of personal preventive measures during indoor activity remain imperative particularly given the potential for pre-symptomatic transmission.

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

WHO label	Alpha	Beta	Gamma	Delta	Omicron
Transmissibility	Increased transmissibility[11]	Increased transmissibility[12,13]	Increased transmissibility[13,14]	Increased transmissibility [13,15,16]	No direct evidence for increased transmissibility.
Disease severity	Possible increased risk of hospitalization[17,18], possible increased risk of severe disease and death[19,20]	Possible increased risk of hospitalization[18], possible increased in-hospital mortality[21]	Possible increased risk of hospitalization[18], possible increased risk of severe disease[22]	Possible increased risk of hospitalization[23,24]	Not yet known. Clinical outcome data are under review.
Risk of reinfection	Neutralizing activity retained[25], risk of reinfection remains similar[26]	Reduction in neutralizing activity reported; T cell response elicited by D614G virus remains effective[27]	Moderate reduction in neutralizing activity reported[28]	Reduction in neutralizing activity reported[29–31]	Preliminary evidence suggests a possible increased risk of reinfection [32]
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[33]	No impact on RT-PCR or Ag RDTs observed[31]	None reported to date	No impact on RT-PCR or Ag RDTs observed[34]	PCR continues to detect Omicron. Impact on Ag-RDTs is under investigation.

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

Table 3 summarizes the impact of variants on product specific vaccine efficacy/effectiveness (VE) and quantifies the reduction in VE in the setting of variants compared to non-VOC settings. Since the 30 November update, a total of 10 notable new studies have provided evidence of COVID-19 vaccine performance against the variants of concern.

As of December 12, seven recent studies have provided evidence of vaccine performance against the Omicron variant: 1 VE study and 6 neutralization studies. Note all studies are preliminary and more data are needed to confirm findings.

The first study of real-world VE against the Omicron variant (not yet peer-reviewed) provides preliminary evidence of reduced effectiveness of AstraZeneca-Vaxzevria and Pfizer BioNTech-Comirnaty against symptomatic disease due to Omicron.[35] No data on VE against severe disease was reported. [35]. This test-negative case-control study conducted in the United Kingdom found evidence that two doses of AstraZeneca-Vaxzevria was not effective at preventing symptomatic disease due to Omicron, at ≥15 weeks after the second dose. However, the authors note that early data for AstraZeneca-Vaxzevria are likely biased due to small numbers and because persons receiving two doses of the vaccine likely reflect an older population and those with more co-morbidities. VE of Pfizer BioNTech-Comirnaty against symptomatic disease was similar to Delta (88.0%, 95% CI: 65.9-95.8%) 2-9 weeks post complete vaccination, but then fell to 48.5% (24.3-65.0%) at 10-14 weeks post second dose (compared to VE of 77.7%, 95% CI: 76.3-79%, against Delta 10-14 weeks post vaccination). VE against symptomatic disease due to Omicron remained 34-37% from

15-to-25+ weeks post second dose, without evidence of further decrease. Two weeks after receiving a third dose of Pfizer BioNTech-Comirnaty, VE against symptomatic disease due to Omicron increased to 71.4% (41.8-86.0%) among those who had received a primary series of AstraZeneca-Vaxzevria and to 75.5% (95%CI: 56.1 to 86.3%) among those who had received a primary series of Pfizer BioNTech-Comirnaty; in contrast, VE of a third dose against symptomatic disease due to Delta was 93-94% when added to either primary series. While these results indicate reduced VE of AstraZeneca-Vaxzevria and Pfizer BioNTech-Comirnaty against Omicron, significant bias cannot be ruled out; differences in age and risk among early cases of Omicron among vaccinated versus unvaccinated persons, as well as the predominance of early Omicron cases among travelers and their close contacts, could explain some of the results. Moreover, due to the small number of Omicron cases detected to date, these early VE estimates are subject to significant uncertainty with wide confidence intervals.

Six studies (not yet peer reviewed) have assessed the ability of blood collected from vaccinated persons to neutralize the Omicron variant.

- One study found an average 41.3-fold reduction in neutralization capacity relative to the ancestral SARS-CoV-2 strain in 12 samples collected 10-39 days after complete vaccination with the Pfizer BioNTech-Comirnaty primary (two-dose) series.[5]
- A second study conducted by Pfizer, found a 25.8-fold reduction relative to the ancestral strain among approximately 20 samples collected 3 weeks after completion of the Pfizer BioNTech-Comirnaty primary series. The reduction was only 2.6-fold among samples collected from persons who had received a third dose of Pfizer BioNTech-Comirnaty one month prior to sample collection.[36]
- A third study found that neutralization capacity against Omicron was reduced by 33.5-fold relative to the ancestral strain in persons receiving 2 doses of Pfizer BioNTech-Comirnaty, while the majority of samples from persons receiving two doses of AstraZeneca-Vaxzevria, failed to neutralize the variant.[37]
- A fourth study found that blood collected from individuals who were previously vaccinated with 2 doses of mRNA vaccine 1.3 months prior showed a 127-fold reduction in capacity to neutralize Omicron relative to the ancestral strain; samples collected from persons vaccinated with Janssen-Ad26.COV 2.S 1 month prior failed to neutralize Omicron.[38]
- A fifth study found 20-fold, 11.4- fold, and 10-fold reductions in neutralization capacity *compared to Delta* for two doses of Moderna-mRNA-1273, for two doses of Pfizer BioNTech-Comirnaty, and for a single dose of AstraZeneca-Vaxzevria followed by second dose of Pfizer BioNTech-Comirnaty, respectively, among 14-19 samples collected from persons who had received their second dose 6-7 months prior.[39] Previous studies have found a median 3-fold reduction (IQR 2-4) of these vaccines against Delta relative to the ancestral strain. Adding a third dose of Pfizer BioNTech-Comirnaty to each of three primary vaccination series evaluated, an increase in neutralizing antibodies was observed relative to two doses, however, neutralization capacity against Omicron *relative to Delta* was still reduced by 23- to 37-fold.
- Finally, a sixth study found that blood collected from persons vaccinated with 2 doses of AstraZeneca-Vaxzevria, 2 doses of Moderna-mRNA-1273, 2 doses of Pfizer BioNTech-Comirnaty, or 1 dose of AstraZeneca-Vaxzevria followed by a second dose of Pfizer BioNTech-Comirnaty had reduced capacity to neutralize Omicron as *compared to Alpha, Beta, and Delta variants*; a much smaller reduction in neutralization capacity against Omicron was observed for blood collected from persons who had been previously infected and then vaccinated or previously vaccinated and then infected.[6] Of note, these neutralization studies used different assays, sera at variable times after vaccination, and most included sera from a small number of persons.

While methods vary across the studies, and neutralization is only one marker of vaccine performance, these preliminary laboratory results suggest that the effectiveness of COVID-19 vaccines against infection with the Omicron variant may be reduced.

Three studies assessed COVID-19 vaccine effectiveness in settings where Delta was the predominant circulating variant.

- The first test-negative case-control peer-reviewed study conducted at two medical centers in India found AstraZeneca-Vaxzevria to be 63.1% (51.5-72.1) effective at preventing SARS-CoV-2 infection 14 or more days post second dose, with a maximum follow-up time up to 10 weeks following the second dose.[40] Authors also report that persons infected with SARS-CoV-2, two doses of AstraZeneca-Vaxzevria was 81.5% (9.9-99.0%) effective at preventing progression to moderate-to-severe disease.
- A second peer-reviewed retrospective cohort study from Israel evaluated the effectiveness of a third dose of Pfizer BioNTech-Comirnaty in preventing death among persons 50 years and older who had completed the primary vaccination series at least 5 months prior.[41] The authors found that a third dose[41] had a relative VE of 90% (86-93%) effective at preventing death due to COVID-19, compared to those who had received only 2 doses; the rate of death in the third dose group was 0.16 per 100,000 person-years compared to 2.98 per 100,000 person years in persons with 2 doses only.
- A third retrospective cohort study from Israel (not yet peer reviewed), found the rate of SARS-CoV-2 infection to be 2.6 (2.4-2.7) time lower in persons having received a third dose of Pfizer BioNTech-Comirnaty in the previous two months relative to persons who had received their second dose in the prior two months.[42] The study also found evidence of decreasing VE of two doses of Pfizer BioNTech-Comirnaty over time, with a 4-fold increase in the rate of infection among those receiving a second dose 6-8 months prior compared to those who had received their second dose only 0-2 months earlier.

Table 3. Summary of primary series vaccine performance against variants of concern (data as of 12 December 2021)

	WHO Emergency Use Listing (EUL) Qualified Vaccines[+]								Vaccines without WHO EUL[+]		
	AstraZeneca-Vaxzevria/SII - Covishield	Beijing CNBG- BBIBP-CorV	Bharat-Covaxi	Janssen-Ad26.COV 2.S	Moderna-mRNA-1273	Moderna-mRNA-1273/ Pfizer BioN BioNTech-Comirnaty	Pfizer BioNTech-Comirnaty	Sinovac-CoronaVac	Anhui ZL-Recombinant	Gamaleya-Sputnik V	Novavax-Covavax
Alpha[43,44]											
Summary of VE*	Protection retained against all outcomes										
- Severe disease	↔$_2$	-	-	-	↔$_2$	↔$_1$	↔$_6$	-	-	-	-
- Symptomatic disease	↔to↓$_5$	-	-	-	↔$_1$	↔$_1$	↔$_4$	-	-	-	↓$_1$
- Infection	↔to↓$_4$	-	-		↔$_3$	-	↔$_3$	-	-	-	-
Neutralization	↔to↓$_8$	↔$_1$	↔$_2$	↔$_4$	↔to↓$_{13}$	↔to↓$_3$	↔to↓$_{43}$	↔to↓↓$_7$	↔$_2$	↔to↓$_4$	↓$_1$
Beta[45–48]											
Summary of VE*	Protection retained against severe disease; reduced protection against symptomatic disease; limited evidence										
- Severe disease	-	-	-	↔$_1$	↔$_1$	-	↔$_3$	-	-	-	-
- Symptomatic disease	↔to↓↓↓$_2$	-	-	↔$_1$	↔$_1$	-	↔$_2$	-	-	-	↓↓↓$_1$
- Infection	-	-	-	-	↔$_1$	-	↓$_1$	-	-	-	-
Neutralization	↓to↓↓$_8$	↔to↓$_2$	↓$_2$	↓to↓↓$_8$	↓to↓↓$_{17}$	↓↓$_3$	↓to↓↓$_{43}$	↓to↓↓↓$_6$	↔to↓$_3$	↓↓to↓↓↓$_5$	↓↓↓$_1$
Gamma											
Summary of VE*	Unclear impact; very limited evidence										
- Severe disease	↔$_1$	-	-	-	↔$_1$	-	↔$_2$	-	-	-	-
- Symptomatic disease	↔$_1$	-	-	-	↔$_1$	-	↔$_1$	-	-	-	-
- Infection	↔$_1$	-	-	-	↔$_1$	-	↔$_1$	↔$_1$	-	-	-
Neutralization	↔to↓$_3$	-	-	↔to↓$_4$	↓$_8$	↔$_1$	↔to↓$_{26}$	↓$_5$	↔$_1$	↓to↓↓$_3$	-
Delta[49]											
Summary of VE*	Protection retained against severe disease; possible reduced protection against symptomatic disease and infection; limited evidence										
- Severe disease	↔$_3$	-	-	-	↔$_3$	-	↔$_6$	-	-	-	-
- Symptomatic disease	↓to↓↓$_5$	-	↓$_1$	-	↔$_1$	-	↔to↓$_4$	-	-	-	-
- Infection	↔to↓$_4$	-	-	↓↓↓$_1$	↔$_3$	-	↔to↓$_3$	-	-	-	-
Neutralization	↓$_{10}$	-	↔to↓$_3$	↔to↓↓$_8$	↓$_9$	↓to↓↓$_3$	↔to↓$_{23}$	↓to↓↓↓$_5$	↔to↓$_2$	↓to↓↓$_3$	-
Omicron											
Summary of VE*	No evidence										
- Severe disease	-	-	-	-	-	-	-	-	-	-	-
- Symptomatic disease	-	-	-	-	-	-	↓↓↓$_1$	-	-	-	-
- Infection	-	-	-	-	-	-	-	-	-	-	-
Neutralization	↓↓↓$_1$	-	-	↓↓↓$_1$	-	↓↓↓$_1$	↓↓↓$_3$	-	-	-	-

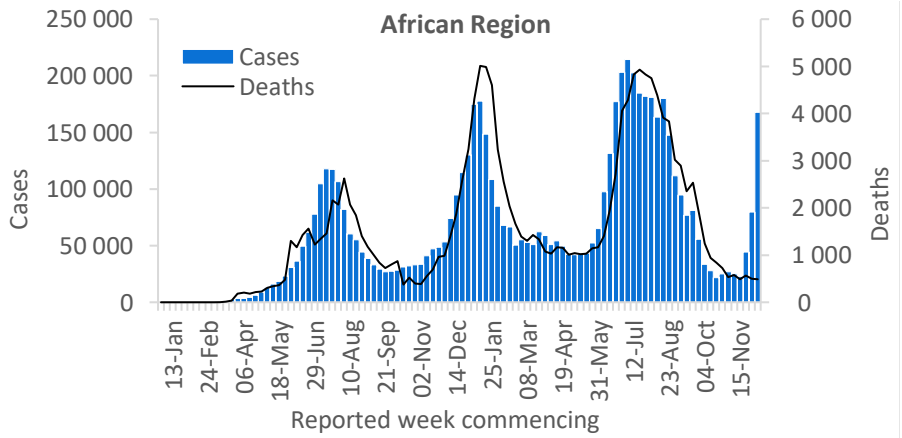
VE refers to vaccine effectiveness and vaccine efficacy. *Summary of VE: indicates the general conclusions but only for the vaccines evaluated against the specific variant. Arrows generalize the magnitude of reduction in VE or neutralization: "↔" <10% reduction in VE, or VE >90% with no comparator, or 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 Library. References indicated by superscripts next to VOC name in column 1 are vaccine efficacy results from randomized controlled trials informing this table.

WHO regional overviews Epidemiological week 6 – 12 December 2021

African Region

The African Region reported over 167 000 new cases, an increase of 111% as compared to the previous week and the highest number of new weekly cases since early August 2021. Marked increases were observed in over two thirds (33/49; 67%) of countries in the Region with the majority (30/33; 91%) reporting increases of 25% or greater, as compared to the previous week. The highest numbers of new cases were reported from South Africa (109 053 new cases; 183.9 new cases per 100 000 population; a 76% increase), Zimbabwe (26 479 new cases; 178.2 new cases per 100 000; a 479% increase), and Mauritius (6415 new cases; 504.4 new cases per 100 000; a 775% increase).

The Region reported just under 500 new deaths, a number similar to the number reported in the previous week. The highest numbers of new deaths were reported from South Africa (151 new deaths; <1 new death per 100 000 population; a 13% decrease), Mauritius (92 new deaths; 7.2 new deaths per 100 000; a 27% decrease), and Algeria (41 new deaths; <1 new death per 100 000; a 7% decrease).

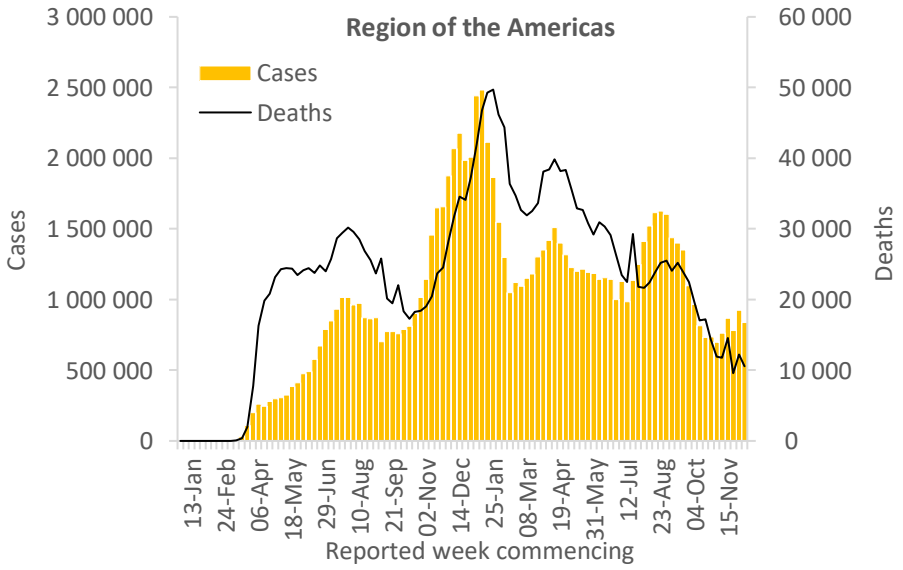


Updates from the African Region

Region of the Americas

The Region of the Americas reported over 837 000 new cases and over 10 000 new deaths, decreases of 10% and 14% respectively as compared to the previous week. Nevertheless, 28% (15/56) of countries in the Region reported over 10% increases in cases, with the greatest observed in the Caribbean islands of Saint Barthélemy (350%; from 2 cases to 9 cases), Turks and Caicos Islands (285%) and Saint Martin (111%). The highest numbers of new cases were reported from the United States of America (674 019 new cases; 203.6 new cases per 100 000; a 9% decrease), Brazil (38 372 new cases; 18.1 new cases per 100 000; a 38% decrease), and Canada (25 332 new cases; 67.1 new cases per 100 000; a 25% increase).

The highest numbers of new deaths were reported from the United States of America (6909 new deaths; 2.1 new deaths per 100 000; a 16% decrease), Mexico (1122 new deaths; <1 new death per 100 000; an 85% increase), and Brazil (851 new deaths; <1 new death per 100 000; a 41% decrease).

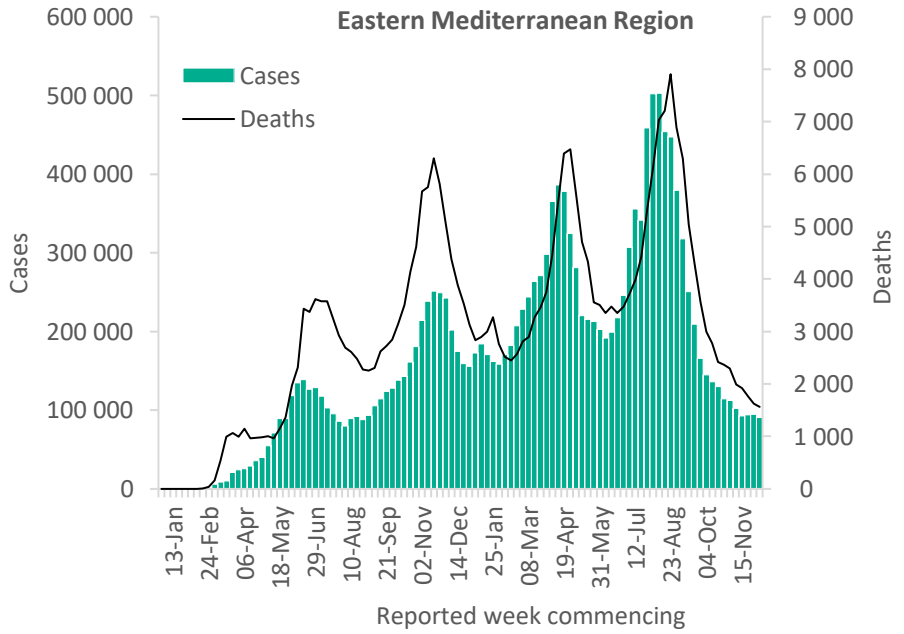


Updates from the Region of the Americas

Eastern Mediterranean Region

The weekly incidence of cases and deaths in the Eastern Mediterranean Region remained stable this week, with over 90 000 new cases and over 1500 new deaths reported. However, three countries (3/22, 13%) in the Region reported an increase of over 10% in weekly incidence of cases. The highest numbers of new cases were reported from Jordan (34 735 new cases; 340.4 new cases per 100 000; an 8% increase), the Islamic Republic of Iran (21 168 new cases; 25.2 new cases per 100 000; a 19% decrease), and Lebanon (11 341 new cases; 166.2 new cases per 100 000; a 9% increase).

The highest numbers of new deaths continued to be reported from the Islamic Republic of Iran (537 new deaths; <1 new death per 100 000; a 7% decrease), Egypt (333 new deaths; <1 new death per 100 000; a 12% decrease), and Jordan (226 new deaths; 2.2 new deaths per 100 000; a 13% increase).

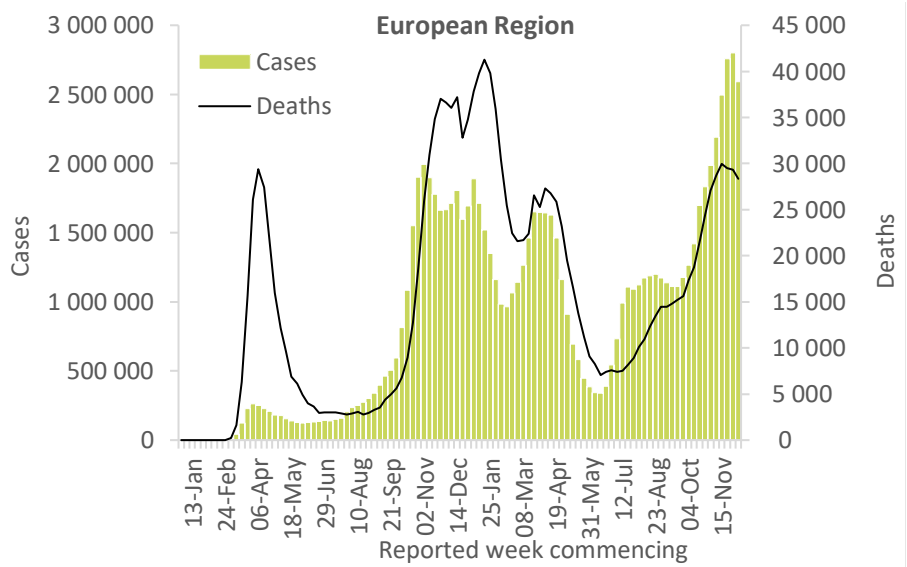


Updates from the Eastern Mediterranean Region

European Region

The European Region reported just under 2.6 million new cases, a 7% decrease as compared to the previous week and a decline since early September. The number of new deaths reported this week was just over 28 000, remaining similar to the number reported in the previous week. Despite the declining trend, a small proportion (10/61; 6%) of countries still reported over a 10% increase in cases as compared to the previous week. The highest numbers of new cases were reported from Germany (351 738 new cases; 422.9 new cases per 100 000; an 11% decrease), the United Kingdom (350 340 new cases; 516.1 new cases per 100 000; a 13% increase), and France (335 972 new cases; 516.6 new cases per 100 000; a 19% increase).

The highest numbers of new deaths were reported from the Russian Federation (8205 new deaths; 5.6 new deaths per 100 000; a similar number to that of the previous week), Poland (2804 new deaths; 7.4 new deaths per 100 000; a 6% increase), and Ukraine (2747 new deaths; 6.3 new deaths per 100 000; a 13% decrease).

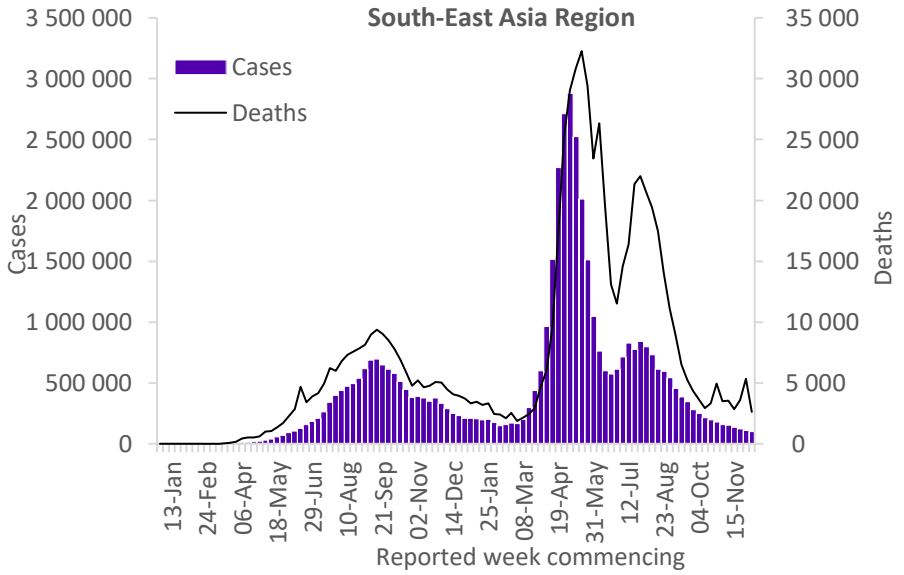


Updates from the European Region

South-East Asia Region

The declining trend in reported new weekly cases and deaths continued this week in the South-East Asia Region. Over 98 000 new cases and over 2600 new deaths were reported, amounting to a 10% and 50% decrease respectively as compared to the previous week. Only two countries reported an increase in weekly cases, Bangladesh (from 1659 to 1882, a 13% increase) and Bhutan (from 1 to 8; a 700% increase). The highest numbers of new cases were reported from India (57 255 new cases; 4.1 new cases per 100 000; a 6% decrease), Thailand (27 405 new cases; 39.3 new cases per 100 000; a 20% decrease), and Sri Lanka (5220 new cases; 24.4 new cases per 100 000; similar to the number reported in the previous week).

The highest numbers of new deaths were reported from India (2108 new deaths; <1 new death per 100 000; a 56% decrease), Thailand (227 new deaths; <1 new death per 100 000; similar to the number reported in the previous week), and Sri Lanka (153 new deaths; <1 new death per 100 000; similar to the number reported in the previous week).

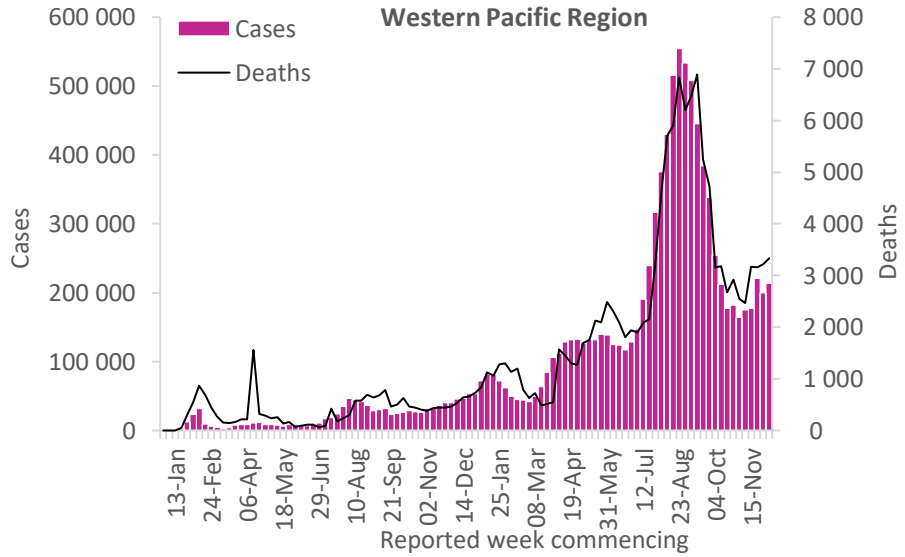


Updates from the South-East Asia Region

Western Pacific Region

The Western Pacific Region reported 214 000 new cases, a 7% increase as compared to the previous week. Four of the 27 countries in the region, reported an increase in case incidence of over 10%, Northern Mariana Islands (62%), Republic of Korea (37%), Lao People's Democratic Republic (17%) and Japan (12%). The highest numbers of new cases were reported from Viet Nam (103 635 new cases; 106.5 new cases per 100 000; a 6% increase), Republic of Korea (44 238 new cases; 86.3 new cases per 100 000; a 38% increase), and Malaysia (33 675 new cases; 104.0 new cases per 100 000; similar to the number reported in the previous week).

The Region reported over 3300 new deaths, a number similar to that of the previous week. The highest numbers of new deaths were reported from Viet Nam (1550 new deaths; 1.6 new deaths per 100 000; a 13% increase), the Philippines (866 new deaths; <1 new death per 100 000; a 16% decrease), and Republic of Korea (401 new deaths; <1 new death per 100 000; a 32% increase).



Updates from the Western Pacific Region

Summary of the COVID-19 Weekly Operational Update

The Weekly Operational Update 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, and to highlight country-level actions and WHO support to countries. In this week's edition published on 13 December, highlights include the following:

- WHO provides testing kits to Uganda for screening the COVID-19 Omicron variant of concern
- COVID-19 Contact Tracing Communication in Honduras
- WHO/Europe laboratory system strengthening mission to Kazakhstan
- UN agencies support intensive COVID-19 vaccination drive in the Philippines
- Emergency Medical Teams (EMT) in the Pacific: Strengthening national capacity for health emergency response
- Updates on WHO's financing to support countries on COVID-19 response implementation to suppress transmission, reduce exposure, and protect the vulnerable and save lives
- Progress on a subset of global indicators that demonstrate country and global progress to end the acute phase of the pandemic

Technical guidance and other resources

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

Annexes

Annex 1. Additional notes on VOC impacts on vaccines

- Reductions in VE do not necessarily mean loss of protection, as indicated by the absolute VE estimate. For example, a 10-percentage point reduction in VE against symptomatic disease for mRNA vaccines would still mean high vaccine effectiveness of ~85%. Likewise, vaccines have shown higher VE against severe disease; thus, small reductions in VE against severe disease due to VOCs may still mean substantial protection.
- Table 3 summarizes the impact of VOCs on COVID-19 vaccine performance in the absence of waning, and, therefore, does not include studies that only assess VE greater than 4 months post final dose.
- Studies reporting VOC-specific VE estimates for full vaccination (≥7 days post final dose) are assessed against a comparator VE estimate for that vaccine product to determine level of reduction in VE. For symptomatic disease, VOC VE is compared against phase 3 RCT results from non-VOC settings. For severe disease and infection, due to instability or lack of phase 3 RCT estimates, VOC VE is compared to non-VOC VE estimates from the same study when available (or to Alpha VE from same study when assessing Beta, Gamma, or Delta); with an exception for AstraZeneca-Vaxzevria for infection (when a phase 3 estimate of VE against infection due to non-VOC is available and used as comparator). In some instances, a study may be included for severe disease or infection outcome even without a comparator if a very high VE estimate is reported against a VOC (i.e., >90%).
- It is also important to note that studies vary in population, outcome definitions, study design and other methodological considerations, which may in part explain differences when comparing VE estimates for a product between different studies. In addition, the reductions summarized in the table represent VE point estimates and do not represent the uncertainty intervals around these estimates which vary substantially across studies. The reductions in VE noted should be interpreted with these limitations in mind.
- Neutralization studies that use samples collected >7 days and < 6 months after complete vaccination and that use an ancestral strain as the reference are included in Table 3.

Annex 2. List of countries/territories/areas reporting variants of concern as of 14 December 2021

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

Country/Territory/Area	Alpha	Beta	Delta	Gamma	Omicron
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	●	-	●	-	●
Mali	-	-	●	-	-
Malta	●	○	○	●	-
Martinique	●	●	●	●	-

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

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

Country/Territory/Area	Alpha	Beta	Delta	Gamma	Omicron
Sudan	●	●	-	●	-
Suriname	●	●	●	●	-
Sweden	●	●	●	●	●
Switzerland	●	●	●	●	●
Thailand	●	●	●	●	●
Timor-Leste	●	-	●	-	-
Togo	●	●	●	●	-
Trinidad and Tobago	●	-	●	●	●*
Tunisia	●	●	●	-	●
Turkey	●	●	●	●	○*

Country/Territory/Area	Alpha	Beta	Delta	Gamma	Omicron
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	●	●	○	-	-

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

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

Annex 3. Data, table, and figure notes

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

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

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

[1] All references to Kosovo should be understood to be in the context of the United Nations Security Council resolution 1244 (1999). In the map, the number of cases of Serbia and Kosovo (UNSCR 1244, 1999) have been aggregated for visualization purposes.

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