COVID-19 Weekly Epidemiological Update

Edition 88, published 20 April 2022

In this edition:

Global overview

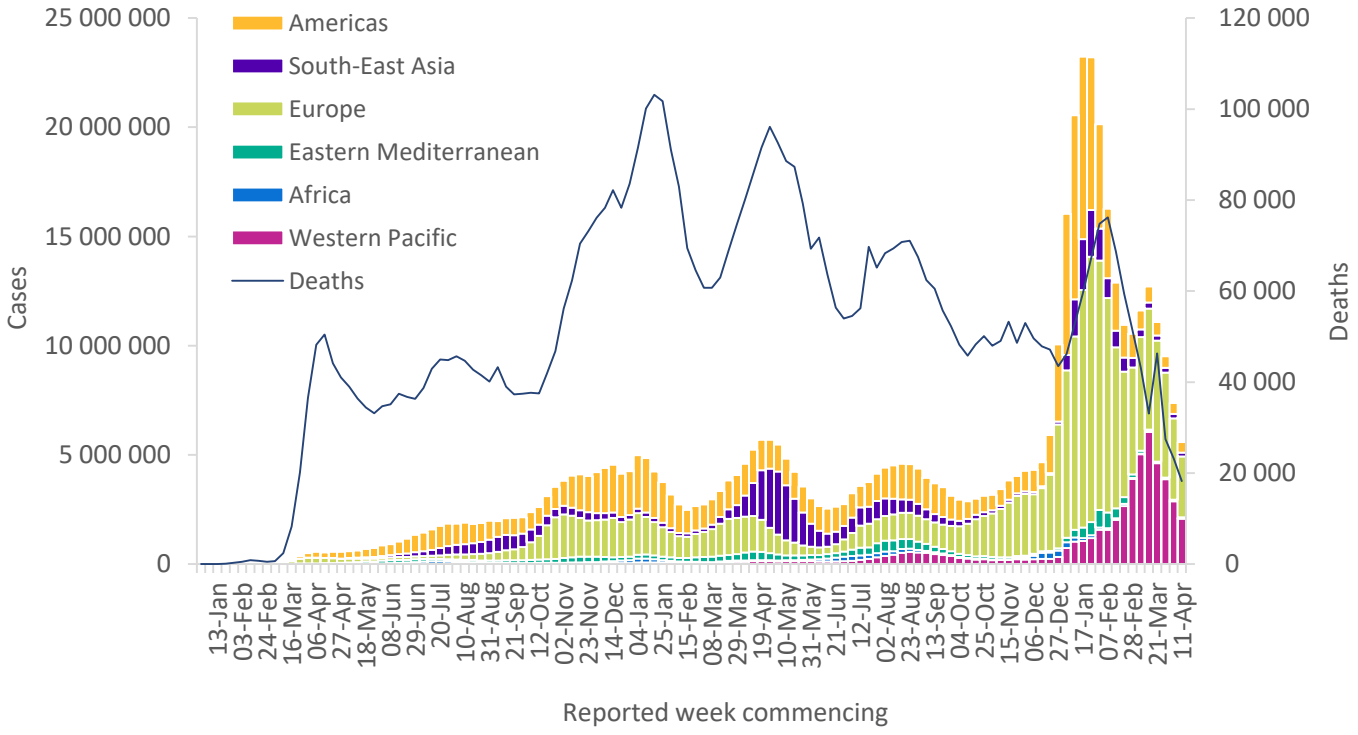
Data as of 17 April 2022

Globally, the number of new COVID-19 cases and deaths has continued to decline since the end of March 2022. During the week of 11 through 17 April 2022, over 5 million cases and over 18 000 deaths were reported, decreases of 24% and 12% respectively, as compared to the previous week (Figure 1).

All regions reported decreasing trends in the number of new weekly cases and deaths (Table 1). As of 17 April 2022, over 500 million confirmed cases and over 6 million deaths have been reported globally.

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

Figure 1. COVID-19 cases reported weekly by WHO Region, and global deaths, as of 17 April 2022**



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

At the country level, the highest number of new weekly cases were reported from the Republic of Korea (972 082 new cases; -33%), France (827 350 new cases; -11%), Germany (769 466 new cases; -25%), Italy (421 707 new cases; -6%), and Japan (342 665 new cases; +1%).

The highest number of new weekly deaths were reported from the United States of America (3 076 new deaths; -9%), the Russian Federation (1 784 new deaths; -11%), the Republic of Korea (1 671 new deaths; -24%), Germany (1227 new deaths; -27%), and Italy (944 new deaths; -5%).

Table 1. Newly reported and cumulative COVID-19 confirmed cases and deaths, by WHO Region, as of 17 April 2022**

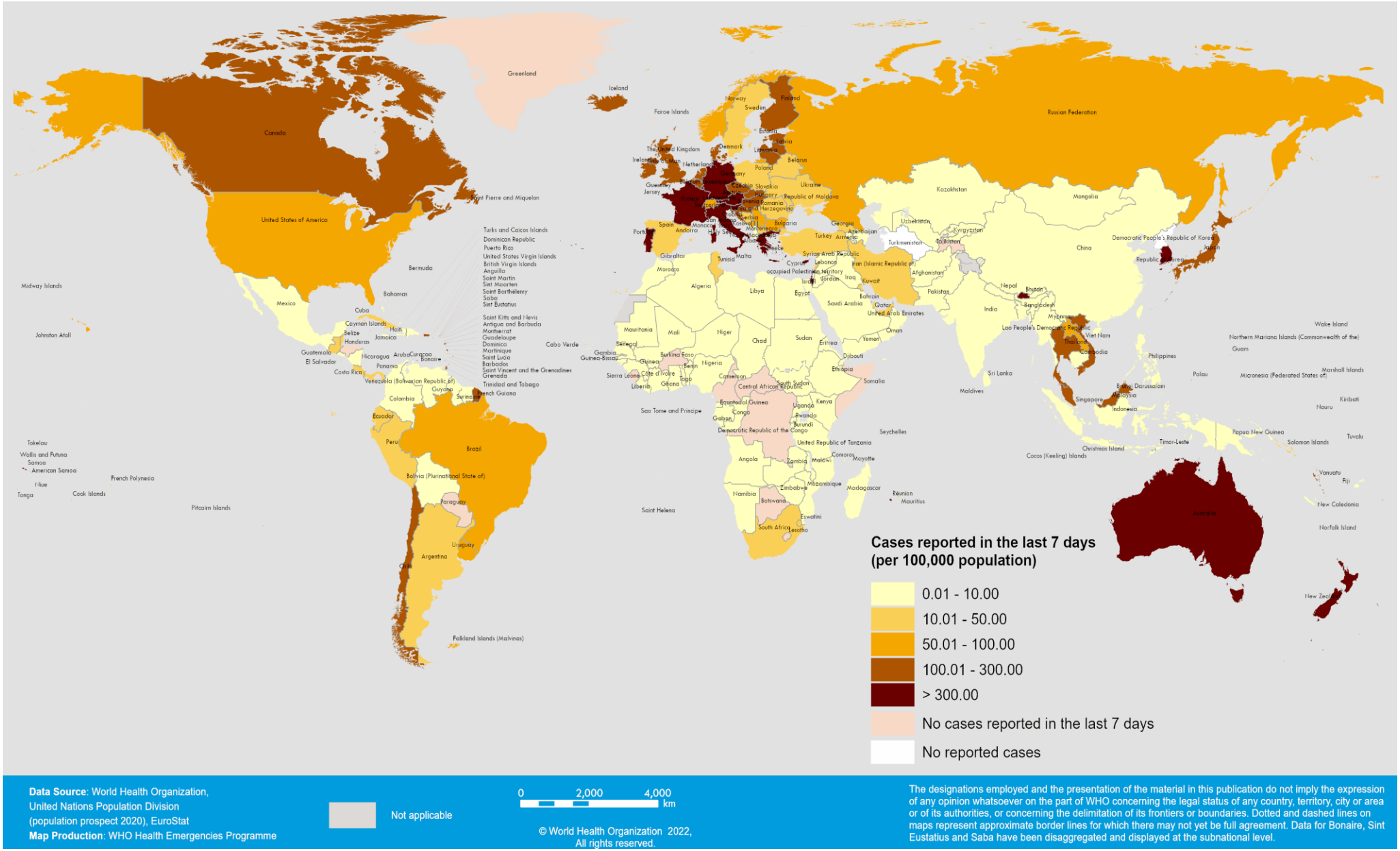
WHO Region	New cases in last 7 days (%)	Change in new cases in last 7 days *	Cumulative cases (%)	New deaths in last 7 days (%)	Change in new deaths in last 7 days *	Cumulative deaths (%)
Europe	2 790 061 (50%)	-25%	210 461 092 (42%)	8 450 (46%)	-23%	1 967 276 (32%)
Western Pacific	2 078 718 (37%)	-28%	51 977 047 (10%)	3 336 (18%)	-25%	220 722 (4%)
Americas	490 525 (9%)	-2%	151 955 885 (30%)	4 797 (26%)	-15%	2 714 852 (44%)
South-East Asia	172 308 (3%)	-16%	57 572 881 (11%)	1 117 (6%)	-18%	781 950 (13%)
Eastern Mediterranean	32 550 (1%)	-26%	21 662 992 (4%)	428 (2%)	-25%	341 737 (6%)
Africa	25 107 (<1%)	-7%	8 682 837 (2%)	87 (<1%)	-16%	171 378 (3%)
Global	**5 589 269 (100%)**	**-24%**	**502 313 498 (100%)**	**18 215 (100%)**	**-21%**	**6 197 928 (100%)**

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

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

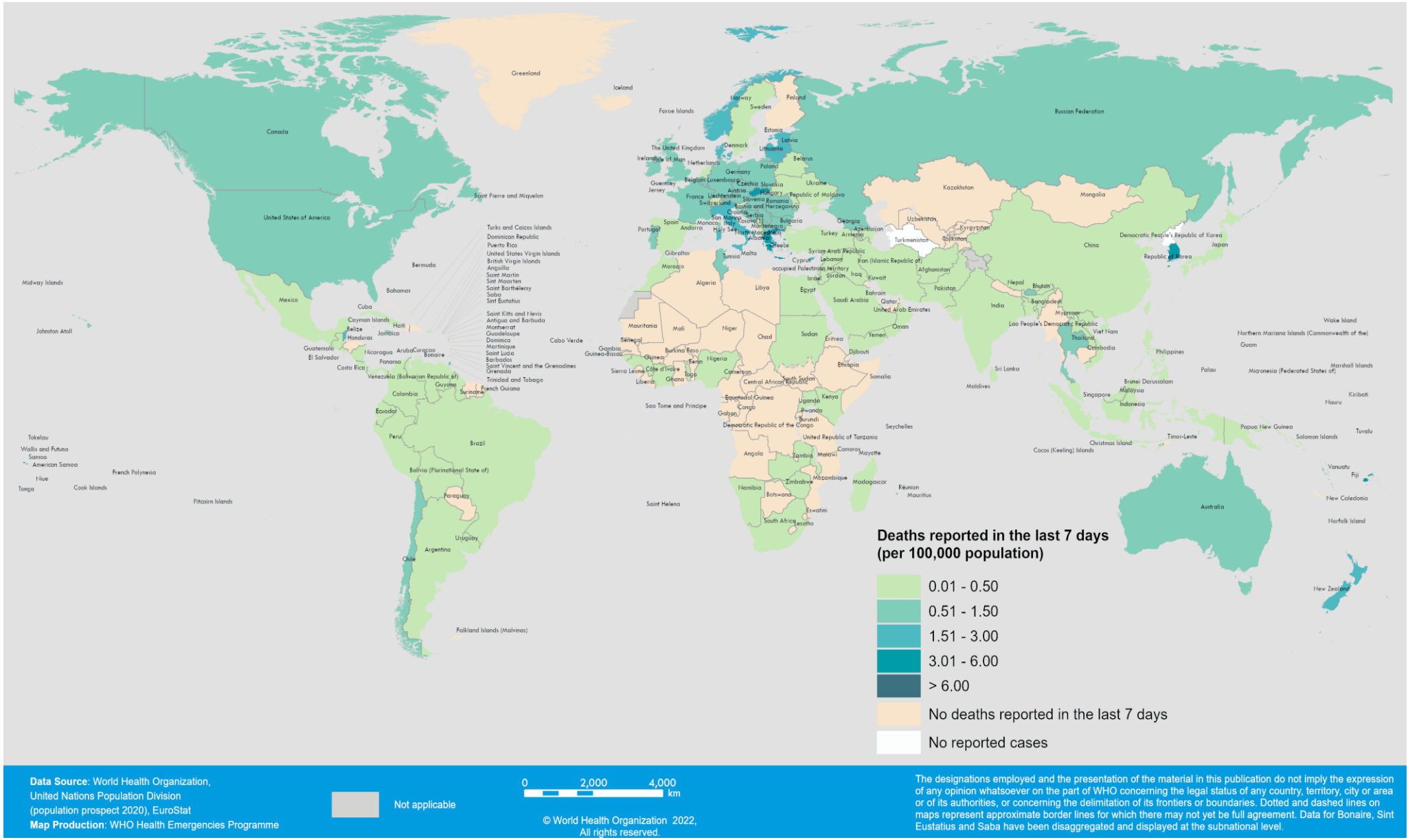
- WHO COVID-19 Dashboard
- WHO COVID-19 Weekly Operational Update and previous editions of the Weekly Epidemiological Update

Figure 2. COVID-19 cases per 100 000 population reported by countries, territories and areas, 11 – 17 April 2022*



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

Figure 3. COVID-19 deaths per 100 000 population reported by countries, territories and areas, 11 – 17 April 2022*



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

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

WHO, in collaboration with national authorities, institutions and researchers, routinely assesses if variants of SARS-CoV-2 alter transmission or disease characteristics, or impact the effectiveness of vaccines, therapeutics, diagnostics or public health and social measures (PHSM) applied to control disease spread. Potential variants of concern (VOCs), variants of interest (VOIs) or variants under monitoring (VUMs) are regularly assessed based on the risk posed to global public health.
The classifications of variants will be revised to reflect the continuous evolution of circulating variants and their changing epidemiology. Criteria for variant classification, and the lists of currently circulating and previously circulating VOCs, VOIs and VUMs, are available on the WHO Tracking SARS-CoV-2 variants website. National authorities may choose to designate other variants and are encouraged to investigate and report on the impacts of these variants. When referring to the genomic sequence of SARS-CoV-2 identified from the first cases (December 2019), the term 'index virus' should be used.

The Omicron variant remains the dominant variant circulating globally, accounting for nearly all sequences recently reported to GISAID. Among the 313 715 sequences uploaded to GISAID with specimens collected in the last 30 days[i], 312 033 (99.5%) were Omicron, 136 (<0.1%) were Delta and 1 393 (0.4%) sequences were not assigned to a Pango lineage.

These trends should be interpreted with due consideration of the limitations of surveillance systems, including differences in sequencing capacity and sampling strategies between countries, as well as laboratory turn-around times for sequencing and 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 public health and social measures in the context of COVID-19
- VIEW-hub: repository for the most relevant and recent vaccine data
- WHO Statement on Omicron sublineage BA.2

[i] Includes sequences submitted to GISAID with sample collected dates from 16 March to 14 April 2022 (last reported sample at the time of data extraction), excluding low coverage sequences. Proportions are estimated for countries submitting more than 100 total sequences. In the past 30 days, 42 countries submitted a total of 100 sequences and above on GISAID.

Special Focus: Applying Geographic Information Systems to the COVID-19 response

What is a Geographic Information System?

A Geographic Information System (GIS) is a "collection of computer software and data used to view and manage information about geographic objects, analyse spatial relationships and model spatial processes".[1] GIS sciences have evolved to integrate the storage of spatial information, spatial and statistical analysis, investment in infrastructure for data acquisition, such as the use of remote sensing and machine learning, incorporating crowdsourcing and big data.[2] GIS and other geospatial technologies can be used as practical tools for data-driven decision-making in a wide array of disciplines, including public health. GIS has long been utilised in epidemiology, including by John Snow in 1854 to investigate a cholera epidemic in the United Kingdom,[3] and continues to be widely utilised today.

How does the use of GIS contribute to health emergency response?

When applied to public health, GIS can analyse the spatial distribution of health outcomes and risk factors, to identify, prevent and control diseases, and improve the impact of health interventions. For example, GIS is easily integrated with demographic data, and can also help achieve equitable vaccine distribution and access to care. GIS also enables the spatial representation of data to support better public health planning and decision-making.

In health emergencies, GIS can support the identification of disease clusters and their possible causes, improve deployment for emergency services, determine if an area is being served adequately by health services, and support operational decision-making in other ways. GIS can also visualise and communicate spatial data intuitively to a wide variety of audiences in a timely manner. The effective use of GIS can strengthen countries' capacities to detect and respond to health emergencies.
For many years, WHO and partners have employed GIS to support the response to health emergencies, including outbreaks of Ebola virus disease, polio, measles, Zika virus disease, yellow fever, plague and cholera, as well as natural disasters and humanitarian crises such as famine and armed conflicts. The use of GIS can be adapted depending on the scale of the emergency and the extent of the affected areas. For example, GIS can support a local response by analysing the space-time travel patterns of patients to efficiently allocate available health screening resources, identifying the location of health facilities, and delineating health administrative boundaries to better understand healthcare accessibility in areas where there were previously sparse or inaccurate data. Mapping environmental factors related to disease, such as the distribution of disease-carrying mosquitoes, can inform risk assessments. At a regional or global level, GIS can inform data-driven decision-making by consolidating and presenting the epidemiological situation in multiple countries through GIS dashboards. WHO has drawn upon the knowledge accumulated in past health emergencies to strengthen the COVID-19 response.

How has WHO applied GIS to the COVID-19 pandemic response?

In the early stages of the pandemic, WHO used GIS to guide response activities by creating operational maps presenting data, such as flight patterns and air passenger volume, subnational level locations of reported cases, and laboratory networks of WHO collaborating centres worldwide to show laboratory testing capacity. Some regions also developed interactive dashboards to present the location of alerts (possible COVID-19 cases which required verification). WHO has also applied GIS to ensure that rural indigenous populations are considered in the COVID-19 response using spatial analyses, geotagging cases and contacts, and coordinating digital microplanning to ensure equitable vaccine access.

As SARS-CoV-2 variants of concern (VOCs) emerged, WHO produced maps to visualise the evolving proportion of VOCs in countries, based on genetic sequences uploaded to GISAID. In the Weekly Epidemiological Update on COVID-19, WHO publishes maps of the weekly case and death incidences. Such maps continue to support high-level decision-making at the World Health Assembly, and by its external advisory groups, including the IHR Emergency Committee on COVID-19. At the regional level, maps regularly contribute to operational decision-making and data visualisation and are included in internal and external information products. Examples of indicators presented in these maps included monthly attack and mortality rates, the evolution of the geographic spread of cases, distribution of VOCs, vaccine coverage, recent trends in the number of new weekly cases, and testing rates.

In addition to the above activities, one of the main applications of GIS in WHO's pandemic response at the global level is visualising and sharing data through public dashboards. WHO launched a global COVID-19 Dashboard in January 2020 to rapidly share daily epidemic situation updates with the number of cases and deaths that were reported by Member States through the International Health Regulations (2005), based on the WHO case definitions (figure 4).

Figure 4. WHO COVID-19 Dashboard showing cases reported globally

Globally, as of **5:40pm CEST, 19 April 2022**, there have been **503,131,834 confirmed cases** of COVID-19, including **6,200,571 deaths**, reported to WHO. As of **18 April 2022**, a total of **11,324,805,837 vaccine doses** have been administered.

Since then, WHO has added features to the WHO COVID-19 Dashboard in response to evolving needs and interests related to the pandemic. Some examples include the addition of data visualisation for:

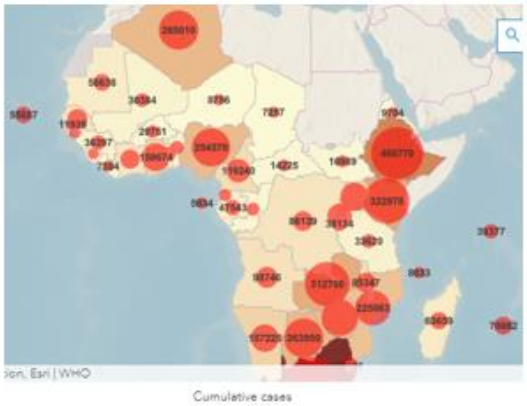
- Vaccination, with associated data download functionality, to better understand vaccine delivery and implementation worldwide.
- Public Health and Social Measures (PHSM) and the types of PHSM implemented by countries at any given time.

As of 20 April 2022, the WHO COVID-19 Dashboard has been visited by over 58 million users, with approximately 100 000 daily visitors globally. Additionally, all six WHO Regions host region-specific dashboards which, in some cases, present subnational data, providing a more granular view of COVID-19 epidemiology (African Region, Region of the Americas, Eastern Mediterranean Region, European Region, South-East Asia Region, Western Pacific Region), which can inform risk assessments and provide an enhanced alerting system for local health authorities (figure 5).

Figure 5. Select features of WHO Regional Office COVID-19 dashboards*

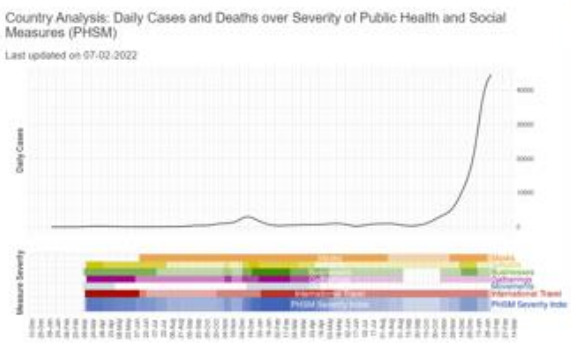
AFR: WHO African Region; AMR: WHO Regional of the Americas; EMR: WHO Eastern Mediterranean Region; EURO: WHO European Region; SEARO: WHO South-East Asia Region; WPR: WHO Western Pacific Region

Cumulative cases by country (AFRO)

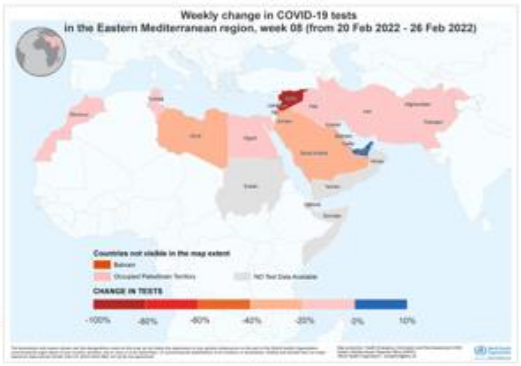


Subnational cumulative incidence rate and total cumulative cases by country (PAHO)

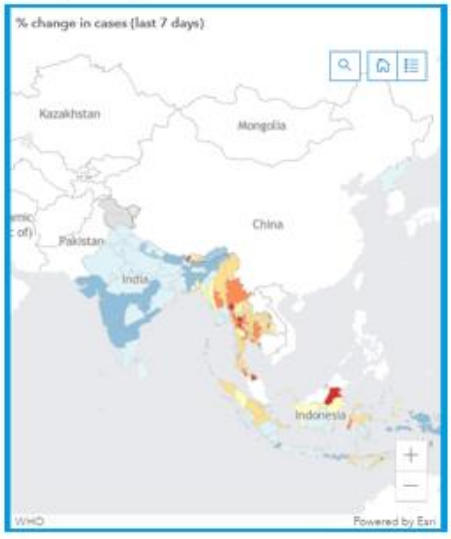
Stringency of Public Health and Social Measures at country level (EURO)



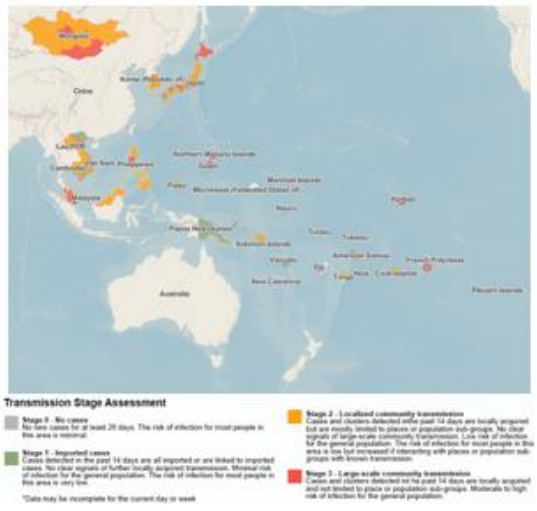
Weekly change in COVID-19 tests (EMRO)



Subnational-level case data in the last 7 days (SEARO)



Transmission stage assessment by country (WPRO)



*The images are for demonstration purposes only and do not reflect the latest situation.

Regional response teams apply GIS technology in a multitude of ways, including:

- Developing an urbanism index using remote sensing at the district and regional levels. This index is used to track the impact of COVID-19 and differences in equity between rural and urban areas.
- Transferring technology and skills to national authorities to support the automation of calculating complex COVID-19 indicators.
- Publicly sharing subnational-level data in a format that is readily re-usable by the media, academia, governments and researchers.
- Creating map animations to show changes in case distribution over time.

Conclusion

Maps can effectively and intuitively visualize information for health professionals and key decision-makers to support a timely response during a health emergency. Data visualisation on dashboards, especially when numbers change rapidly, is an effective way to share data, and has become a standard way to communicate data during the COVID-19 pandemic. The pandemic has posed unique challenges to employing GIS, such as implementing new data management systems to respond to a global event, the requirement for significant investment and expertise to maintain and develop them, and ensuring their ongoing performance despite very large datasets. The response to COVID-19 has highlighted that these systems need to be designed to be adaptable. The content and granularity of data, reporting practices, and epidemiological and social contexts can change as information becomes available at different stages of a pandemic response. GIS is a critical component of response activities to deliver timely and accurate data, information, analysis and visualization to support key public health decision-making for preparedness and response activities.

For more information

- WHO COVID-19 dashboard
- WHO Regional COVID-19 Dashboards: AFRO, PAHO, EMRO, EURO, SEARO, WPRO
- WHO GIS Center for Health: Cutting Edge GIS Technologies for COVID-19 Vaccine Delivery

References

1. Gavi The Vaccine Alliance, UNICEF. Improving Immunisation Coverage and Equity through the Effective Use of Geospatial Technologies and Data: A Landscape Analysis & Theory of Change September 2020.; 2020:40. https://www.gavi.org/sites/default/files/document/2020/GIS-and-Immunisation-Landscape_EN.pdf

2. Duckham M, Worboys M. Foundations of Geographic Information Science.; 2004. Accessed April 5, 2022. http://ebookcentral.proquest.com/lib/qut/detail.action?docID=214487

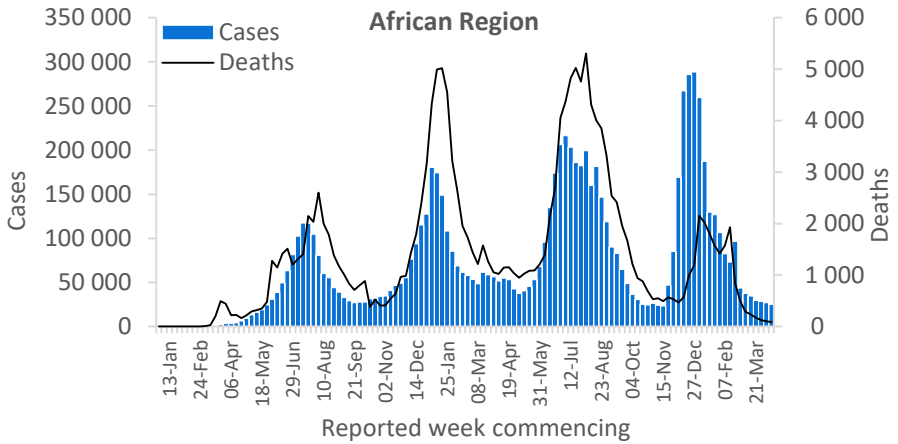
3. University of California Los Angeles Fielding School of Public Health Department of Epidemiology. Maps of the 1854 Broad Street Pump Outbreak. Accessed April 1, 2022. https://www.ph.ucla.edu/epi/snow/mapsbroadstreet.html

WHO regional overviews: Epidemiological week 11 – 17 April 2022*

African Region

The African Region has continued to report a decreasing trend in new cases since January 2022, with just over 25 000 new weekly cases reported, representing a 7% decrease as compared to the previous week. However, seven (14%) countries in the Region reported an increase of over 20% in cases, with some of the greatest proportional increases observed in Niger (48 vs 13 new cases; +269%), Mozambique (43 vs 16 new cases; +169%) and Zambia (984 vs 452; +118%). The highest numbers of new cases were reported from Réunion (12 504 new cases; 1396.6 new cases per 100 000 population; +14%), South Africa (9151 new cases; 15.4 new cases per 100 000; similar to previous week figures), and Zambia (984 new cases; 5.4 new cases per 100 000; +118%).

The number of new weekly deaths in the Region decreased by 16% as compared to the previous week, with 87 new deaths reported. The highest numbers of new deaths were reported from South Africa (48 new deaths; <1 new death per 100 000 population; -4%), Réunion (11 new deaths; 1.2 new deaths per 100 000; similar to the previous week), and Zambia (6 new deaths; <1 new death per 100 000 population; similar to the previous week's figures).

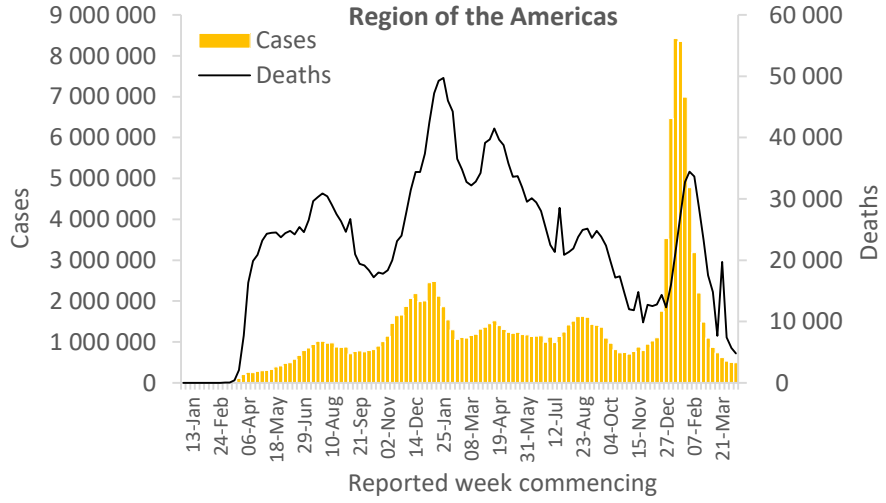


Updates from the African Region

Region of the Americas

With just over half a million new weekly cases and just below 5000 new weekly deaths (representing decreases of 2% and 15% respectively as compared to the previous week), the declining trends observed since mid-January 2022 have continued in the Region of the Americas. However, 13 (23%) countries in the Region reported increases in new cases of 20% or greater, with some of the largest proportional increases observed in Suriname (35 vs 12 new cases; +192%), Haiti (29 vs 11 new cases; +164%) and Saint Lucia (84 vs 51 new cases; +65%). The highest numbers of new cases were reported from the United States of America (245 594 new cases; 74.2 new cases per 100 000; +24%), Brazil (123 339 new cases; 58.0 new cases per 100 000; -17%), and Canada (53 391 new cases; 141.5 new cases per 100 000; -22%).

The highest numbers of new deaths were reported from the United States of America (3076 new deaths; <1 new death per 100 000; -9%), Brazil (785 new deaths; <1 new death per 100 000; -30%), and Chile (234 new deaths; 1.2 new deaths per 100 000; -24%).

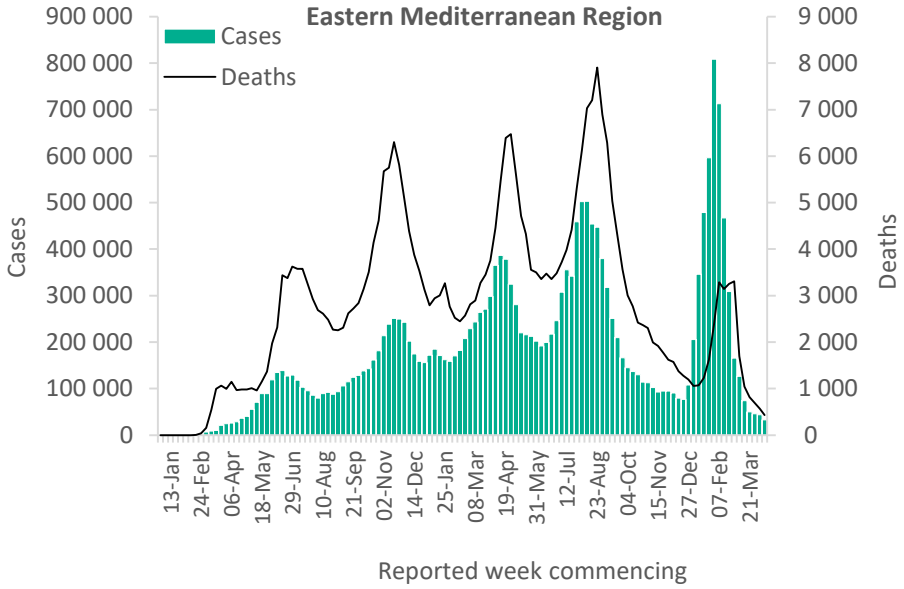


Updates from the Region of the Americas

Eastern Mediterranean Region

In the Eastern Mediterranean Region, the numbers of new weekly cases and deaths continue the decreasing trends observed since early February 2022, with over 32 000 new cases and 428 new deaths reported, representing decreases of 26% and 25% respectively as compared to the previous week. No country in the Region reported increases in new cases of 20% or greater. The highest numbers of new cases were reported from the Islamic Republic of Iran (16 315 new cases; 19.4 new cases per 100 000; -27%), Bahrain (3328 new cases; 195.6 new cases per 100 000; -14%), and Egypt (2800 new cases; 2.7 new cases per 100 000; -28%).

The highest numbers of new deaths were reported from the Islamic Republic of Iran (223 new deaths; <1 new death per 100 000; -26%), Tunisia (84 new deaths; <1 new death per 100 000; -18%), and Egypt (49 new deaths; <1 new death per 100 000; -13%).

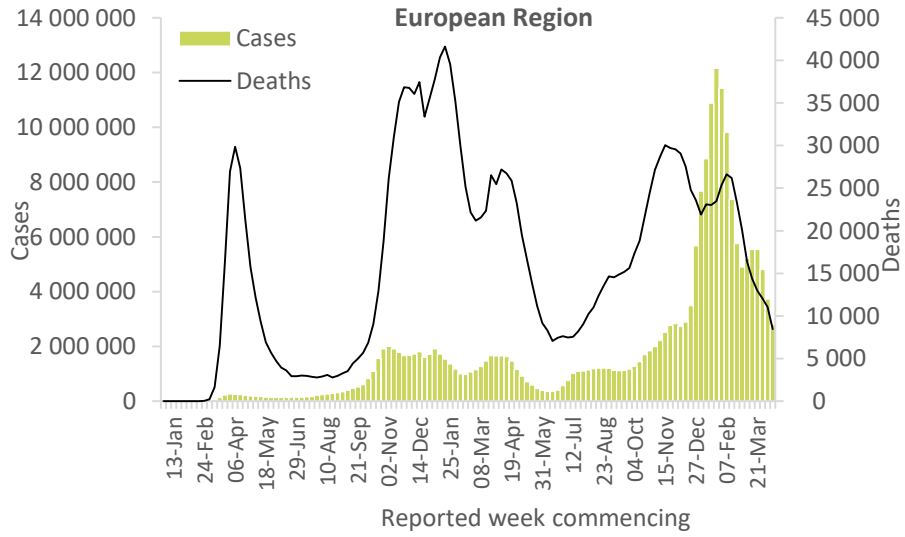


Updates from the Eastern Mediterranean Region

European Region

After the increase observed in mid-March 2022, the number of new weekly cases in the European Region has continued to decline for a month, with just under 2.8 million new cases reported, a 25% decrease as compared to the previous week. However, two countries in the Region reported an increase of over 20% in cases: Kyrgyzstan (10 vs 2 new cases; +400%) and Andorra (381 vs 304 new cases; +25%). The highest numbers of new cases were reported from France (827 350 new cases; 1272.1 new cases per 100 000; -11%), Germany (769 466 new cases; 925.2 new cases per 100 000; -25%), and Italy (421 707 new cases; 707.1 new cases per 100 000; -6%).

The number of new weekly deaths has continued to decrease in the Region, with over 8400 new deaths reported, a 23% decrease as compared to the previous week. The highest numbers of new deaths were reported from the Russian Federation (1784 new deaths; 1.2 new deaths per 100 000; -11%), Germany (1227 new deaths; 1.5 new deaths per 100 000; -27%), and Italy (944 new deaths; 1.6 new deaths per 100 000; -5%).

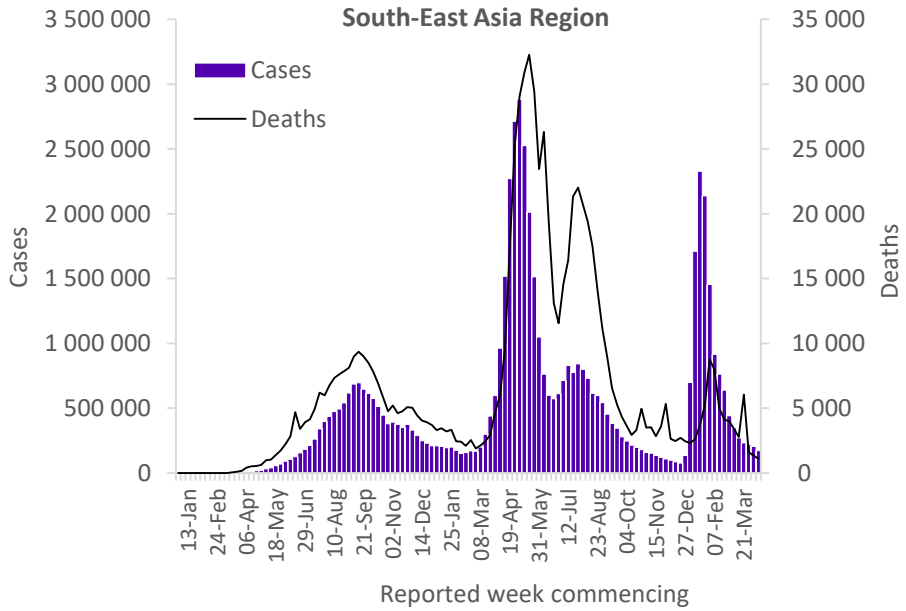


Updates from the European Region

South-East Asia Region

In the South-East Asia Region, the numbers of new weekly cases and deaths continue the decreasing trends observed since mid-January 2022, with just over 172 000 new cases and just over 1100 new deaths, decreases of 16% and 18% respectively as compared to the previous week. No country in the Region reported increases in new cases of 20% or greater. The highest numbers of new cases were reported from Thailand (146 474 new cases; 209.8 new cases per 100 000; -15%), Bhutan (10 574 new cases; 1370.4 new cases per 100 000; -2%), and Indonesia (7166 new cases; 2.6 new cases per 100 000; -44%).

The highest numbers of new deaths were reported from Thailand (799 new deaths; 1.1 new deaths per 100 000; + 20%), Indonesia (240 new deaths; <1 new death per 100 000; -29%), and India (66 new deaths; <1 new death per 100 000; -81%).

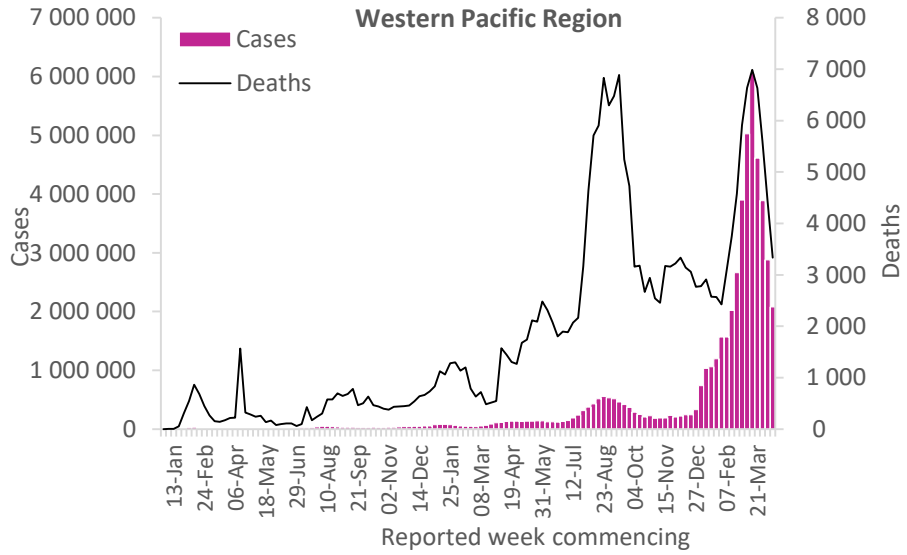


Updates from the South-East Asia Region

Western Pacific Region

After the peak reached in early March 2022, the number of new weekly cases has continued to decline in the Western Pacific Region, with just over two million new weekly cases reported, representing a 28% decrease as compared to the previous week. However, Guam and China reported increases of 121% (128 vs 58 new cases) and 28% (28 823 vs 22 519 new cases), respectively. The highest numbers of new cases were reported from the Republic of Korea (972 082 new cases; 1896.0 new cases per 100 000; -33%), Japan (342 665 new cases; 270.9 new cases per 100 000; 1%), and Australia (330 266 new cases; 1295.2 new cases per 100 000; -16%).

The number of new weekly deaths also continues the decreasing trend with over 3300 new deaths reported, a 25% decrease as compared to the previous week. The highest numbers of new deaths were reported from the Republic of Korea (1671 new deaths; 3.3 new deaths per 100 000; -24%), China (405 new deaths; <1 new death per 100 000; -37%), and Japan (346 new deaths; <1 new death per 100 000; -13%).



Updates from the Western Pacific Region

Annex 1. Data, table, and figure notes

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

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

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

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

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