

# Multi-country outbreak of mpox

External Situation Report 22, published 11 May 2023

Data as received by WHO national authorities by 17:00 CEST, 8 May 2023

Risk assessment	Laboratory confirmed cases	Deaths	Countries/areas/territories
Global risk – Moderate	87 377	140	111

## WHO Regional risk

- African Region, Eastern Mediterranean Region, European Region, Region of the Americas– Moderate
- South-East Asia Region, Western Pacific Region – Low

## Highlights

- Since the last situation report published on [27 April 2023](#), 264 new mpox cases (0.3% increase in total cases) and 10 new related deaths have been reported to WHO.
- After two weeks with less than 100 cases/week, a slight increase was observed globally in the last week. Most of the new cases are from the WHO Region of the Americas followed by the Western Pacific Region. A slight increase in cases was also observed in the European Region.
- More countries reported cases in the Western Pacific Region, where, in addition to Japan, China, and the Republic of Korea, cases have also been reported in Australia and Singapore. This report contains more details on the situation in the region.
- WHO updated its Rapid Risk Assessment for mpox, which assesses the risk at the global level still to be moderate and as well as in most of the regions, except in the Western Pacific and South-East Asia regions where the risk remains low.
- An updated analysis of mpox genomic sequencing data available from online open-source platform is presented in the report.

From 1 January 2022 through 8 May 2023, a cumulative total of 87 377 laboratory-confirmed cases of mpox, including 140 deaths, have been reported to WHO from 111 countries/territories/areas (hereafter 'countries') in all six WHO Regions (Table 1). Since the last situation report published on [27 April 2023](#), there have been 264 new cases (0.3% increase in total cases) and 10 new deaths reported. Some of the newly reported cases were reported retrospectively for the period preceding the last two weeks.

The number of weekly new cases reported globally has increased by 64% in week 18 (1 May through 7 May 2023) (n = 105 cases) compared to week 17 (24 April through 30 April 2023) (n = 64 cases). Most of the cases in the last week were reported by the Region of the Americas (AMR), followed by the Western Pacific Region (WPR).

The Western Pacific Region has reported an increase in cases (n = 114) in the last three weeks compared to the three weeks prior (n = 63), driven by outbreaks of mpox affecting mainly men in Japan, China, and the Republic of Korea, with sustained local transmission. In the past three weeks, the Region of the Americas also reported an increase in cases, primarily driven by Mexico (n = 54) and Brazil (n = 23) (Table 1). A slight increase was also observed for the European Region in the last week.

Fourteen countries have reported an increase in cases when comparing the last three weeks (17 April through 7 May 2023) to the three weeks prior (27 March through 16 April 2023), with the highest relative increase reported in the Republic of Korea (n = 49 vs n = 6). As of 8 May 2023, 24 of the 111 affected countries reported new cases within the last 21 days, the maximum disease incubation period. Nine of them are in the Americas, six in the European Region (EUR), five in the Western Pacific Region, two in the African Region (AFR), one in the Eastern Mediterranean Region (EMR), and one in the South-East Asia Region (SEAR). Some of these countries continue to have sustained community transmission of mpox, while others only report sporadic cases.

From 25 April through 8 May 2023, 10 new deaths were reported, all of which were from the Region of the Americas. Twelve new deaths were reported from Mexico, while two deaths were retracted by the United States of America. Information shared with WHO confirmed that the deaths in Mexico had been under clinical evaluation for the determination of the main cause of death. This brings the total number of deaths reported globally to 140.

As of 8 May 2023, the ten countries which reported the highest cumulative number of cases globally continue to be the United States of America (n = 30 154), Brazil (n = 10 920), Spain (n = 7551), France (n = 4146), Colombia (n = 4090), Mexico (n = 4010), Peru (n = 3800), the United Kingdom (n = 3741), Germany (n = 3691), and Canada (n = 1484). Together, these countries account for 84.2% of the cases reported globally.

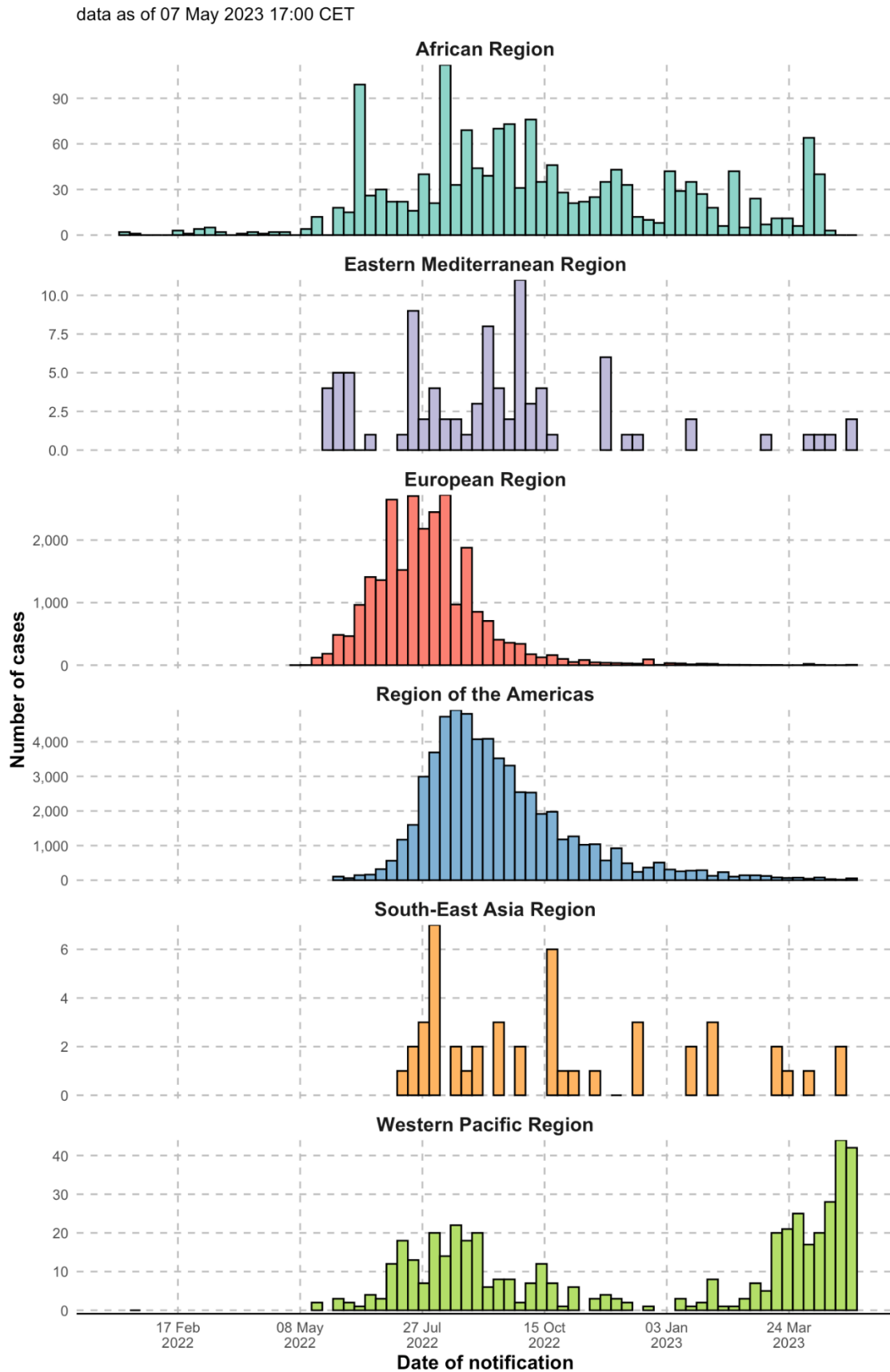
**Table 1. Number of cumulative confirmed mpox cases and deaths reported to WHO, by WHO Region, from 1 January 2022 to 8 May 2023 17:00 CEST**

WHO Region	Total Confirmed Cases	Total Deaths	Cases in last 3 weeks <sup>i</sup>	3-week change in cases (%)
Region of the Americas	59 292	114	104	-44%
European Region	25 887	6	8	-64%
African Region	1 587	18	3	-96%
Western Pacific Region	477	0	114	81%
Eastern Mediterranean Region	88	1	3	200%
South-East Asia Region	46	1	2	0%
Total	87 377	140	234 <sup>ii</sup>	-34%

<sup>i</sup> Using the three most recently completed international standard weeks (Monday - Sunday)

<sup>ii</sup> Please note that the number of cases reported since the last situational report published on 27 April 2023 (n = 264) exceeds those reported in the last three weeks (n = 234). This is highly unusual and is largely due to the retrospective addition of 106 cases from the Democratic Republic of the Congo which contribute towards the overall case count of 87,377 without being included in the number of cases reported in the last three weeks.

**Figure 1. Epidemiological curves of weekly aggregated confirmed cases of mpox by WHO Region, from 1 January 2022 to 7 May 2023, 17:00 CEST\***



Source: WHO

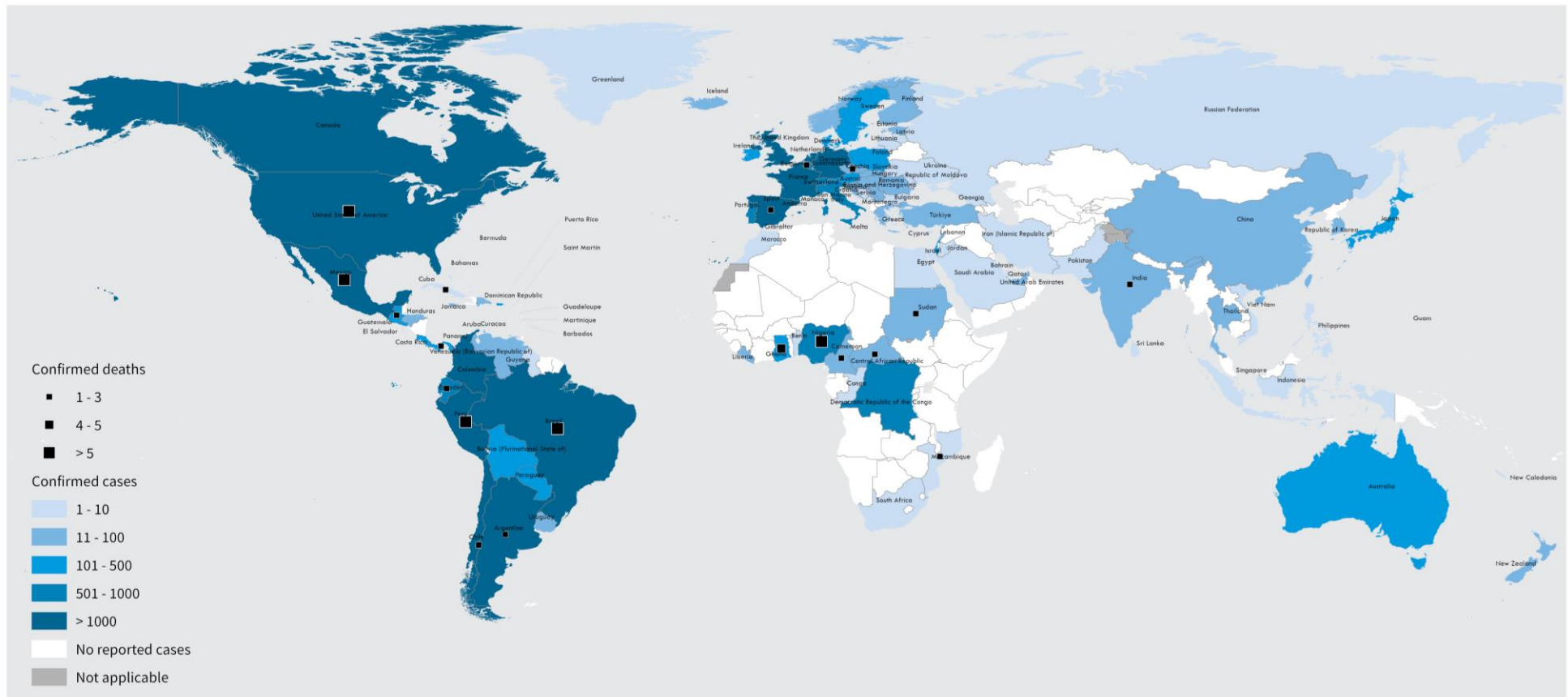
\*This figure shows aggregated weekly data, for completed epidemiological weeks ending on Sundays. Data on the current week will be presented in the next situation report. Note the different scale of the y-axes.

The epidemic curves shown in Figure 1 suggest that the outbreak continues with low levels of transmission in the European and the Americas Regions and is increasing in the Western Pacific Region. Most of the new cases in the latter region in the latest week are reported by the Republic of Korea (n = 17), China (n=13), and Japan (n = 6). Australia and Singapore have also reported new cases in the Western Pacific during the last week. Reporting from the African Region is not complete for the most recent weeks, and cases might be reported retrospectively. The remaining two regions, South-East Asia and the Eastern Mediterranean, have reported sporadic cases. More recently cases from the South-East Asia Region are being reported by Thailand, and it is currently unclear whether sustained community transmission is taking place.

#### **Other key epidemiological findings:**

- As of 8 May 2023, 96.2% (77 834 / 80 872) of cases with available data are men, with a median age of 34 years (interquartile range: 29-41 years). The age and sex distribution of cases has remained stable over time.
- Of cases with age data available, 1.3% (1108 / 83 460) are children aged 0-17 years, including 324 (0.4%) aged 0-4 years. The majority of cases <18 years have been reported from the Region of the Americas (681 / 1108; 61.5%). The overall proportion of cases <18 years in the Americas is 1.2% (681 / 56 661), similar to the proportion observed globally.
- Among cases with information available, 84.1% (25 871 / 30 761) have self-identified as gay, bisexual and other men who have sex with men. This proportion, while slightly fluctuating over time, has consistently been above 75%, highlighting that most transmission continues to occur in this community. When information about sexual orientation of cases is lacking, a high proportion of cases occurring in men might also be indicative of transmission among men who have sex with men.
- Of all reported modes of transmission, skin and mucosal contact during sex was the most reported, in 16 400 of 19 998 (82.0%) of all reported transmission events, followed by person-to-person non-sexual contact. The same pattern has been observed over the last 12 weeks.
- Where information is available, the most reported exposure setting is a party setting with sexual contact, comprising 3985 of 5986 (67%) reported exposure settings. In the last three months, the main reported transmission setting is party with no sexual contact, followed by other, and then party with sexual contact. In the last 12 weeks the setting of exposure is more diversified than the beginning of the outbreak when the main exposure setting was party with sexual contact. Infection in household settings constitutes 14% of transmission over the last 12 weeks.
- Among the cases who reported at least one symptom (n = 34 206), the most common symptom is any rash, reported in 80.7% of cases, followed by fever (59.2%), and generalized or genital rash (47.6% and 44.0% respectively). The symptomatology of cases has been consistent over time in the countries newly affected in this outbreak. Detailed information on the route of transmission is not available for most cases from the WHO African Region, and available information on transmission might not fully describe the epidemiological spread of the virus in the region.
- The new cases reported in the Western Pacific Region have similar characteristics to the majority of cases previously described in the epidemic. They are young adult males and when information is available most of them identify as men who have sex with men who have sexual contact with a person with mpox. Currently no common exposure has been reported and the cases have not been linked to any known gathering events.

**Figure 2. Geographic distribution of confirmed cases of mpox reported to or identified by WHO from official public sources from 1 January 2022 to 8 May 2023 17:00 CEST**



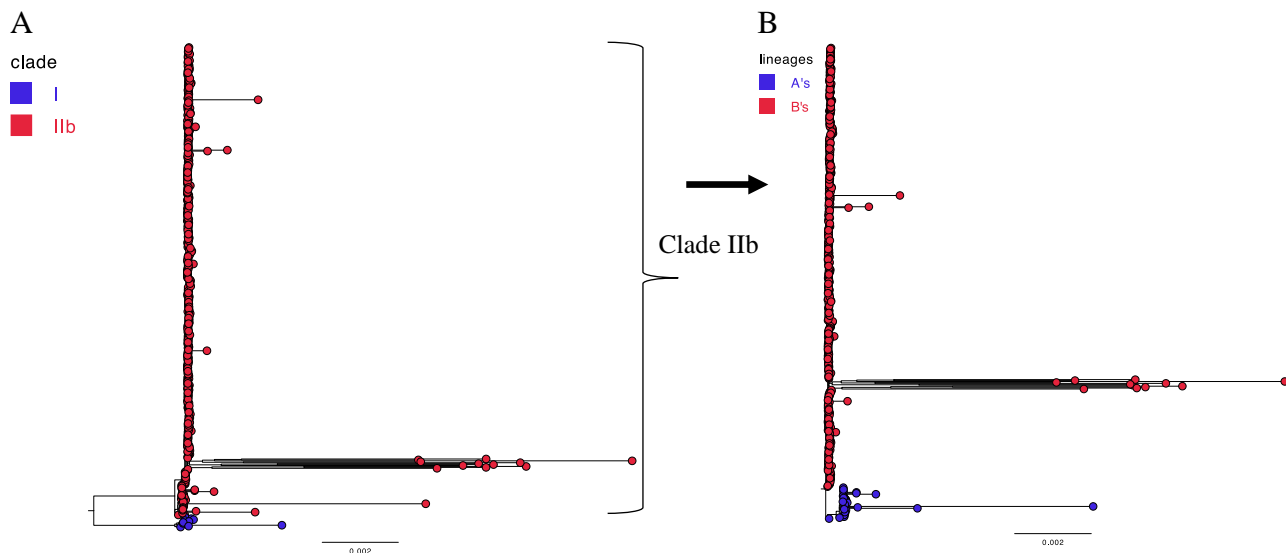
The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization  
 Map Production: WHO Health Emergencies Programme  
 Map Date: 9 May 2023



## Molecular epidemiology of monkeypox virus

The large 2022-23 multi-country outbreak of mpox has been associated with monkeypox virus (MPXV) clade IIb. There have been also cases associated with clade I in countries where clade I is known to be enzootic and endemic. Figure 3 (A) highlights the large genetic difference between clade I and clade IIb viruses from humans, which could indicate independent evolution and adaptation of clade IIb to the human population.

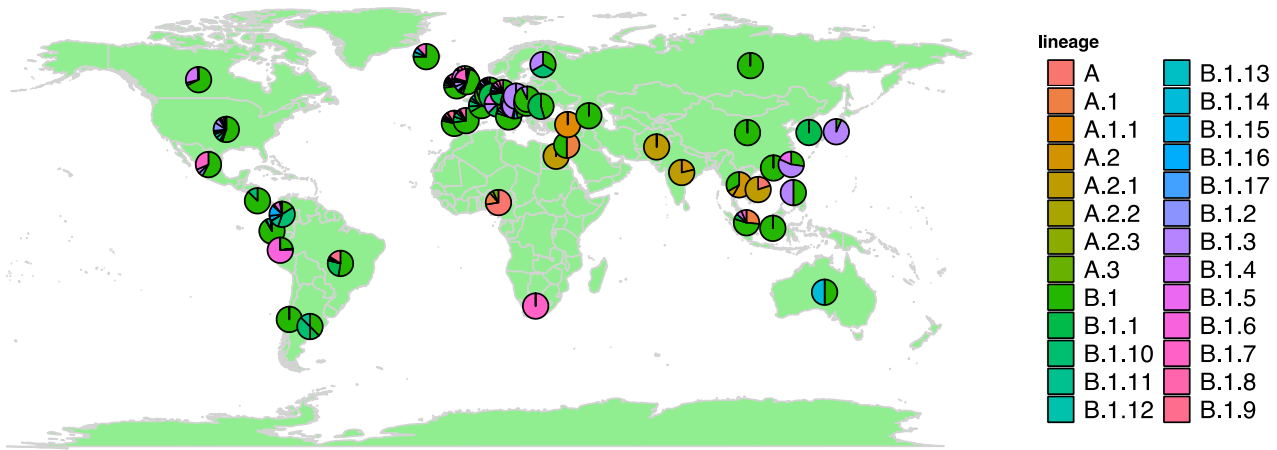


**Figure 3:** Phylogenetic tree of monkeypox virus sequences by (A) clade and (B) clade IIb lineages. Tree (A) shows the large diversity of monkeypox virus between clades I (2022) and IIb (2022-23), while tree (B) shows the limited within-lineage diversity. All sequences shown here were isolated from humans, except for three isolates of unknown sources.

There is limited diversity (very short branch lengths) of the clade IIb sequences that are associated with the 2022-23 multi-country outbreak, except for the unusual cluster of sequences with long branches from Romania comprised of lineages B.1 and B.1.1, collected between June and August 2022, for which sequencing errors cannot be excluded (Figure 3B). This limited diversity of the clade IIb B lineages supports the notion of a single origin of the lineage B outbreak. The median and mean pairwise distances for A lineages were 53 nucleotides (nt) and 135nt, respectively, and were higher than those for the B lineages (median = 8nt and mean = 60nt), pointing at a higher diversity of A lineages (i.e. potentially a less recent origin) as compared to the B lineages.

The clade I viruses in Figure 3 A reflect those isolated in 2022 only. The median and mean pairwise distances for the clade I viruses were 10nt and 44nt, respectively, pointing at a limited diversity of those sequences, similar to the B lineages of clade IIb.

Geographically, the clade I viruses were submitted from specimens only from the Democratic Republic of the Congo in the WHO African region and from the Republic of Sudan in the Eastern Mediterranean Region, whereas clade IIb viruses were from across all WHO regions. With regards to clade IIb, A lineages are predominantly from countries in the WHO South-East Asia and Western Pacific regions, i.e., India, Pakistan, Vietnam, Thailand, and Egypt, while B lineages have been found in all WHO regions, Figure 4. No single lineage was uniquely identified in a single country and most countries identified two or more lineages, which may be the result of a slowly evolving virus with little time for localized *in situ* evolution prior to out-of-country transmission.



**Figure 4:** Geographical distribution of clade IIb A and B lineages from 2022-23. While the A lineages have been predominantly isolated in the South-East Asia and Western Pacific Regions, the B lineages have been isolated across all WHO regions.

While scientists in all the WHO regions have shared 2022-23 monkeypox virus clade IIb outbreak sequences, the biggest contributors to genetic sequence data during the multi-country outbreak are WHO European and Americas Regions, which also correlates with the number of identified cases.

**Table 2:** Number of sequences shared by countries by clade and WHO region, 1953 – 2023.

Clade	WHO Region	n
I	AFR	11
I	EMR	2
IIb	AFR	2
IIb	AMR	4 603
IIb	EMR	2
IIb	EUR	2 464
IIb	SEAR	41
IIb	WPR	51

## Global Rapid Risk Assessment: Update

On 5 May, WHO updated its global Rapid Risk Assessment (RRA) for mpox.

Each of the WHO regional offices conducted a regional rapid risk assessment and a global document was compiled including all regional and global elements.

The **public health risk at the global level continues to be assessed as moderate**; the regional risk is assessed as moderate in four regions (AFR, AMR, EMR and EUR) and low in two regions (SEAR and WPR), based on the region-specific risk assessments. The level of confidence globally in the available information is moderate. (Table 3).

Table 3. Level of assessed mpox risk and the confidence in available information, by WHO region, as per updated global RRA (May 5, 2023).

Regional Risk		Confidence in available information	
Regional AFR	Moderate	Regional AFR	Low
Regional AMR	Moderate	Regional AMR	Moderate
Regional EMR	Moderate	Regional EMR	Low
Regional EUR	Moderate	Regional EUR	Moderate
Regional SEAR	Low	Regional SEAR	Moderate
Regional WPR	Low	Regional WPR	Moderate

### The overall risk at global level was assessed considering:

- 1) The different epidemic trajectories being observed in the different regions: increasing case incidence in WPR observed since the beginning of 2023, slowly decreasing case incidence in EUR and AMR, stable and unclear case trends in AFR due to different modes of transmission and reporting inconsistencies, and sporadic cases in EMR and SEAR;
- 2) The apparent differences in overall case fatality ratio (very low in Europe, low in the Americas, Eastern Mediterranean and South-East Asia, and slightly higher in the African region, including with reference to historical data) – likely due to significant under-ascertainment of cases in the latter region, as well as possible differences in severity of Clades I and II;
- 3) The encouraging declining trends seen in Europe and in the Americas, with greater awareness, community-based interventions, and rising immunity (through vaccination or infection) in high-risk groups, and on the other hand the rise in case trends in WPR and introduction of the first case in a previously unaffected country. The latter highlights the infection risk that persists in countries with immunologically naïve risk groups. The exact global trend of cases is currently hard to predict;
- 4) The possible under-ascertainment of transmission in all regions, due to: lack of early clinical recognition of the infection in countries or areas with few cases and mild disease presentation; difficulties of diagnosis in early stages of the infection due to paucity of symptoms; the possibility of transmission during pre- or asymptomatic infection; difficulty in accessing testing services; inadequate investigation of cases and contacts to stop all chains of transmission; delayed and incomplete surveillance in many countries; and continuing stigmatization influencing health-seeking behaviour;
- 5) Limited genomic variability among main circulating strains in newly affected countries, predominantly clade IIb lineage B, and limited circulation of clade IIb lineage A. Comparative analysis of genomic data has revealed a high number of genomic changes compared with historic strains, suggesting ongoing transmission in human populations since 2017 or earlier;



- 6) Ongoing and sustained human-to-human transmission in some countries makes new importations very likely, with risk of future outbreaks in all WHO Regions;
- 7) The clinical presentation of cases, stable since the start of the outbreak in newly affected countries, overall lower disease severity and low mortality, but higher severity and mortality among immunocompromised individuals, especially those with uncontrolled HIV. Mortality among children in newly affected countries has been lower than previously reported in the African setting;
- 8) Challenges in integrating mpox response into longer term programmes, in particular sexually transmitted infection (STI) and HIV surveillance, prevention and care, including case detection and vaccination of high-risk populations since this cannot be generalized to all WHO Member States and objectives have not been defined for such integrations;
- 9) Although infrequent to date, health care-associated infections have occurred, mainly through sharps or needle-stick injuries, particularly during sample acquisition, and suspected fomite contact;
- 10) The continuing need to ensure and coordinate access to decentralized mpox diagnostics, particularly given the continuing absence of point-of-care rapid diagnostic tests for orthopoxviruses; the need to accelerate vaccination uptake, address knowledge gaps on effectiveness, move forward on vaccine authorization status and resolve high vaccine costs and limited vaccine availability; the need to continue therapeutic studies launched during the outbreak; and the lack of widespread availability of laboratory diagnostics, antivirals and vaccines in countries that will need them most in future;
- 11) The likelihood that, whereas elimination of mpox could be achieved in the short term by countries and regions where only human-to-human transmission is occurring, monkeypox virus will continue to spread from person to person in countries in Africa as long as modes of transmission are not well understood, and will continue to circulate in animal hosts with the risk of spillover into human populations with subsequent person-to-person spread and future outbreaks in a context of a global immunity gap; and
- 12) The future public health and reputational risk to WHO and all Member States of seeing the return of orthopoxviruses to fill the epidemiological niche left by the eradicated smallpox, and the investment of resources that will be required in future to manage an emerging disease in all countries if sufficient control is not achieved in the wake of the current outbreak.

Overall, as the acute outbreak subsides, there is a need for an agreed approach between regions, disease control programmes, and a necessity to mobilize the resources required to support mpox control and elimination of person-to-person transmission of this infectious disease over the long-term. Although in the last year sustained transmission has not been observed in risk groups outside men who have sex with men (MSM) in newly affected countries, the decline of public health attention towards the disease might increase the risk of continuing undetected transmission, especially among groups at high risk for severe disease such as immunocompromised individuals, with the potential of more rapid virus evolution and adaptation. This remains a particular risk in low-income settings as well as for regions that did not experience a significant outbreak in 2022.

The event continues to evolve and therefore this risk assessment may be updated as new information becomes available. WHO is preparing a new overarching global strategy for mpox elimination and control and a country planning guide to support risk assessment and mitigation through the next stages of outbreak preparedness and response for elimination of human-to-human transmission.

## Regional update: Western Pacific region

### Mpox situation update: Western Pacific region (as of 8 May 2023)

As of 8 May 2023, a total of 477 confirmed cases have been reported from 12 countries and areas in the Western Pacific Region. There have been no deaths reported.

Case-based data were reported for 336 cases from 12 countries and areas to the WHO Western Pacific Regional Office up to 5 May 2023. These were all laboratory confirmed. Furthermore, where sequencing was available, 40 samples from reported cases were confirmed to belong to Clade II, formerly known as the West African clade. The number of weekly cases reported has been increasing with local transmission ongoing in Japan, China, and the Republic of Korea. New cases were also reported in the last week from Australia and Singapore.

The earliest date of symptom onset for a case reported in the region was 8 May 2022. The majority of cases have been between 30 and 39 years of age (102 / 221; 46%) and male (406 / 411; 98%). Of the 92 male cases with known sexual orientation, 96% self-identified as men who have sex with men. Among the few cases with known HIV status, 43% (3 / 7) were HIV-positive. The majority of cases presented with a rash (119 / 147; 81%) and systemic symptoms such as fever, fatigue, muscle pain, chills. There were 53 cases hospitalized (11%), of which only one case required clinical care and the remainder were hospitalized for isolation purposes. There were no reports of severe cases or cases that required ICU care.

There have been three cases reported among health care workers. Of the three cases, one had occupational exposure through a needle stick injury.

WHO is also monitoring the management of mpox cases and contacts in Member States. As of 5 May 2023, three of the five countries and areas with confirmed cases require isolate, two requiring isolation at home and one in a hospital. In line with WHO recommendations, the five countries and areas reporting cases in 2023 are not recommending mpox contacts to quarantine.

### WHO response to mpox in the WHO Western Pacific Region

- **Leadership and coordination:** The Incident Management Support Team (IMST) structure has been operational since May 2022 to provide overall technical guidance for preparedness and response in line with the mpox Strategic Preparedness and Response Plan and the IHR Emergency Committee temporary recommendations.
- **Laboratory:** Verification of national laboratory capacity in the region for testing and referral of mpox samples, and where required, WHO has procured commercial PCR kits for Member States. WHO has communicated with reference laboratories regarding sample referral and procurement of primers, probes and positive controls.
- **Surveillance:** Surveillance data continue to be collated daily from open sources and IHR notifications. There is ongoing discussion on the integration of mpox surveillance in the region with existing HIV and STI programmes.
- **Vaccination:** WHO “Vaccines and immunization for monkeypox: Interim guidance” was updated as of 16 November 2022. A protocol on mpox/smallpox vaccine and immunization safety event-based surveillance (EBS) has been finalized.
- **Clinical management and infection prevention and control:** WHO has conducted a review of available evidence on transmission of mpox virus and infection prevention and control precautions, including recommendations made in contact tracing guidelines; and adapted guidance to align with local policies.
- **Risk communication:** WHO has developed and disseminated communication materials and talking points for public communication and media engagement. The Regional Office continues to support communication focal points to engage with Ministries of Health and partners to prepare for cases and

sustain efforts to raise awareness about the disease and share public health advice. WHO continues to coordinate and disseminate messages that target at-risk groups through effective channels and trusted influencers. Finally, WHO continues to conduct social listening at the regional level to keep a pulse on public sentiment and detect and respond to rumours and misinformation and inform the communications response.

## Technical guidance and other resources

### Strategic Planning and Global Support

- WHO factsheet on monkeypox, 18 April 2022. <https://www.who.int/news-room/fact-sheets/detail/monkeypox>
- WHO commentary on the naming of mpox disease and monkeypox virus clades has been published in the Lancet Infectious Diseases. 6 February 2023. [New nomenclature for mpox \(monkeypox\) and monkeypox virus clades](#)
- WHO recommends new name for monkeypox disease-28 November 2022 <https://www.who.int/news/item/28-11-2022-who-recommends-new-name-for-monkeypox-disease>
- Monkeypox Strategic Preparedness, Readiness and Response Plan (SPRP) Operational planning guidelines – 2 November 2022 <https://www.who.int/publications/m/item/monkeypox-strategic-preparedness--readiness--and-response--operational-planning-guidelines>
- WHO Emergency Appeal: Monkeypox - July 2022 – June 2023, 13 October 2022 <https://www.who.int/publications/m/item/who-emergency-appeal--monkeypox---july-2022---june-2023>
- Monkeypox Strategic Preparedness, Readiness, and Response Plan (SPRP)- 5 October 2022, [https://www.who.int/publications/m/item/monkeypox-strategic-preparedness--readiness--and-response-plan-\(sprp\)](https://www.who.int/publications/m/item/monkeypox-strategic-preparedness--readiness--and-response-plan-(sprp))
- Invited comment. Why the monkeypox outbreak constitutes a public health emergency of international concern. Ghebreyesus TA. *BMJ* 2022;378:o1978. 09 August 2022. <https://www.bmj.com/content/378/bmj.o1978>

### International Health Regulations Emergency committee and Temporary Recommendations of the Director-General

- WHO fourth meeting of the International Health Regulations (2005) (IHR) Emergency Committee regarding the multi-country outbreak of monkeypox, 15 February 2023. [https://www.who.int/news/item/15-02-2023-fourth-meeting-of-the-international-health-regulations-\(2005\)-\(ihr\)-emergency-committee-on-the-multi-country-outbreak-of-monkeypox-\(mpox\)](https://www.who.int/news/item/15-02-2023-fourth-meeting-of-the-international-health-regulations-(2005)-(ihr)-emergency-committee-on-the-multi-country-outbreak-of-monkeypox-(mpox))
- WHO Third meeting of the International Health Regulations (2005) (IHR) Emergency Committee regarding the multi-country outbreak of monkeypox, 1 November 2022. [https://www.who.int/news/item/01-11-2022-third-meeting-of-the-international-health-regulations-\(2005\)-\(ihr\)-emergency-committee-regarding-the-multi-country-outbreak-of-monkeypox](https://www.who.int/news/item/01-11-2022-third-meeting-of-the-international-health-regulations-(2005)-(ihr)-emergency-committee-regarding-the-multi-country-outbreak-of-monkeypox)
- WHO Second meeting of the International Health Regulations (2005) (IHR) Emergency Committee regarding the multi-country outbreak of monkeypox, 23 July 2022. [https://www.who.int/news/item/23-07-2022-second-meeting-of-the-international-health-regulations-\(2005\)-\(ihr\)-emergency-committee-regarding-the-multi-country-outbreak-of-monkeypox](https://www.who.int/news/item/23-07-2022-second-meeting-of-the-international-health-regulations-(2005)-(ihr)-emergency-committee-regarding-the-multi-country-outbreak-of-monkeypox)
- WHO Director-General's statement at the press conference following IHR Emergency Committee regarding the multi-country outbreak of monkeypox, 23 July 2022. <https://www.who.int/director-general/speeches/detail/who-director-general-s-statement-on-the-press-conference-following-ihr-emergency-committee-regarding-the-multi-country-outbreak-of-monkeypox--23-july-2022>

### WHO Interim technical guidance

- Surveillance, case investigation and contact tracing for mpox (monkeypox): interim guidance, 22 December 2022. <https://www.who.int/publications/i/item/WHO-MPX-Surveillance-2022.4>
- WHO Vaccines and immunization for monkeypox: Interim guidance, 16 November 2022. <https://apps.who.int/iris/bitstream/handle/10665/364527/WHO-MPX-Immunization-2022.3-eng.pdf>
- Clinical management and infection prevention and control for monkeypox: Interim rapid response guidance, 10 June 2022. <https://www.who.int/publications/i/item/WHO-MPX-Clinical-and-IPC-2022.1>
- Emergency use of unproven clinical interventions outside clinical trials: ethical considerations: <https://www.who.int/publications-detail-redirect/9789240041745>
- WHO Technical brief (interim) and priority actions: enhancing readiness for monkeypox in WHO South-East Asia Region, 7 July 2022. <https://cdn.who.int/media/docs/default-source/searo/whe/monkeypox/searo-mpx-tbrief22.pdf>

### Surveillance

- WHO Global clinical data platform for monkeypox case report form (CRF), 21 July 2022, <https://www.who.int/publications/i/item/WHO-MPX-Clinical-CRF-2022.3>

### Data management

- Monkeypox Case and contact investigation form (CIF) and minimum dataset Case reporting form (CRF). 19 August 2022. [https://www.who.int/publications/m/item/monkeypox-minimum-dataset-case-reporting-form-\(crf\)](https://www.who.int/publications/m/item/monkeypox-minimum-dataset-case-reporting-form-(crf))
- The WHO Global Clinical Platform for monkeypox, 14 June 2022. <https://www.who.int/tools/global-clinical-platform/monkeypox>
- WHO Go.Data: Managing complex data in outbreaks. <https://www.who.int/tools/godata>

### Risk communication and community engagement and Public Health Advice

- Updated (V3) Public health advice for gay, bisexual and other men who have sex with men and mpox 9 March 2023: <https://www.who.int/publications/m/item/monkeypox-public-health-advice-for-men-who-have-sex-with-men>
- Public health advice on mpox and sex-on-premises venues and events 01 March 2023: [https://www.who.int/publications/m/item/public-health-advice-on-mpox-\(monkeypox\)-and-sex-on-premises-venues-and-events](https://www.who.int/publications/m/item/public-health-advice-on-mpox-(monkeypox)-and-sex-on-premises-venues-and-events)
- Infographic on getting tested for mpox 27 February: <https://www.who.int/multi-media/details/getting-tested-for-mpox--what-you-need-to-know>
- Mpox Q&A on mpox testing for health workers and individuals: <https://www.who.int/news-room/questions-and-answers/item/testing-for-mpox--health-workers> & <https://www.who.int/news-room/questions-and-answers/item/testing-for-mpox--individuals-and-communities>
- Public health advice for sex workers on monkeypox 30 September 2022. <https://www.who.int/publications/m/item/public-health-advice-for-sex-workers-on-monkeypox>

- Risk communication and community engagement public health advice on understanding, preventing and addressing stigma and discrimination related to monkey pox 1 September 2022. <https://www.who.int/publications/m/item/communications-and-community-engagement-interim-guidance-on-using-inclusive-language-in-understanding--preventing-and-addressing-stigma-and-discrimination-related-to-monkeypox>
- Monkeypox Q&A, 31 August 2022. <https://www.who.int/news-room/questions-and-answers/item/monkeypox>
- Risk communication and community engagement (RCCE) for monkeypox outbreaks: Interim guidance, 24 June 2022. <https://www.who.int/publications/i/item/WHO-MPX-RCCE-2022.1>
- Public health advice for gatherings during the current monkeypox outbreak, 28 June 2022: <https://www.who.int/publications/i/item/WHO-MPX-Gatherings-2022.1>
- Interim advice for public health authorities on summer events during the monkeypox outbreak in Europe, 2022. 14 June 2022. <https://www.who.int/europe/publications/m/item/interim-advice-for-public-health-authorities--on-summer-events-during-the-monkeypox--outbreak-in-europe--2022>
- Interim advice on Risk Communication and Community Engagement during the monkeypox outbreak in Europe, 2022. Joint report by WHO Regional office for Europe/ECDC, 2 June 2022. [https://www.euro.who.int/\\_data/assets/pdf\\_file/0009/539046/ECDC-WHO-interim-advice-RCCE-Monkeypox-2-06-2022-eng.pdf](https://www.euro.who.int/_data/assets/pdf_file/0009/539046/ECDC-WHO-interim-advice-RCCE-Monkeypox-2-06-2022-eng.pdf)
- WHO Monkeypox outbreak: update and advice for health workers, 26 May 2022. [https://www.who.int/docs/default-source/coronaviruse/risk-comms-updates/update\\_monkeypox-.pdf?sfvrsn=99baeb03\\_1](https://www.who.int/docs/default-source/coronaviruse/risk-comms-updates/update_monkeypox-.pdf?sfvrsn=99baeb03_1)

#### EPI - WIN Webinars and Updates

- The recordings of the previous [EPI-WIN Webinars](#) related to current monkeypox outbreak:
- WHO EPI-WIN webinar: Changing perspectives of the mpox outbreak (22 February 2023)
- WHO monkeypox technical briefing for the transport and tourism sector, 5 October 2022: <https://www.who.int/news-room/events/detail/2022/10/05/default-calendar/technical-briefing-on-monkeypox-for-transport-and-tourism-sector>
- [Managing stigma and discrimination in health-care settings in public health emergencies such as monkeypox](#) (Sept. 22, 2022)
- [How is monkeypox spreading? What do we know so far](#) (July 27, 2022)
- [Monkeypox outbreak and mass gatherings](#) (June 24, 2022)

#### EPI-WIN updates

- [Update 79: Monkeypox outbreak update: Situation - transmission - countermeasures](#)
- [Update 78: Monkeypox and mass gatherings](#)
- [Update 77: Monkeypox outbreak, update and advice for health workers](#)

#### Laboratory and diagnostics

- Monkeypox: experts give virus variants new names, 12 August 2022. <https://www.who.int/news/item/12-08-2022-monkeypox--experts-give-virus-variants-new-names>
- WHO Laboratory testing for the monkeypox virus: Interim guidance, 23 May 2022. <https://apps.who.int/iris/handle/10665/354488>
- WHO Guidance on regulations for the transport of infectious substances 2021-2023, 25 February 2021. <https://www.who.int/publications/i/item/9789240019720>
- Genomic epidemiology of monkeypox virus. <https://nextstrain.org/monkeypox?c=country>

#### One Health and animal health

- [WOAH Risk Guidance on Reducing Spillover of Mpox \(Monkeypox\) virus from Humans to Wildlife, Pet Animals and other Animals](#)
- [WOAH Website and FAQs on Monkeypox in animals](#)

#### Disease Outbreak News and situation reports

- Monkeypox outbreak 2022: <https://www.who.int/emergencies/situations/monkeypox-oubreak-2022>
- Multi-country outbreak of mpox, External situation report #21- 27 April 2023: <https://www.who.int/publications/m/item/multi-country-outbreak-of-mpox--external-situation-report-21---27-april-2023>
- Multi-country outbreak of mpox, External situation report #20- 13 April 2023: <https://www.who.int/publications/m/item/multi-country-outbreak-of-mpox--external-situation-report--20--13-april-2023>
- Multi-country outbreak of mpox, External situation report #19- 30 March 2023: <https://www.who.int/publications/m/item/multi-country-outbreak-of-mpox--external-situation-report--19--30-march-2023>
- Multi-country outbreak of mpox, External situation report #18- 16 March 2023: <https://www.who.int/publications/m/item/multi-country-outbreak-of-mpox--external-situation-report--18--16-march-2023>
- Multi-country outbreak of mpox, External situation report #17- 2 March 2023: <https://www.who.int/publications/m/item/multi-country-outbreak-of-mpox--external-situation-report---17---2-march-2023>
- Multi-country outbreak of mpox, External situation report #16- 16 February 2023: <https://www.who.int/publications/m/item/multi-country-outbreak-of-mpox--external-situation-report--16--16-february-2023>
- Multi-country outbreak of mpox, External situation report #15- 2 February 2023: <https://www.who.int/publications/m/item/multi-country-outbreak-of-mpox--external-situation-report-15--2-february-2023>
- Multi-country outbreak of mpox, External situation report #14- 19 January 2023: <https://www.who.int/publications/m/item/multi-country-outbreak-of-mpox--external-situation-report-14--19-january-2023>
- Multi-country outbreak of mpox, External situation report #13- 5 January 2023: <https://www.who.int/publications/m/item/multi-country-outbreak-of-mpox--external-situation-report--13--5-january-2023>
- Multi-country outbreak of mpox, External situation report #12- 14 December 2022: <https://www.who.int/publications/m/item/multi-country-outbreak-of-mpox--external-situation-report-12--14-december-2022>
- Multi-country outbreak of mpox, External situation report #11- 1 December 2022: <https://www.who.int/publications/m/item/multi-country-outbreak-of-mpox--external-situation-report--11---1-december-2022>

- Multi-country outbreak of monkeypox, External situation report #10- 16 November 2022: <https://www.who.int/publications/m/item/multi-country-outbreak-of-monkeypox--external-situation-report--10---16-november-2022>
- Multi-country outbreak of monkeypox, External situation report #9- 2 November 2022: <https://www.who.int/publications/m/item/multi-country-outbreak-of-monkeypox--external-situation-report--9---2-november-2022>
- Multi-country outbreak of monkeypox, External situation report #8- 19 October 2022: <https://www.who.int/publications/m/item/multi-country-outbreak-of-monkeypox--external-situation-report--8---19-october-2022>
- Multi-country outbreak of monkeypox, External situation report #7- 5 October 2022: <https://www.who.int/publications/m/item/multi-country-outbreak-of-monkeypox--external-situation-report--7---5-october-2022>
- Multi-country outbreak of monkeypox, External situation report #6- 21 September 2022: <https://www.who.int/publications/m/item/multi-country-outbreak-of-monkeypox--external-situation-report--6---21-september-2022>
- Multi-country outbreak of monkeypox, External situation report #5- 7 September 2022: <https://www.who.int/publications/m/item/multi-country-outbreak-of-monkeypox--external-situation-report--5---7-september-2022>
- Multi-country outbreak of monkeypox, External situation report #4- 24 August <https://www.who.int/publications/m/item/multi-country-outbreak-of-monkeypox--external-situation-report--4---24-august-2022>
- Multi-country outbreak of monkeypox, External situation report #3 - 10 August 2022: <https://www.who.int/publications/m/item/multi-country-outbreak-of-monkeypox--external-situation-report--3---10-august-2022>
- WHO Multi-country outbreak of monkeypox, External situation report #2 – 25 July 2022: <https://www.who.int/publications/m/item/multi-country-outbreak-of-monkeypox--external-situation-report--2---25-july-2022>
- WHO Multi-country outbreak of monkeypox, External situation report #1 - 6 July 2022: <https://www.who.int/publications/m/item/multi-country-outbreak-of-monkeypox--external-situation-report--1---6-july-2022>
- WHO disease outbreak news: Monkeypox, all items related to multi-country outbreak: <https://www.who.int/emergencies/emergency-events/item/2022-e000121>
- WHO disease outbreak news: Monkeypox, all previous items including endemic countries and traveler-associated outbreaks: <https://www.who.int/emergencies/emergency-events/item/monkeypox>

#### Training and Education

- WHO monkeypox outbreak toolbox, June 2022. <https://www.who.int/docs/default-source/documents/emergencies/outbreak-toolkit/monkeypox-toolbox-20112019.pdf>
- Health topics – Monkeypox: <https://www.who.int/health-topics/monkeypox>
- Open WHO. Online training module. Monkeypox: Introduction. 2020
  - English: <https://openwho.org/courses/monkeypox-introduction>
  - Français: <https://openwho.org/courses/variole-du-singe-introduction>
- Open WHO. Extended training. Monkeypox epidemiology, preparedness and response. 2021.
  - English: <https://openwho.org/courses/monkeypox-intermediate>;
  - Français: <https://openwho.org/courses/variole-du-singe-intermediaire>

#### Other Resources

- WHO AFRO Weekly Bulletin on Outbreaks and Other Emergencies, all previous items: <https://www.afro.who.int/health-topics/disease-outbreaks/outbreaks-and-other-emergencies-updates>
- WHO 5 moments for hand hygiene. <https://www.who.int/campaigns/world-hand-hygiene-day>
- WHO One Health. <https://www.who.int/health-topics/one-health>
- World Organisation for Animal Health, founded as OIE: Monkeypox. <https://www.woah.org/en/disease/monkeypox/>
- Joint WHO Regional Office for Europe - European Centre for Disease Prevention and Control, Monkeypox surveillance bulletin [Situation reports \(who.int\)](https://www.who.int/europe/tools-and-toolkits/monkeypox-resource-toolkit-for-planning-and-coordination-of-mass-and-large-gathering-events/)
- Joint WHO Regional Office for Europe - European Centre for Disease Prevention and Control, Monkeypox Resource toolkit to support national authorities and event organizers in their planning and coordination of mass and large gathering events. <https://www.who.int/europe/tools-and-toolkits/monkeypox-resource-toolkit-for-planning-and-coordination-of-mass-and-large-gathering-events/>
- WHO. Monkeypox & mass gatherings. Recommendations for mass gatherings during a monkeypox outbreak. [https://cdn.who.int/media/docs/default-source/epi-win/update78\\_monkeypox-mass-gatherings.pdf?sfvrsn=dfc9ee5a\\_1&download=true](https://cdn.who.int/media/docs/default-source/epi-win/update78_monkeypox-mass-gatherings.pdf?sfvrsn=dfc9ee5a_1&download=true)
- WHO European Region Interim advice for public health authorities on summer events during the monkeypox outbreak in Europe, 2022 <https://www.who.int/europe/publications/m/item/interim-advice-for-public-health-authorities--on-summer-events-during-the-monkeypox--outbreak-in-europe--2022>
- Weekly epidemiological record (WER) no.11, 16 March 2018, Emergence of monkeypox in West Africa and Central Africa 1970-2017. <http://apps.who.int/iris/bitstream/handle/10665/260497/WER9311.pdf;jsessionid=7AB72F28D04CFE6CE24996192FC478FF?sequence=1> Jezek Z., Fenner F.: Human Monkeypox. Monogr Virol. Basel, Karger, 1988, vol 17, pp 1-5. doi: 10.1159/isbn.978-3-318-04039-5
- Clinical management and infection prevention and control for monkeypox: Interim rapid response guidance, 10 June 2022. <https://www.who.int/publications/i/item/WHO-MPX-Clinical-and-IPC-2022.1>
- Monkeypox in the Region of the Americas - Risk assessment. <https://www.paho.org/en/documents/monkeypox-region-americas-risk-assessment>
- Atlas of mpox lesions: a tool for clinical researchers. <https://apps.who.int/iris/bitstream/handle/10665/366569/WHO-MPX-Clinical-Lesions-2023.1-eng.pdf>

## Annex 1: Data, table and figure notes

Caution must be taken when interpreting all data presented. Differences are to be expected between information products published by WHO, national public health authorities, and other sources using different inclusion criteria and different data cut-off times. While steps are taken to ensure accuracy and reliability, all data are subject to continuous verification and change. Case detection, definitions, testing strategies, reporting practice, and lag times differ between countries/territories/areas. These factors, amongst others, influence the counts presented, with variable underestimation of true case and death counts, and variable delays to reflecting these data at the global level.

<sup>[i]</sup>'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.

## Annex 2: Confirmed cases of mpox by WHO region and country from 1 January 2022 to 8 May 2023, 17:00 CEST.

\*Countries with no reported cases for more than 21 days

WHO Region	Country	Total Confirmed Cases	Total Deaths <sup>#</sup>
African Region	Benin*	3	0
	Cameroon*	18	3
	Central African Republic*	28	1
	Congo*	5	0
	Democratic Republic of the Congo*	556	0
	Ghana*	124	4
	Liberia	12	0
	Mozambique*	1	1
	Nigeria	835	9
	South Africa*	5	0
Eastern Mediterranean Region	Bahrain*	2	0
	Egypt*	3	0
	Iran (Islamic Republic of) *	1	0
	Jordan*	1	0
	Lebanon*	27	0
	Morocco*	3	0
	Pakistan	3	0
	Qatar*	5	0
	Saudi Arabia*	8	0
	Sudan*	19	1
	United Arab Emirates*	16	0
	European Region	Andorra*	4
Austria		328	0
Belgium*		793	2
Bosnia and Herzegovina*		9	0
Bulgaria*		6	0
Croatia*		33	0
Cyprus*		5	0

	Czechia*	71	1
	Denmark*	196	0
	Estonia*	11	0
	Finland*	42	0
	France	4 146	0
	Georgia*	2	0
	Germany*	3 691	0
	Gibraltar*	6	0
	Greece	88	0
	Greenland*	2	0
	Hungary*	80	0
	Iceland*	16	0
	Ireland	229	0
	Israel*	262	0
	Italy*	957	0
	Latvia*	6	0
	Lithuania*	5	0
	Luxembourg*	57	0
	Malta*	34	0
	Monaco*	3	0
	Montenegro*	2	0
	Netherlands	1 264	0
	Norway*	95	0
	Poland*	217	0
	Portugal*	953	0
	Republic of Moldova*	2	0
	Romania*	47	0
	Russian Federation*	2	0
	San Marino*	1	0
	Serbia*	40	0
	Slovakia*	14	0
	Slovenia*	47	0
	Spain	7 551	3
	Sweden*	260	0
	Switzerland*	552	0
	The United Kingdom*	3 741	0
	Türkiye*	12	0
	Ukraine*	5	0
Region of the Americas	Argentina	1 129	2
	Aruba*	3	0
	Bahamas*	2	0
	Barbados*	1	0
	Bermuda*	1	0
	Bolivia (Plurinational State of)*	265	0
	Brazil	10 920	16
	Canada	1 484	0
	Chile	1 441	2
	Colombia	4 090	0
	Costa Rica	221	0
	Cuba*	8	1



	Curaçao *	3	0
	Dominican Republic*	52	0
	Ecuador*	533	3
	El Salvador*	104	0
	Guadeloupe*	1	0
	Guatemala*	404	1
	Guyana*	2	0
	Honduras*	42	0
	Jamaica*	21	0
	Martinique*	7	0
	Mexico	4 010	26
	Panama	226	1
	Paraguay*	125	0
	Peru*	3 800	20
	Puerto Rico*	211	0
	Saint Martin*	1	0
	United States of America	30 154	42
	Uruguay*	19	0
	Venezuela (Bolivarian Republic of) *	12	0
South-East Asia Region	India*	22	1
	Indonesia*	1	0
	Sri Lanka*	2	0
	Thailand	21	0
Western Pacific Region	Australia	145	0
	China	71	0
	Guam*	1	0
	Japan	127	0
	New Caledonia*	1	0
	New Zealand*	41	0
	Philippines*	4	0
	Republic of Korea	60	0
	Singapore	25	0
	Viet Nam*	2	0
<b>Cumulative</b>	<b>111 Countries/territories/areas</b>	<b>87 377</b>	<b>140</b>

**#Only deaths among confirmed cases are reported here; the reported number of deaths due to mpox among suspected cases is available at regional or national level.**