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2022-24 Mpox (Monkeypox) Outbreak: Global Trends

World Health Organization

Produced on 24 September 2024



Key figures

Weekly trends in Africa

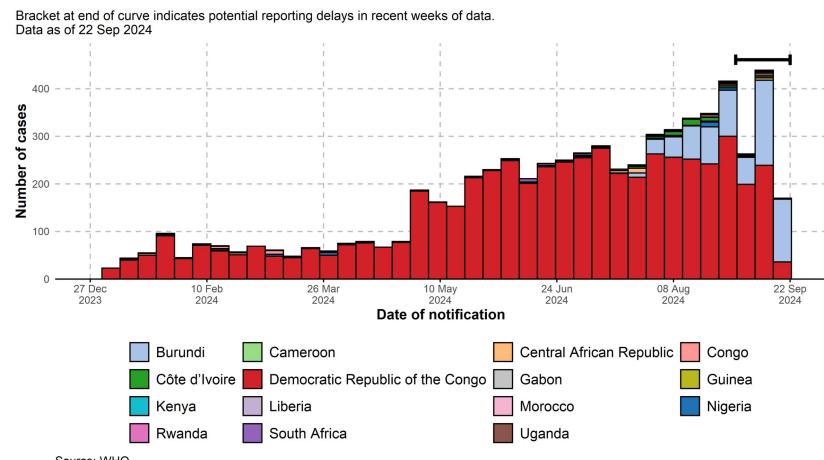
[Totals for key countries](#)

[Totals for Africa](#)

[Global totals](#)

[Clades detected globally](#)

Data as updated weekly; from 01 January 2024 to 22 September 2024. Note that data shown here includes **laboratory confirmed cases only**. The most recent weeks presented in the epidemic curves should be interpreted with caution, as there are delays associated with reporting.



1. Overview

This report provides an overview of the [mpox¹](#) epidemiological situation in Africa, on a weekly basis (as of 22 September 2024), as well as the global

epidemiological situation on a monthly basis (as of August 2024).

Data in this report are based on global data surveillance data collected from 01 January 2022, initiated due to the unprecedented human to human spread of monkeypox virus (MPXV) globally occurring in the same year.

On 14 August 2024, under the International Health Regulations (2005), the WHO Director General declared that the increase in mpox cases in the Democratic Republic of the Congo and its expansion to neighboring countries constitutes a [Public Health Emergency of International Concern](#) (PHEIC). This spread presents a public health risk to other Member States and requires a coordinated international response.

Based on currently available information, the spread of mpox cases in the Democratic Republic of the Congo is attributed to two main outbreaks - spread of MPXV clade Ia in Equateur and other previously affected provinces of the country, and the spread of clade Ib MPXV in the provinces of North and South Kivu, as well as several clade Ib cases detected in Kinshasa. Current sequencing in the country is limited and clade distribution might be broader than what is currently known.

WHO conducted the latest global mpox rapid risk assessment in August 2024. Based on the available information, the risk was assessed as:

- In eastern Democratic Republic of the Congo and neighbouring countries: **high**.
- In areas of the Democratic Republic of the Congo where mpox is endemic: **high**.
- In Nigeria and other countries of West, Central and East Africa where mpox is endemic: **moderate**.
- In all other countries in Africa and around the world: **moderate**.

Please note that regardless of geographic area, epidemiological context, biological sex, gender identity

or sexual behaviour, individual-level risk is largely dependent on individual factors such as exposure risk and immune status.

This report mainly focuses on laboratory [confirmed case and deaths²](#) as defined by WHO's working case definition published in the [Surveillance, case investigation and contact tracing for monkeypox interim guidance](#). In Africa, laboratory confirmed and suspected cases are both shown where possible. Note that [countries³](#) may use their own case definitions separate from those outlined in the above document.

1. On 28 November 2022, [WHO recommended](#) using the name *mpox* as a new name for *monkeypox*. The words were used synonymously for one year as the term *monkeypox* was phased out. The virus causing mpox is named monkeypox virus (MPXV).
 2. For the WHO European region, both confirmed and probable cases are included within confirmed case counts and detailed case data.
 3. Throughout this document, any use of the word **country** should be considered shorthand for a **country, area, or territory**
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2. Situation in Africa

This section of the report is jointly authored by the [WHO Regional Office for Africa](#), the [WHO Regional Office for the Eastern Mediterranean⁴](#) and WHO Headquarters.

Since 1 January 2022, cases of mpox have been reported to WHO from **20 Member States across Africa**. As of 22

September 2024 , a total of **8 983 laboratory confirmed cases**, including **55 deaths**, have been reported to WHO.

In **2024**, as of 22 September 2024, **15 countries have reported 6 580 confirmed cases**, including **32 deaths**.

The three countries with the majority of the cases in 2024 are Democratic Republic of the Congo, (n = 5 621), Burundi, (n = 696), and Nigeria, (n = 55).

A significant number of suspected mpox cases, that are clinically compatible with mpox remain untested due to limited diagnostic capacity in some African countries and thus never get confirmed. For this reason, we include suspected cases in this section of the report.

In 2024, **14 countries have reported both 31 166 suspected and laboratory tested cases**, including **844 suspected and confirmed deaths**.

This indicator should be interpreted with caution, as suspected mpox cases are recorded according to varying national case definitions. In some countries, suspected cases that undergo testing are not removed from the count, regardless of whether the test result is positive (confirmed case) or negative (discarded case). Moreover, not all countries have robust surveillance systems for mpox, meaning reported case counts are likely underestimate the extent of community transmission.

Case definitions for some countries can be seen in the [case definitions subsection](#).

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4. On the African continent there are 47 Member States in the WHO African Region and seven in the Eastern Mediterranean Region.
-

2.1. Outbreak status and MPXV clade distribution

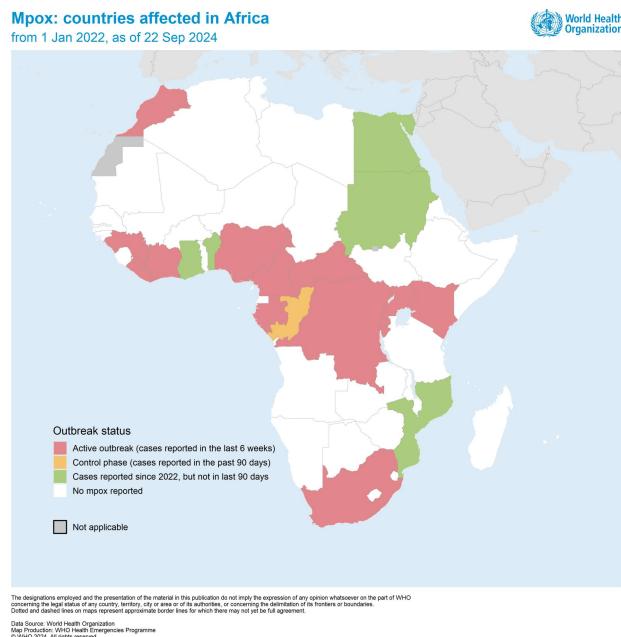
The distribution of clades reported in Africa, and the outbreak status of the continent is shown in the maps below. Countries with active transmission are defined as those reporting cases in the past 28 days. The distribution of reported mpox clades in Africa is also shown below. It should be noted that in many cases, **sequencing may not capture all circulating clades, leading to under-representation of where clades are circulating.**

Maps can be clicked to view on a larger scale.

2.1.1. Outbreak status

2.1.2. Clade Ia, Ib, and II (a and/or b) presence

2.1.3. Confirmed cases in the past six weeks



2.2. Epidemic curves

Epidemic curve shown by week for cases reported up to 22 Sep 2024. Note that for the purposes of these epidemic curves, countries with more than one clade present are presented in multiple epidemic curves. **The**

most recent weeks presented in the epidemic curves should be interpreted with caution, as there are delays associated with reporting.

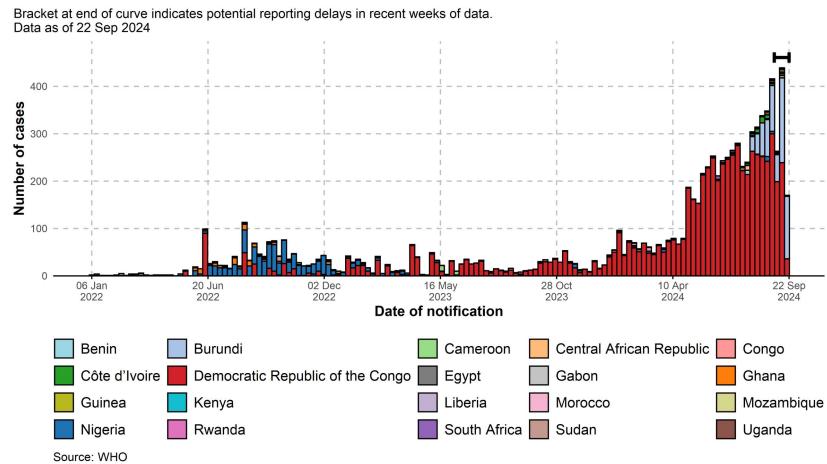
2.2.1. Confirmed cases in all countries in Africa

2.2.2. Confirmed cases in clade Ib countries

2.2.3. Confirmed cases in clade Ia countries

2.2.4. Clade II (a and/or b) countries

2.2.5. All cases in Africa



2.3. Maps

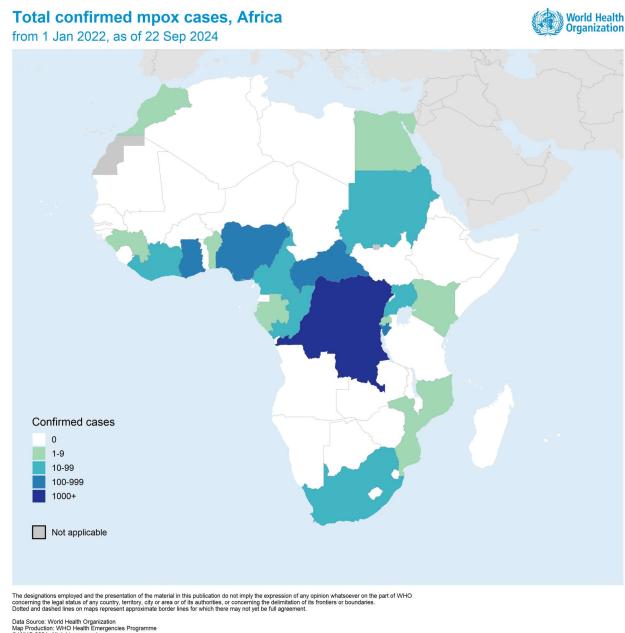
Maps can be clicked to view on a larger scale. Note that data are only shown for Africa - data from elsewhere are reflected in the global sections of the report.

2.3.1. Cumulative confirmed cases

2.3.2. Cumulative confirmed cases in 2024

2.3.3. Cumulative confirmed deaths

2.3.4. Cumulative confirmed deaths in 2024



2.4. Data by country

2.4.1. Laboratory confirmed cases

2.4.2. All cases

Summary of Laboratory confirmed cases

As of 22 Sep 2024

Country	Total cases	Total deaths	Case fatality ratio (%)	Cases in 2024 ¹	Deaths in 2024 ¹	Cases in the past four weeks
Democratic Republic of the Congo	6,866	27	0%	5,621	25	7
Burundi	696	0	0%	696	0	2

¹ The past four weeks are calculated from the date of last reported reporting delays. In cases where the last reported case is more than four weeks old, the four-week period is calculated from the date of the last reported case.

² From 26 Aug 2024 to 22 Sep 2024

Summary of Laboratory confirmed cases

As of 22 Sep 2024

Country	Total cases	Total deaths	Case fatality ratio (%)	Cases in 2024 ¹	Deaths in 2024 ¹	Cases in the past four weeks ²
Nigeria	916	9	1%	55	0	
Central African Republic	101	2	2%	54	1	
Côte d'Ivoire	52	1	2%	52	1	
South Africa	30	3	10%	25	3	
Uganda	22	0	0%	22	0	
Congo	47	2	4%	21	0	
Liberia	29	0	0%	12	0	
Cameroon	51	5	10%	6	2	
Rwanda	6	0	0%	6	0	

¹ The past four weeks are calculated from the date of last reported reporting delays. In cases where the last reported case is more than four weeks old, the four-week period is calculated from the date of the last reported case.

² From 26 Aug 2024 to 22 Sep 2024

Summary of Laboratory confirmed cases

As of 22 Sep 2024

Country	Total cases	Total deaths	Case fatality ratio (%)	Cases in 2024 ¹	Deaths in 2024 ¹	Cases in the past four weeks
Kenya	5	0	0%	5	0	
Gabon	2	0	0%	2	0	
Morocco	6	0	0%	2	0	
Guinea	1	0	0%	1	0	
Benin	3	0	0%	0	0	
Egypt	3	0	0%	0	0	
Ghana	127	4	3%	0	0	
Mozambique	1	0	0%	0	0	
Sudan	19	1	5%	0	0	
Total	8,983	54	1%	6,580	32	13

¹ The past four weeks are calculated from the date of last reported reporting delays. In cases where the last reported case is more than

² From 26 Aug 2024 to 22 Sep 2024

2.5. Epidemic curves by country

Epidemic curve shown by week for cases reported up to 22 Sep 2024.

All cases, including suspected and laboratory tested cases are shown from 2024 where data are available. **In some countries, suspected cases that undergo testing are not removed from the count, regardless of whether the test result is positive (confirmed case) or negative (discarded case).**

[2.5.1. Laboratory confirmed cases](#)

[2.5.2. All cases](#)

[Benin](#) [Burundi](#) [Cameroon](#)

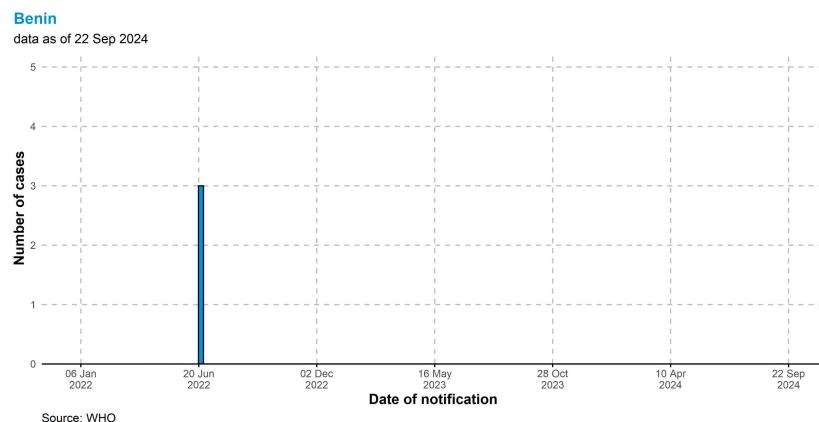
[Central African Republic](#) [Congo](#) [Côte d'Ivoire](#)

[Democratic Republic of the Congo](#) [Egypt](#)

[Gabon](#) [Ghana](#) [Guinea](#) [Kenya](#) [Liberia](#)

[Morocco](#) [Mozambique](#) [Nigeria](#) [Rwanda](#)

[South Africa](#) [Sudan](#) [Uganda](#)



2.6. Case definitions

This section includes the national case definition used in African countries in order to provide more context for the interpretation of data, especially of suspected cases.

Case definitions for suspected cases are shown for the following countries below:

2.6.1. Burundi

2.6.2. Democratic Republic of the Congo

Suspected Case:

Any person presenting with sudden onset of fever >38.3°C (101°F), intense headaches, adenopathy, back pain, myalgia, and intense weakness, followed 1-3 days later by a vesiculopustular skin rash that develops progressively, often starting on the face (more dense) and then spreading to other parts of the body, including the soles of the feet and palms of the hands.

Confirmed Case:

Any case that has been clinically and epidemiologically diagnosed with mpox and laboratory confirmed.

Data for download

Data by country can be downloaded as a csv file by clicking the button below. The data include the number of new cases and deaths reported each week, as well as the total number of cases and deaths reported to date. The data are current as of 22 Sep 2024.

Download weekly African dataset as csv

Download MPXV clades detected in African countries as csv

3. Global situation update

All of the following data in this report are presented in the context of the ongoing global mpox outbreak. The data presented here are based on the most recent complete month of data reported to WHO as of 31 August 2024.

Since 1 January 2022, cases of mpox have been reported to WHO from **123 Member States across all 6 WHO regions**. As of 31 August 2024, a total of **106 310 laboratory confirmed cases** and **0 probable cases**, including **234 deaths**, have been reported to WHO.

As of August 2024, the number of monthly reported new cases has **increased by 15.6%**, compared to the previous month. The majority of cases reported in the past month were notified from the African Region (62.3%) and the European Region (13.7%).

The 10 most affected countries globally since 1 January 2022 are: **United States of America (n = 33 812)**, **Brazil (n = 12 206)**, **Spain (n = 8 240)**, **Democratic Republic of the Congo (n = 6 092)**, **France (n = 4 307)**, **Colombia (n = 4 262)**, **Mexico (n = 4 155)**, **The United Kingdom (n = 4 058)**, **Peru (n = 3 939)**, and **Germany (n = 3 909)**. Together, these countries account for **79.9%** of the cases reported globally.

In the most recent month of reporting, **48** countries have reported cases, **33**, of which reported an increase in monthly case counts.

In the past month, **1** country reported their first case. Countries which reported their first case in the past month are: **Gabon**.

Global aggregated data are collected through direct reporting from Member States to WHO and its partners or from official country sources. The below epidemic curve shows the aggregated number of cases by month according to the date of case reporting.

3.1. Epidemic curves

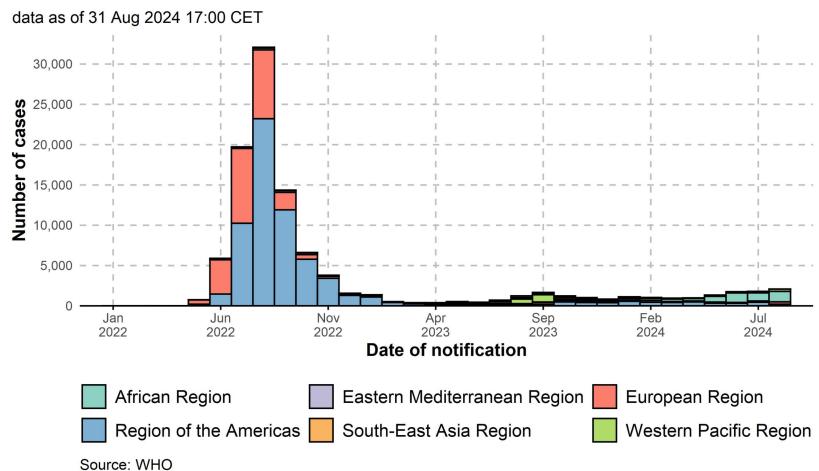
[3.1.1. Global \(cases\)](#) [3.1.2. Global \(deaths\)](#)

[3.1.3. By WHO Region \(cases\)](#)

[3.1.4. By WHO Region \(deaths\)](#)

[3.1.5. Top 10 countries \(cases\)](#) [3.1.6. By country](#)

Epidemic curve shown by month for cases reported up to 31 Aug 2024 to avoid showing incomplete months of data.



[Download data by month of report as csv](#)

3.2. Recent trends

In the past six months, the number of cases reported monthly has declined substantially from the global peak of **32,084 cases observed in August 2022**. In the past six months (01 Mar 2024 - 31 Aug 2024):

- On average, at the global level, **1 488 cases have been observed monthly**
- The most affected region was the **African Region**, where **4 821 cases and 30 deaths** have been reported. This is followed by the **Region of the**

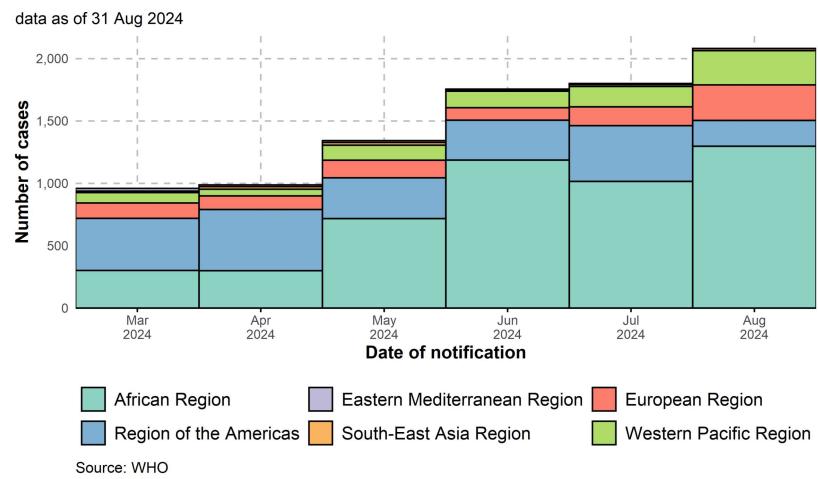
Americas (2 210 cases, 3 deaths), and the European Region (909 cases, 0 deaths)

[3.2.1. Global \(cases\)](#) [3.2.2. Global \(deaths\)](#)

[3.2.3. By WHO Region \(cases\)](#)

[3.2.4. Top 10 countries \(cases\)](#)

Epidemic curve shown by month for cases reported up to 31 Aug 2024 to avoid showing incomplete months of data.



[Download recent data by month of report as csv](#)

3.3. Maps

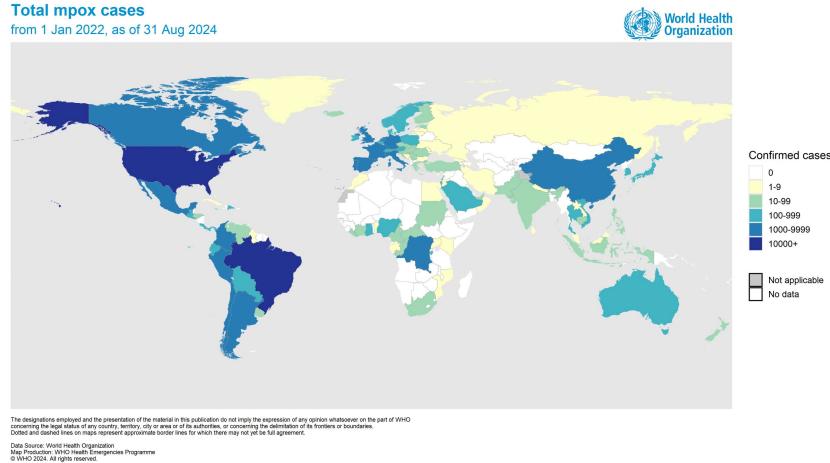
Note: Maps can be clicked to view on a larger scale

[3.3.1. Cumulative cases](#)

[3.3.2. Cumulative deaths](#)

[3.3.3. Cases in the past month](#)

[3.3.4. Monthly change in cases](#)



3.4. Tables

3.4.1. Cumulative cases and deaths by WHO Region

3.4.2. Cumulative cases and deaths by country

3.4.3. Recent trends - African Region

3.4.4. Recent trends - Region of the Americas

3.4.5. Recent trends - Eastern Mediterranean Region

3.4.6. Recent trends - Table - European Region

3.4.7. Recent trends - South-East Asia Region

3.4.8. Recent trends - Western Pacific Region

3.4.9. Countries reporting cases in the previous month

Total mpox cases, by WHO region

Data as of August 2024

WHO Region	Total cases ¹	Total deaths ¹	Cases in Jul 2024	Cases in Aug 2024	Monthly % change in cases
Region of the Americas	64,879	148	447	207	-54.0%
European Region	27,965	9	151	285	89.0%
African Region	7,662	54	1,016	1,298	28.0%
Western Pacific Region	3,979	10	163	274	68.0%
South-East Asia Region	956	11	15	16	6.7%
Eastern Mediterranean Region	869	2	9	2	-78.0%

¹ From Jan 2022



Download cumulative cases and deaths by country

Download aggregate dataset as csv

4. Detailed case data

Detailed case data are acquired via direct reporting of case-based data from Member States to WHO. Data from cases are [reported¹](#) according to the WHO minimum dataset under the International Health Regulations (IHR 2005) Article 6. Completeness of records is variable, meaning denominators for variables may be different from one another. **All of the following is derived from detailed case data, and as a result, overall numbers may not be reflective of figures shown with aggregate case numbers.** All detailed cases shown are confirmed cases, where the reporting date occurred after 01 January 2022.

1. Note that a small number of detailed case reports are constructed from official public reports about individual cases.
-

4.1. Reporting coverage

The detailed case dataset was last updated on August 2024. As of this date, the total number of detailed confirmed cases reported is 95 495, representing **89.8%** of all aggregated cases reported.

The table below indicates the reporting coverage between reported aggregated confirmed cases and detailed confirmed cases by countries and per region.

4.1.1. Table - Coverage by region

Mpox reporting completeness

As of 31 Aug 2024

	Total Confirmed Cases	Total Detailed Confirmed Cases ¹	% Detailed Cases reported
Region of the Americas	64,879	63,941	98.6%
European Region	27,965	27,774	99.3%
African Region	7,662	672	8.8%
Western Pacific Region	3,979	2,902	72.9%
South-East Asia Region	956	118	12.3%
Eastern Mediterranean Region	869	88	10.1%

¹ Note that in rare cases total detailed cases may exceed total confirmed cases due to ongoing data cleaning issues

4.2. Trends in cases

Trends in cases are shown for all submitted detailed cases. These are shown by:

1. Date of symptom onset
2. Date of lab or clinical diagnosis (if date of symptom onset is not available)
3. Date of reporting (if date of symptom onset and date of diagnosis are not available)

Reporting of detailed cases is subject to some delay. The epidemic curves shown are not right-censored, and therefore trends in the most recent weeks shown should

be interpreted with caution. It should be additionally noted that date of report does not reflect the date of reporting to WHO, but rather reporting to national or regional authorities.

Delay between date of onset and date of diagnosis were calculated for all countries where reporting quality passed criteria. Delays were only shown when the time between onset and diagnosis was between 0 and 50 days.

The median delay between onset and diagnosis was **7** days (interquartile range: **4-10 days**)

Data by date of onset and country can be downloaded below.

[4.2.1. Cases by date of symptom onset](#)

[4.2.2. All cases by date of onset and by WHO region](#)

[4.2.3. Cases by date of onset and by country \(top 10 total cases\)](#)

[4.2.4. Cases by date of onset and by age group](#)

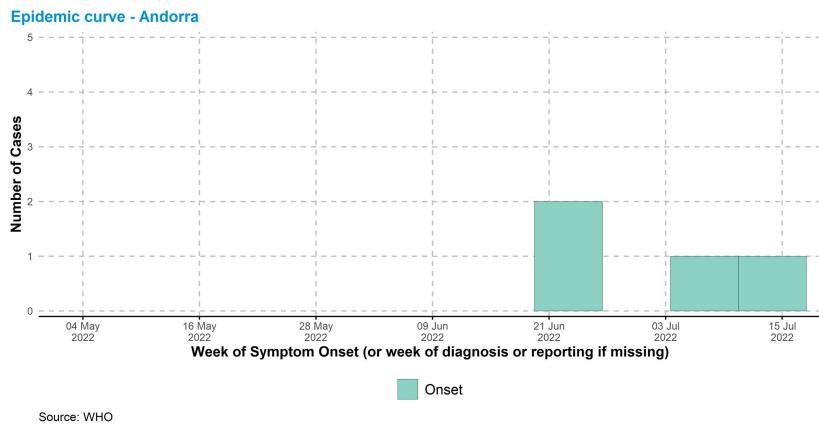
[4.2.5. Cases by date of onset and by sexual behaviour](#)

[4.2.6. Proportion of men who have sex with men and proportion of males by date of report](#)

[4.2.7. Epidemic curves by country](#)

Select country of interest from the dropdown link below:

▼	Andorra
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Download country data by date of symptom onset

4.3. Case profile (overall)

As of **31 Aug 2024**, the vast majority of cases for which detailed case based data are available are not associated with the outbreak of clade Ib, or the African region. For this reason the following analysis is overwhelmingly reflective of the global situation outside of Africa and clade Ib.

Key features of these cases are as follows:

- **96.4% (87 794/91 119)** of cases with available data are male, the median age is **34 years (IQR: 29 - 41)**.
- Males between **18-44 years old** continue to be disproportionately affected by this outbreak as they account for **79.2%** of reported cases.
- Of all cases with available data, **3.6% (3 325/91 119)** are female:
 - The majority of these cases are reported from the **Region of the Americas (2 518/3 325; 76%)** and the **European Region (456/3 325; 14%)**
 - The most commonly reported form of transmission is via **sexual encounters (259/503; 51%)**

- Of the **95 068** cases where age was available, there were **1 210 (1.3%)** cases reported aged **0-17**, out of which **346 (0.4%)** were aged **0-4**:
 - The majority of cases aged 0-17 are reported from the **Region of the Americas (763 / 1 210; 63%)**.
- **59** cases were reported to be **pregnant or recently pregnant**. Of these:
 - **3, 12, and 9 cases were in their first, second, and third trimesters respectively.** 32 were in an unknown trimester, and **0 were six weeks or less post-partum**.
 - The median age was **27 years old (IQR: 22 - 31)**.
 - **13** of these cases were known to be **hospitalized**. 0 were known to be **admitted to ICU** and **0** were known to have died.
 - The most common mode of transmission was **sexual encounter (4/7 cases where route was known)**.
- Among cases with known data on sexual behaviour, **85.0% (23 800/27 988)** identified as **men who have sex with men**.
- Among those with known HIV status, **51.8% (18 451/35 599)** were **people living with HIV**. Note that information on HIV status is not available for the majority of cases.
- **1 367** cases were reported to be **health workers**. However, most were exposed in the community and further investigation is ongoing to determine which were due to occupational exposure.
- Of all reported types of transmission, a **sexual encounter** was reported most commonly, with **19 022 of 22 588 (84.2%)** of all reported transmission events.

- Of all settings in which cases were likely exposed, the most common was in **party setting with sexual contacts**, with **4 386 of 6 349 (69.1%)** of all reported exposure events.

As of **6 October 2023**, the updated case reporting form no longer requires collection of exposure setting as an aspect of the case-based data. While we longer receive this information, we continue to present these data for the historical record.

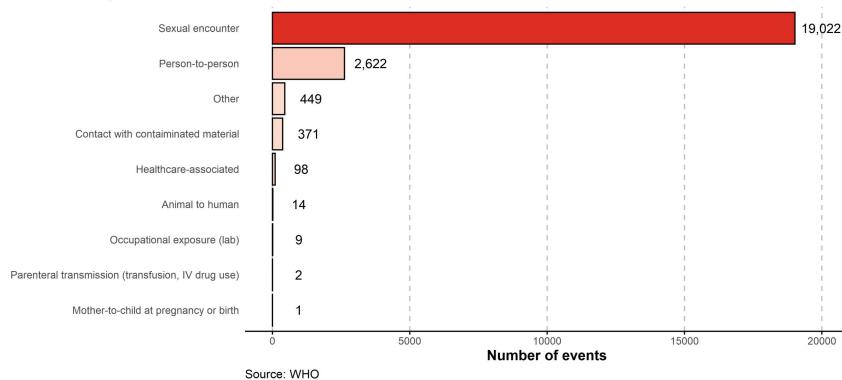
- 4.3.1. Demographic Information
- 4.3.2. Age-sex pyramid
- 4.3.3. Age-sex pyramid by region
- 4.3.4. Age-sex pyramid (Hospitalized cases)
- 4.3.5. Age-sex pyramid (ICU cases)
- 4.3.6. Sexual behaviour by region
- 4.3.7. Transmission type 4.3.8. Exposure settings
- 4.3.9. Transmission by exposure type

Transmission data were available for **22 588/95 495 (23.7%)** of cases.

Transmission can occur during sex via skin-to-skin contact as well as via bodily fluids. While skin-to-skin contact with lesions remains an important transmission route, monkeypox virus has been isolated from semen samples and rectal swabs from confirmed cases. Note that person to person contact excludes known sexual, healthcare-associated, and mother to child transmission.

Mpox cases, by transmission type

Total number: 22,588



Download key case demographics

Download age and sex pyramid by WHO region

4.4. Case profile (excluding men who have sex with men)

As of this date in time, with regards to the outbreak of **clade IIb**, the multi-country mpox outbreak has been overwhelmingly concentrated in sexual networks of men who have sex with men. For this reason, understanding events in which individuals having other sexual behaviours have acquired mpox is important to monitor potential of sustained spillover into the general population. **Note that the demographics of cases affected with clade Ib are not represented here.**

The following outputs apply to cases with sexual behaviour reported as other than men who have sex with men. As above, note that reported sexual behaviour does not necessarily reflect persons who the case has had recent sexual history with nor does it imply sexual activity.

- **76.9% (3 114/4 049)** of cases with available data are male; the median age is **32 years (IQR: 26-41)**.

- Males between **18-44 years old** account for **61.8%** of cases.
- Among those with known HIV status **23.9% (757/3 168)** were people living with HIV. Note that information on HIV status is not available for the majority of cases.
- **98** cases were reported to be **health workers**. However, most were exposed in the community.
- Of all reported types of transmission, **sexual encounter** was reported most commonly, with **474 of 905 (52.4%)** of all reported transmission events.
- Of all settings in which cases were likely exposed, the most common was in **households**, with **58 of 179 (32.4%)** of all likely exposure categories.

4.4.1. Demographic Information

4.4.2. Age-sex pyramid excluding men who have sex with men

4.4.3. Transmission type

4.4.4. Exposure settings

Note that the proportions shown below should be interpreted with caution. In some cases, a variable may be more likely to be filled in if the answer is yes than if the answer is no. This is most likely to be true for variables such as HIV status, health worker status, travel history, hospitalization, ICU, and death.

Case profiles (excluding men who have sex with men)

As of 31 Aug 2024

	Reported values		Unknown or Missing Value
	Yes	No	
Men who have sex with men	0	4,188 (100.0%)	0
Persons living with HIV	757 (23.9%)	2,411 (76.1%)	1,020
Health worker	98 (6.3%)	1,450 (93.7%)	2,640
Travel History	244 (13.4%)	1,578 (86.6%)	2,366
Sexual Transmission	474 (52.4%)	431 (47.6%)	3,283
Hospitalized ¹	276 (12.6%)	1,919 (87.4%)	1,993
ICU	13 (1.2%)	1,114 (98.8%)	3,061
Died	10 (0.4%)	2,566 (99.6%)	1,612

¹ May be hospitalized for isolation or medical treatment

 Download key case demographics

 Download mpox cases by age and sex (non-MSM)

4.5. Case profile (recent cases)

This section of the report pertains specifically to the most recent six months of the outbreak, and case report

forms that were reported in that time period (01 Mar 2024 - 31 Aug 2024).

In the last six months:

- Of all cases with available information, **97% (2 334 / 2 397) of cases were male**, and **87% (251 / 290) reported being as men who have sex with men**.
- Of all reported types of transmission, a **sexual encounter** was reported most commonly, with **385 of 411 (93.7%)** of all reported transmission events.

4.5.1. Demographic information

4.5.2. Age-sex pyramid, recent cases

4.5.3. Transmission type

Note that the proportions shown below should be interpreted with caution. In some cases, a variable may be more likely to be filled in if the answer is yes than if the answer is no. This is most likely to be true for variables such as HIV status, health worker status, travel history, hospitalization, ICU, and death.

Case profiles

From 01 Mar to 17 Sep 2024

	Reported values		Unknown or Missing Value
	Yes	No	
Men who have sex with men	251 (86.6%)	39 (13.4%)	2,212
Persons living with HIV	244 (46.3%)	283 (53.7%)	1,975
Health worker	21 (2.5%)	831 (97.5%)	1,650

⁷ May be hospitalized for isolation or medical treatment

Case profiles

From 01 Mar to 17 Sep 2024

	Reported values		Unknown or Missing Value
	Yes	No	
Travel History	104 (17.3%)	497 (82.7%)	1,901
Sexual Transmission	385 (93.7%)	26 (6.3%)	2,091
Hospitalized ¹	167 (10.3%)	1,449 (89.7%)	886
ICU	0	288 (100.0%)	2,214
Died	1 (0.1%)	1,323 (99.9%)	1,178

¹ May be hospitalized for isolation or medical treatment

 Download key case demographics (recent)

 Download age and sex pyramid

4.6. Symptomatology

Although most cases in current outbreaks have presented with mild disease symptoms, monkeypox virus (MPXV) may cause severe disease in certain population groups (young children, pregnant women, immunosuppressed persons).

Among the cases who reported at least one symptom, the most common symptom is **any rash** and is reported in **88%** of cases with at least one reported symptom. Note that identifying true denominators for symptomatology is difficult due to a general lack of

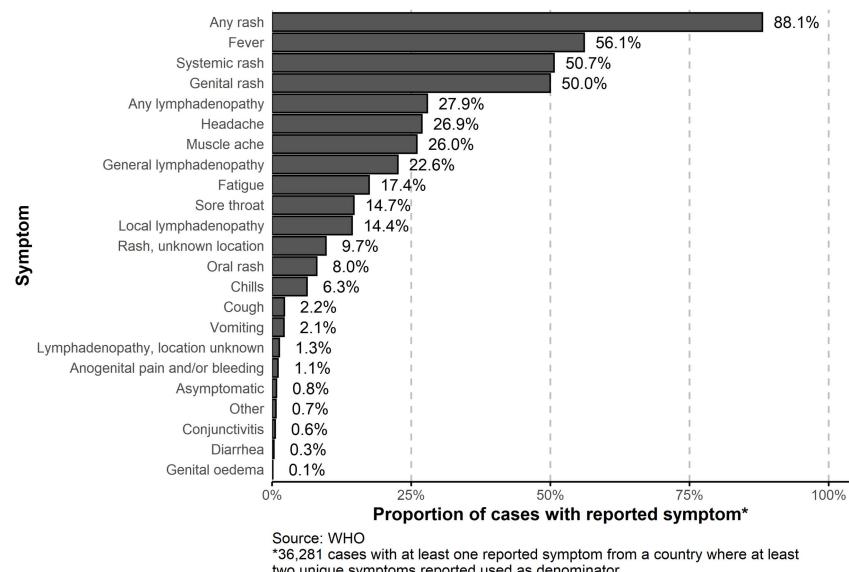
negative reporting and symptom definitions that may vary between countries' reporting systems.

A bar chart and table showing symptoms is shown below. Here *any rash* refers to one or more rash symptoms (systemic, oral, genital, or unknown location), and *any lymphadenopathy* refers to either general or local lymphadenopathy. Systemic rash included rash on the body, excluding mucosal and genital rash. Symptom information is shown for all cases where information was available reported from January 2022.

4.6.1. Bar chart - Symptoms

4.6.2. Table - Symptoms

All cases Male cases Female cases



Download symptom data as csv

5. Genomic epidemiology

MPXV genetic sequences are routinely shared within [NCBI GenBank](#) and [GISAID](#) databases. Based on mutations and phylogenetic clustering, MPXV is currently divided into two major clades, clade I (one, formally Congo Basin clade) and clade II (two, formally West Africa clade). Each of these clades is further subdivided into two subclades: clade Ia and clade Ib within clade I; clade IIa and clade IIb within clade II.

Clade Ia circulates within multiple countries in Central Africa and is associated with regular spillover from an animal reservoir(s) with some onward person-to-person transmission. Clade Ia has been sampled in Cameroon, Central African Republic, Congo, Democratic Republic of the Congo, South Sudan and Sudan. Mixing of virus sequences from these countries within the clade Ia phylogenetic tree shows international movement of clade Ia viruses.

Clade Ib has recently emerged in eastern regions of the Democratic Republic of the Congo and is undergoing sustained person-to-person transmission. Recent cases of clade Ib have also been detected in Burundi, Kenya, Rwanda, Sweden, Thailand and Uganda. There is limited mutational diversity among clade Ib sequences. However, recent sequences from Kenya, Uganda, Sweden and Thailand share several mutations.

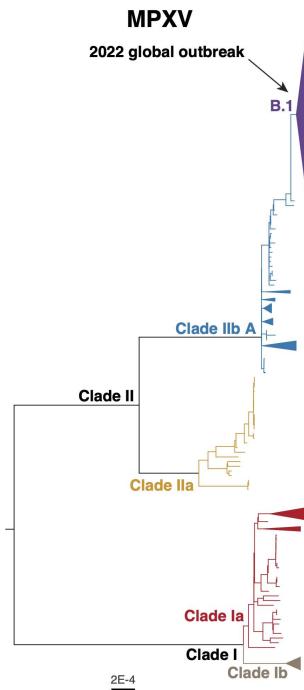
Clade IIa has rarely been isolated in humans with most available genetic sequences coming from animal species. Clade IIb has undergone sustained circulation within humans since at least 2016 and has caused a large ongoing outbreak from 2022 to present. The 2022-24 clade IIb outbreak is currently divided into 33 lineages which enable fine scale tracking.

The following phylogenetic visualisations were generated in R using the [ggtree package](#).

5.1. Phylogeny of all MPXV clades

5.2. Phylogeny of clade 1b

5.3. Phylogeny of clade 1a



6. Literature summary & epidemic parameters

In order to promote a better understanding of the dynamics of the mpox outbreak and to support forecasting work, in 2022, WHO undertook an effort to extract epidemiological parameters (incubation period, serial interval and generation interval) from the literature. The initial literature screening was performed and maintained by the Public Health Agency of Canada (PHAC). The overall search strategy was as follows:

- Inclusion criteria: monkeypox and monkeypox virus
- Study design:
 - Any study design including primary and secondary studies (both animal and human)
 - Guidelines and commentaries are not excluded but are not searched systematically.

- Publication language: no restriction for peer-reviewed articles, grey literature is focused on English
- Publication date: from April 14, 2022 – January 19, 2023
- Bibliographic databases and other sources searched:
 - PubMed Scopus
 - Pre-print servers: Europe PMC, arXiv and SSRN
 - WHO, PHAC, CDC, ECDC, UKHSA

The tables below provide an overview of the most relevant estimates for incubation period and generation interval extracted from the literature where the following criteria are met:

- Studies with a sample size greater than 5
- Clear estimate of the specific parameter

The epidemic parameter tables are no longer updated, as the literature screening is no longer carried out.

6.1. Parameters

6.2. Bibliography

Incubation Period

As of 19 Jan 2023

Reference	N	Mean ¹	95% CrI ¹ (mean)	95% CI ¹ (mean)	SD ¹	Median ¹
Miura et al. [1]	18	8.5	6.6 - 10.9	-	-	-
Charniga et al. [2]	40	7.6	6.2 - 9.7	-	1.8	6.4
Rodríguez et al. [3]	45	-	-	-	-	-
Thornhill et al. [4]	23	-	-	-	-	7.0

Source: PHAC

Incubation Period

As of 19 Jan 2023

Reference	N	Mean ¹	95% CrI (mean) ¹	95% CI (mean) ¹	SD ¹	Median ¹
Català et al. [5]	77	-	-	-	-	6.0
Tarín-Vicente et al. [6]	144	-	-	-	-	7.0
Guzzetta et al. [7]	30	9.1	-	6.5 - 10.9	-	-
Mailhe et al. [8]	112	-	-	-	-	6.0
Moschese et al. [9]	16	-	-	-	-	11.0
Gomez-Garberi et al. [10]	14	-	-	-	-	13.0
O'Laughlin et al. [11]	527	7.0	-	-	-	-
Angelo et al. [12]	78	-	-	-	-	8.0
Madewell et al. [14]	35	5.6	4.3 - 7.8	-	-	-
Ward et al. [15]	54	7.8	6.6 - 9.2	-	-	-
Besombes et al. [16]	29	-	-	-	-	7.0
Kröger et al. [17]	209	8.2	-	-	4.7	-

¹ Units are in days

Source: PHAC

 Download data as csv

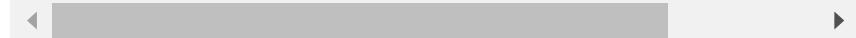
Serial Interval

As of 19 Jan 2023

Reference	N	Mean ¹	95% CrI (mean) ¹	SD ¹	Median ¹	95% CrI (median) ¹
Guo et al. [13]	21	5.6	1.7 - 10.4	1.5	5.5	1.4 - 10.4
Madewell et al. [14]	57	8.5	7.3 - 9.9	-	-	-
Ward et al. [15]	79	9.5	7.4 - 12.3	-	-	-
Miura et al. [18]	34	9.4	-	6.2	-	-

¹ Units are in days

Source: PHAC



 Download data as csv

Generation Interval

As of 19 Jan 2023

Reference	N	Mean ¹	95% CrI ¹	Distribution
Guzzetta et al. [7]	16	12.5	7.5 - 17.3	Gamma

¹ Units are in days

Source: PHAC

[!\[\]\(3a826c315649e5ff8d9ba7aee7a8e49e_img.jpg\) Download data as csv](#)

7. Archive: 2022-23 acute outbreak phase

With reporting frequencies declining, and with new WHO guidance specifying monthly reporting intervals, it is no longer reliable to present cases by week of report.

However, in an effort to retain data availability, we present a record of the acute phase of the 2022-2024 outbreak by reporting week. While the end of the acute phase of the outbreak is not explicitly defined, we present data from 1 January 2022 to 14 April 2023, which corresponds to the week when mpox was no longer considered to be a public health emergency of international concern.

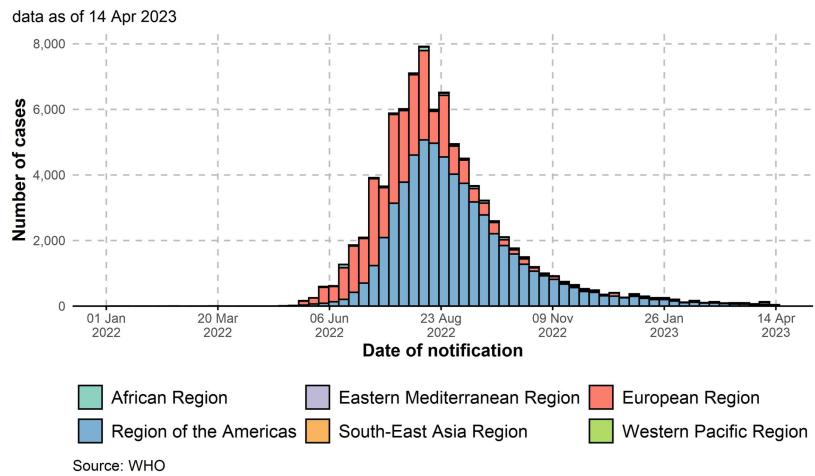
Regional trends are shown below:

[7.1. Epidemic curve by date of notification \(cases\)](#)

[7.2. Epidemic curve by date of notification \(deaths\)](#)

[7.3. Epidemic curve by WHO region \(cases\)](#)

Epidemic curve shown by month for cases reported up to 14 April 2023.



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Data are compiled and shared with WHO by national public health authorities. Data compilation and submission to WHO Headquarters is done by the WHO Regional Offices and WHO Country Offices.

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Available online:

https://worldhealthorg.shinyapps.io/mpx_global/ (last cited: [date]).

9. Acknowledgements

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