

Mpox Virus: Clade I and Clade II

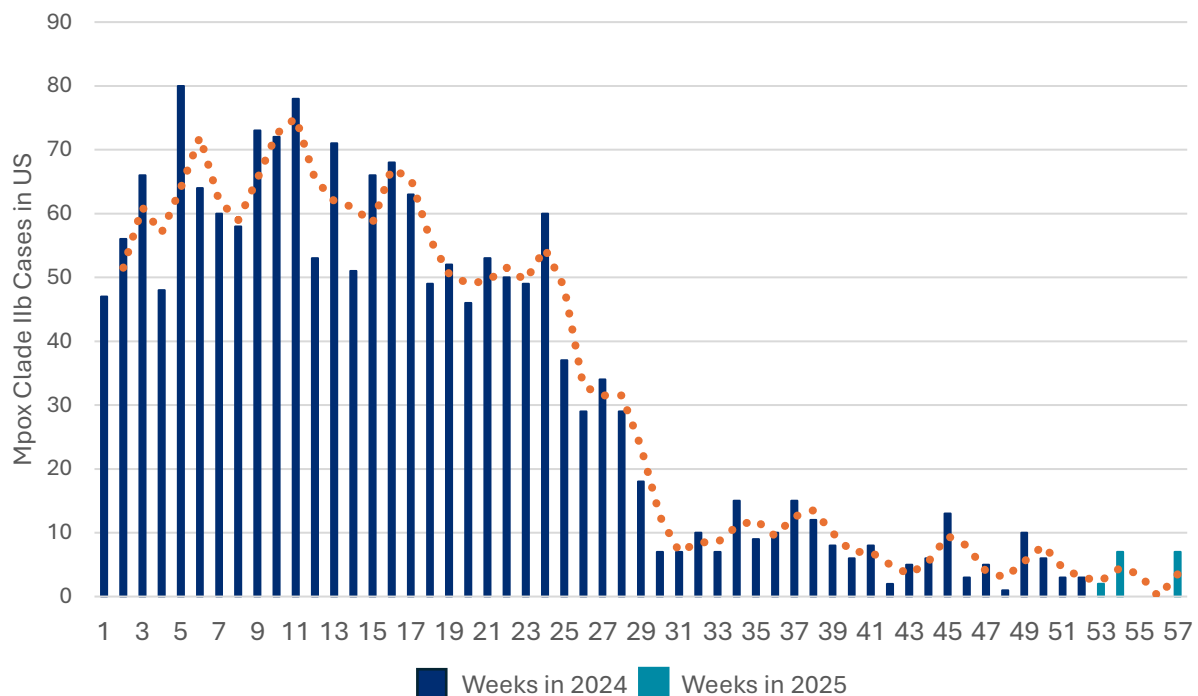


Summary

The mpox virus is classified into 2 main clades, clade I and clade II, with each further subdivided into clade Ia, the [newly identified clade Ib](#), clade IIa, and clade IIb, the clade which was responsible for the 2022 global outbreak. Since the 2022 clade IIb mpox outbreak began, there have been [more than 124,753 cases](#) and more than 272 deaths reported in 128 countries, though worldwide reported data likely do not include the most recent outbreaks of clade I in the Africa region. According to the US Centers for Disease Control and Prevention (US CDC) and the World Health Organization (WHO), the [US has reported](#) 34,490 mpox cases as of December 31, 2024. The US outbreak has slowed considerably in late 2024 and early 2025, though recent federal communications freeze on the US CDC impacts the confidence in the reported data. With the continued transmission of clade IIb in the US and globally and the increased transmission of clade I and II in the Africa region, experts are concerned that changes in the national and global landscape have the potential to increase health risks for specific US populations.

US Epi Curve:

US Clade IIB Cases per Week 2024 - Feb 5, 2025



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Key Updates

Global Response

- [The US issued](#) a level 2 travel health notice for Kenya, due to the mpox outbreak on January 6, 2025.
- Japan delivered 3 million doses of LC16 vaccine to the DRC on December 12, 2024, to help vaccinate children.

Both Clades

- The [EU CDC reported](#) that since the start of the 2022 mpox outbreak, the EU has detected 23,682 cases from 29 countries (11 total clade Ib, the rest clade IIb).
- [Azerbaijan](#) reported their first case of mpox (clade unknown) on January 18, 2025 in an individual with a recent travel history, though travel details have not been disclosed.
- A [recent survey](#) published on December 31, 2024 found that 33% of adults were hesitant to receive an mpox vaccine and 39% of parents were reluctant to vaccinate their children. This continues to highlight a concerning trend of vaccine hesitancy for multiple diseases.
- [Kosovo](#) detected their first case of mpox on December 27, 2024, in an individual with a recent travel history to Africa. Clade-specific details are not yet known.
- There are multiple new and ongoing outbreaks of mpox clades Ia, Ib, and IIb across Africa. [In 2024](#) there were a total of 77,756 cases (16,763 confirmed) and 1,288 deaths (case fatality ratio [CFR] of 1.78%) were reported from 20 African Union Member States. [Since the beginning of 2025](#), there have been a total of 1,117 cases (769 confirmed) and 4 deaths reported from 8 African Union Member States.

Clade I

- The [US CDC](#) reports that the US detected their second case of travel-related clade I mpox on January 14, 2025.
- The [UK continues to detect cases](#) of clade I mpox (9 in 2025 thus far) and has [launched a vaccination campaign](#) to curb the outbreak.
- [China](#) reported 5 cases of clade Ib mpox on January 9, 2025. The source of the outbreak was an individual with a recent travel history to the DRC.
- [France](#) detected their first case of clade Ib mpox on January 6, 2025. The infected individual did not have a recent travel history to West Africa.
- [Belgium](#) reported their first case of clade Ib mpox in an individual with a recent travel history and known exposure to mpox.
- [Increases in clade I cases continue](#) to be documented across the African Continent (see details on country-specific case and death counts below).

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Clade II

- The [WHO](#) reported that 2 Nepali migrant workers based in Saudi Arabia tested positive for clade IIb mpox.
- The US [National Institutes of Health \(NIH\)](#) has [determined](#) that while safe, Tecovirimat does not reduce lesion resolution time or reduce pain associated with the infection and has halted the clinical trial.

For more information about specific mpox scenarios and health risks, see the [CORI Mpox Resource Page](#).

Background

The monkeypox (mpox) virus—a serious viral zoonosis endemic in west and central Africa—is classified into 2 main clades, clade I and clade II, with each further subdivided into clade Ia, the [newly identified clade Ib](#), clade IIa, and clade IIb. Clade I mpox is generally associated with higher CFRs (1.4% to ~10%) compared with clade II (0.1% to 3.6%).

In 2022, the epidemiology of clade IIb mpox shifted dramatically. The virus, which is historically transmitted through close contact with infected wildlife or infected persons, found a foothold in the sexual networks of gay, bisexual, and other men who have sex with men, including in the United States and Europe. Although the clade IIb virus is capable of transmission via respiratory droplets, short-range aerosols, or contact with contaminated objects (fomite transmission), the [majority of cases from the global epidemic were acquired through close, extended physical contact](#), particularly intimate or sexual contact.

The change in epidemiology and rapid spread of the virus in 2022 required urgent public health action, and WHO declared the outbreak a public health emergency of international concern (PHEIC) on July 23, 2022. Public health officials and community-based organizations in the US and worldwide [mounted a response](#) that included health education, awareness raising, testing, treatment, and vaccination with a vaccine that was originally designed to protect against smallpox but is also effective against mpox. By late summer, the public health response began to slow transmission. Vaccination campaigns and targeted interventions significantly reduced the number of new weekly cases. However, [cases continue to occur among individuals at increased risk of infection](#), particularly those who have not been vaccinated or have received only 1 dose of the 2-dose vaccine.

In 2024, the DRC experienced an unprecedented number of clade I mpox cases, with transboundary cases occurring in several neighboring countries. Additionally, a [new offshoot of clade I has emerged](#), called clade Ib, that may be causing more severe disease. Before April 2023, [there were no formally documented cases of sexual transmission of clade I mpox](#), but many clusters of sexual transmission have since been recorded in the DRC. Notably, 4.3%–5.7% of all

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suspected and confirmed clade I cases in DRC reported from January 1, 2023, to April 14, 2024, have been fatal. Additionally, 67% of all cases and 78% of deaths have [occurred among children aged 15 years and younger](#).

This new mode of sexual transmission, as well as other possible modes of transmission, and newly or more severely affected groups such as heterosexual sex workers and children, raise additional concerns over the continuing rapid expansion of the DRC outbreak.

Key Public Health Recommendations

To minimize the health impact of mpox in the US, [CDC](#) and WHO recommend the following for clinicians and health departments:

- Implement prevention strategies:
 - Recommend all [adults at an elevated risk of infection](#) and those planning travel to affected countries [receive 2 doses of JYNNEOS](#) vaccine administered 28 days apart.
 - Mass gathering [event planning and preparedness activities](#) should foster community-based actions aimed at spreading precise and practical public health advice with a nondiscriminatory approach, utilizing different media and incorporate educational and awareness-raising initiatives related to mpox and other diseases of concern.
- Consider mpox as a potential diagnosis:
 - In patients with consistent symptoms and epidemiological risk factors, including those with recent travel to DRC or neighboring countries or contact with symptomatic individuals from affected areas.
 - In vaccinated individuals or those previously diagnosed with mpox.
- Implement proper infection control and patient management:
 - Follow CDC guidance on infection prevention and control to minimize transmission risk.
 - Advise suspected cases to isolate from others and counsel on preventing household transmission through disinfection practices.
 - Consult health departments or CDC for severe cases, especially those with advanced HIV.
- Ensure thorough laboratory testing:
 - Evaluate all suspected cases with laboratory testing, not only clinical diagnosis.
 - Follow specimen collection guidelines and send specimens to appropriate state or commercial laboratories.

Available Medical Countermeasures

While clades I and II mpox viruses are genetically similar enough that [vaccines and treatments are expected to be effective](#), it is [not well understood](#) how prior infection with clade IIb or vaccination might protect from infection with or complications from clade I. [CDC recommends](#) that all

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individuals with an elevated risk of infection receive 2 doses of JYNNEOS vaccine for the best protection against both clades I and II.

The WHO [authorized](#) 2 vaccines for emergency use, MVA-BN (brand name JYNNEOS in the US) and LC16 (Japan). As part of its standing recommendations, [WHO advises](#) countries to make vaccines available to nations in need.

In March 2024, the US Food and Drug Administration (FDA) issued Emergency Use Authorizations (EUAs) for an [in vitro mpox diagnostic device](#) and an [mpox home test collection kit](#).

Current Global Response

World Health Organization

The [WHO added the MVA-BN vaccine to its prequalification list](#) on September 13, 2024, which will allow speedier procurement and country-based approval processes of the Bavarian Nordic vaccine. On November 19, 2024, [Japan's KM Biologics vaccine LC16](#) was granted emergency use authorization by the WHO as well.

On August 14, 2024 the World Health Organization (WHO) [declared the current outbreaks](#) of multiple clades of mpox in the Democratic Republic of Congo (DRC), and nearby countries in Africa, to be a [Public Health Emergency of International Concern \(PHEIC\)](#). The [PHEIC declaration was extended](#) on November 22, 2024. WHO also:

- Elevated the global mpox outbreak to an acute Grade 3 emergency in accordance with the WHO Emergency Response Framework and issued guidance to WHO Member States.
- Released funds from its Contingency Fund for Emergencies (CFE), developed a US\$15 million regional response plan, and authorized an additional US\$1 million of emergency funding to boost response efforts.
- Extended for an additional year the WHO Director General's [Standing Recommendations for mpox](#) first issued on August 21, 2023.
- Began the process for Emergency Use Listing for 2 mpox vaccines to ease access and distribution processes, including distribution aid from GAVI and UNICEF.

Africa Centres for Disease Control and Prevention (Africa CDC)

Africa CDC declared this outbreak to be a [Public Health Emergency of Continental Security \(PHECS\)](#), signaling the increased threat of international spread posed by this virus. A large driver of these declarations is the spread of clade Ib.

In early January 2025, [Africa CDC conducted a 10-day training workshop](#) in the DRC on mpox surveillance and data management. The workshops included 53 public health officers from national and provincial offices.

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Profiles for Countries with Recent Outbreaks

United States (Clade IIb Outbreak)

Until November 16, 2024, [all mpox cases reported within the US were of the clade IIb subtype](#). The [first clade Ib case was detected](#) in an individual in California with a recent travel history to West Africa. There are no other reported cases of clade Ib circulating in the US. Since 2022, the US outbreak has grown to more than [34,490 cases](#) and 63 deaths. Recorded numbers of mpox cases were relatively stable in the ranges of 60-80 news cases per week in the first half of the year before dropping off and leveling out at 10-15 cases per week after the summer (see Epi curve on Page 1 for details). High levels of immunity from prior infections and vaccination help mitigate the risk of large outbreaks. Individuals at highest risk for clade IIb infection are gay, bisexual, and other men who have sex with men; people with multiple sexual partners; sex workers; and healthcare workers caring for infected patients.

Democratic Republic of the Congo (Clade I Outbreak)

The [DRC government declared a national epidemic](#) in December 2022 for what is the largest surge in mpox cases ever recorded in the country. In 2024, Africa CDC [and WHO](#) have reported more than [53,375 cases](#) of clade I mpox ([11,503 confirmed](#)) and [1,271 deaths](#) in DRC, for a CFR of 2%. Based on the extent of the DRC outbreak, in combination with the demographic characteristics and the genetic diversity of cases, [experts suspect that multiple transmission factors](#) are driving the outbreak, including zoonotic, household, and sexual.

The current DRC clade I outbreak is widespread, [affecting all of the country's 26 provinces](#), including the capital city of Kinshasa. The [highest transmission rates](#) have been in Equateur, Sud-Kivu, and Kinshasa. The clade I outbreak has [mostly affected children](#), with 66% of cases and 82% of deaths among individuals ages 15 and younger. Experts believe this is likely because younger children were never vaccinated against the related smallpox virus; vaccination was discontinued shortly after smallpox was eradicated in 1980. Many children in the region also suffer from malnutrition, making it more difficult for their bodies to fight infection.

Notably, a new [more dangerous strain of clade I mpox virus was documented in June 2024](#) in Sud-Kivu, described as an outbreak having pandemic potential that warrants urgent public health and case management support and targeted vaccination. However, vaccines are so far unavailable in the DRC, although their distribution and use has been authorized. According to experts, the clade Ib infections in DRC are being transmitted through sexual contact, particularly among sex workers and their contacts, as well as household and direct contact, and presenting with whole body or genital lesions that last longer than clade IIb symptoms. The more severe cases have a mortality rate near 5% in adults and 10% in children and have been associated with pregnancy loss.

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Other cases and clusters of mpox have been reported globally in 2024 and 2025, including:

Africa

Angola (Unknown Clade Outbreak)

On November 16, 2024, the [Angola Ministry of Health](#) confirmed their first case of mpox, detected in an individual from the DRC. As of [January 25, 2025](#), Africa CDC reports 4 confirmed cases from 2024, zero cases in 2025, and no deaths. Clade-specific test results and travel history details are not yet available.

Burundi (Clade Ib Outbreak)

On July 25, 2024, the Burundi Ministry of Health and [Africa CDC](#) reported the first-ever cases of mpox in the country, with 3 confirmed cases. As of [February 2, 2025](#), [WHO](#) reports 3,359 confirmed cases from 2024 and 2025 (413 cases confirmed in 2025), and one death in 2024.

Cameroon (Clade II Outbreak)

Since the beginning of 2024, [Cameroon has recorded](#) 129 suspected and 9 mpox cases and 2 deaths. There have been [no reports of cases in 2025](#), according to Africa CDC. Children under 15 years of age account for 11% of all confirmed cases.

CAR (Clade Ia Outbreak)

In 2024 CAR has detected [462 confirmed or suspected clade Ia mpox cases](#) and three deaths. Of the confirmed cases, children <15 years of age account for 55% of the cases. There have been [no reports of cases in 2025](#), according to Africa CDC.

Cote d'Ivoire (Clade IIa and IIb Outbreak)

As of August 16, 2024, the [Cote d'Ivoire](#) reported 2 confirmed mpox cases and activated its emergency health system in response. Africa CDC [reports that](#) in 2024, there were a total of 107 confirmed cases and one death due to clade II mpox. Children <15 years of age account for 41% of confirmed cases. [On January 20, 2025, Africa CDC](#) reported 5 total cases for the year, none of which are laboratory confirmed.

Gabon (Clade Ia Outbreak)

On August 22, 2024, the [Gabon Ministry of Health](#) confirmed a case of mpox in an individual with travel history to Uganda. By December 21, 2024, [Africa CDC reports](#) 2 confirmed cases and no deaths. There have been [no reports of cases in 2025](#), according to Africa CDC.

Ghana (Clade IIb Outbreak)

On October 2, 2024, [Ghana reported their first confirmed mpox case of the year to Africa CDC](#). The case was detected in a 15-year-old male with no travel or sexual history. In [2024](#), there were 230

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suspected cases, five of which have been confirmed and no deaths. On [January 14, 2025](#), Africa CDC reported 13 suspected cases, 0 confirmed cases, and 0 deaths for 2025.

Guinea (Unknown Clade Outbreak)

On [September 3, 2024](#), the Guinea National Agency for Health Security reported 1 confirmed case and 23 suspected cases, the first outbreak since 2022. The confirmed case had no history of recent travel. There currently is no available clade-specific data. In 2024, [Africa CDC reports](#) 1 confirmed case. There have been [no reports of cases in 2025](#), according to Africa CDC.

Kenya (Clade Ib Outbreak)

On July 31, 2024, the [Kenyan Ministry of Health](#) announced a case of mpox linked to an individual who traveled from Uganda to Rwanda via Kenya. In [2024](#), Kenya reported 31 confirmed cases and 1 death. On January 25, 2025, [Africa CDC](#) reports 2 confirmed cases and no deaths for the year thus far.

Liberia (Clade II Outbreak)

In September and August of 2024, [Liberia has detected](#) 8 confirmed and 85 suspected mpox cases and no deaths. [Africa CDC reports](#) a total of 63 confirmed cases and no deaths in, 2024. There have been [no reports of cases in 2025](#), according to Africa CDC.

Mauritius (Unknown Clade Outbreak)

The Mauritius Ministry of Health reported their [first case of mpox](#) (clade unknown) on October 27, 2024. The case was detected in an individual who had recently traveled to Kenya. There have been [no reports of cases in 2025](#), according to Africa CDC.

Morocco (Clade IIb Outbreak)

On September 12, 2024, [Morocco reported their first case of mpox](#). Africa CDC released an updated outbreak report as cases of [mpox continue to expand within the continent](#) and have now reached all 5 regions. As of [December 21, 2024](#), Africa CDC reports 2 confirmed cases and no deaths. There have been [no reports of cases in 2025](#), according to Africa CDC.

Nigeria (Clade IIb Outbreak)

In 2024 [Nigeria has reported](#) 1,297 cases (184 laboratory confirmed) of clade II mpox and no deaths. In 2025, Africa CDC reports that there have been 131 cases (12 confirmed) and no deaths of clade IIb mpox as of [January 25, 2025](#).

Republic of the Congo (ROC) (Clade Ia Outbreak)

[ROC has recorded](#) 162 confirmed and suspected cases of clade I mpox and 1 death since the beginning of the year. On November 3, 2024, [Africa CDC](#) reported a total of 249 cases (22 confirmed)

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and no deaths. Children under 15 years of age account for 38% of all cases. There have been [no reports of cases in 2025](#), according to Africa CDC.

Rwanda (Clade Ib Outbreak)

In August 2024, the Rwandan Ministry of Health [reported 4 confirmed](#) cases of clade Ia mpox [WHO confirmed](#) that the subclade is clade Ib. In Africa CDC confirms 59 cases and no deaths. In the first week of [2025](#), Rwanda reported 126 cases (5 confirmed) of clade Ib mpox.

South Africa (Clade IIb Outbreak)

In May 2024, South Africa announced its first confirmed case of mpox clade IIb. By [September 9, 2024](#), South Africa has reported [25 confirmed cases and 3 deaths](#). The cases are all male, aged between 17-43 years, almost all self-identified as MSM, most are living with HIV, and many [displayed severe clinical presentation](#) and were hospitalized for mpox. Of 5 cases with available viral sequence data, all were [confirmed to be clade IIb](#). There have been [no reports of cases in 2025](#), according to Africa CDC.

Uganda (Clade Ib Outbreak)

On August 3, 2024, Uganda reported its first 2 cases of mpox ever in people who had crossed the border into DRC. [WHO confirmed](#) the cases were clade Ib. [In 2024](#), there were a total of 1,353 confirmed cases and [6 deaths](#) of clade Ib mpox. In 2025, Africa CDC reports 735 cases and 4 deaths, as [of January 25, 2025](#).

Zambia (Clade Ib Outbreak)

On October 10, 2024, [the Zambian Ministry of Health confirmed the first case](#) of mpox in a 32-year old male Tanzanian truck driver. There is no clade-specific data currently available. There were 3 total confirmed cases and 0 deaths in Zambia in 2024. In 2025 there have been 3 cases and no deaths.

Zimbabwe (Unknown Clade Outbreak)

The [Zimbabwe Ministry of Health](#) declared their first case of mpox on October 13, 2024, detected in an 11-year-old male with a recent travel history. [By October 21, 2024](#), there have been 2 cases and no deaths. There is no clade-specific information available currently. There have been [no reports of cases in 2025](#), according to Africa CDC.

Europe

Belgium (Clade Ib Outbreak)

On December 24, 2024, [Belgium](#) reported their first case of clade Ib mpox to the ECDC. The case was detected in an individual with known travel history and sexual contact with a symptomatic individual in Africa.

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Kosovo (Unknown Clade Outbreak)

On December 21, 2024, [Kosovo detected their first case of mpox](#) (clade unknown) in a man who had recently returned from west Africa (country not specified).

UK (Clade Ib Outbreak)

The UK Health Security Administration announced on October 30, 2024, that they had detected [their first case of clade Ib mpox](#) in an individual with a recent travel history. On [November 9, 2024](#), 4 total cases were reported, all housemates. [On December 1, 2024, a fifth case was reported](#), the first case that is not connected to the individual who had returned from Uganda in early November.

North America

Canada (Clade Ib Outbreak)

On November 22, 2024, the [Public Health Agency of Canada](#) announced that the first case of clade Ib mpox was detected in an individual who had recently traveled to a country in Africa with a current mpox outbreak. Clade IIb cases of mpox have been detected in Canada since 2022.

Oceania

Australia (Clade II Outbreak)

Cases of clade II mpox continue to be [reported in Australia](#) throughout 2024. There were at least 1,396 cases detected in 2024, predominantly among males ages 30-39 years old. This is in sharp contrast to 2023, when there were only 26 detected cases for the entire year.

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