

# Epidemiological Alert Detection of clade I of mpox in the Americas Region

**19 November 2024** 

In view of the recent identification of the first imported case of mpox virus clade I in the Americas Region, the Pan American Health Organization / World Health Organization (PAHO/WHO) reiterates to the Member States to remain vigilant to the possibility of introduction of this variant in the countries of the Region, to continue with their surveillance efforts including genomic sequencing of the detected cases, with special emphasis on high-risk groups.

# Summary of the situation

Globally, between January 2022 and 31 October 2024, 115,101 confirmed cases of mpox, including 255 deaths, were reported in 123 Member States of the six World Health Organization (WHO) Regions. In October 2024, the number of new cases reported monthly decreased by 11% compared to September. Most of the cases reported in October were reported in the African Region (71%) and the Western Pacific Region (11.6%) (1).

During the month of October, 44 countries have reported mpox cases, 26 of which reported an increase in monthly case counts. Three countries reported their first case of mpox: Mauritius, Zambia, and Zimbabwe (1).

Regarding the situation in Africa, since 1 January 2022, 23 Member States of WHO Region of Africa have notified WHO of mpox cases. As of 10 November 2024, a total of 14,582 laboratory-confirmed cases have been reported, including 76 deaths (1).

During 2024 and as of 16 November 2024, 19 countries had reported 12,178 confirmed cases, including 53 deaths. The three countries with the most cases in 2024 are the Democratic Republic of Congo (n=9,457), Burundi (n=1,863), and Uganda (n=443). **Clade Ib**, which was reported in the Democratic Republic of Congo, from which cases were identified in Burundi, Kenya, Rwanda, Uganda, Zambia, and Zimbabwe, and which is linked to the WHO Director-General's declaration of Public Health Emergency of International Concern (PHEIC) on 14 August 2024 (2), has been identified outside Africa in: Germany (n=1 case), India (n=1 case), the United States (n=1 case), the United Kingdom (n=4 cases), Sweden (n=1 case), and Thailand (n=1 case) (3-9). Outside Africa, secondary transmission of mpox due to MPXV clade Ib has only been reported in the United Kingdom, where three secondary cases were confirmed among household contacts of the first case of mpox clade Ib in the United Kingdom (6).

**Suggested citation:** Pan American Health Organization / World Health Organization. Epidemiological Alert detection of clade I of mpox in the Americas Region, 19 November 2024. Washington, D.C.: PAHO/WHO; 2024.

# Situation in the Americas Region

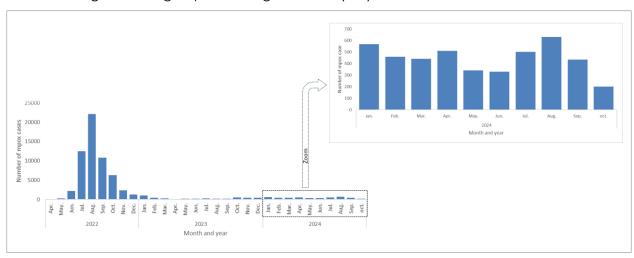
Between May 2022 and as of epidemiologic week (EW) 44 of 2024, 66,290 confirmed cases of mpox, including 150 deaths, were reported in 31 countries and territories in the Americas Region (9). Since the last PAHO/WHO mpox epidemiologic update on 29 October 2024, 414 additional mpox cases were reported in the Region and clade I was identified for the first time in the United States (5, 10 -18).

On 16 November, the United States Centers for Disease Control and Prevention (U.S. CDC) reported the detection of a confirmed case of mpox clade I. The case was diagnosed in a person who recently traveled to East Africa (5).

The individual was treated shortly after returning to the United States at a local medical center and was discharged. Since then, the individual has been isolated at home, is not receiving specific treatment for mpox, and symptoms are improving. Based on their travel history and symptoms, samples from the case were tested and the presence of mpox clade I was confirmed. The samples were sent to the U.S. CDC for additional viral characterization. In addition, the U.S. CDC is working with the state to identify and follow up with potential contacts (5).

In the Americas Region, the highest proportion of mpox cases was recorded during 2022 (87%), with the highest number of cases reported in the month of August 2022. Subsequently, a progressive decrease in cases was observed and continued during 2023 and 2024 (**Figure 1**) (10).

**Figure 1.** Confirmed cases of mpox by month and year of symptom onset/notification. Americas Region, through epidemiological week (EW) 44 of 2024.



**Source:** Adapted from Pan American Health Organization. Mpox case dashboard - Americas Region. Washington, D.C.: PAHO; 2024 [cited 13 November 2024]. Available from: <a href="https://shiny.paho-phe.org/mpox/">https://shiny.paho-phe.org/mpox/</a> and Pan American Health Organization. mpox dataset Americas Region 2022-2024, Information submitted by International Health Regulations (IHR) National Focal Points (NFPs) or extracted from publicly available official sources. Washington, D.C.: PAHO; 2024 [cited 19 November, 2024]. Unpublished (10, 19).

Regarding the distribution of cases by country and territory, the largest proportion of confirmed mpox cases between May 2022 and October 2024 corresponds to the United States of America (n= 34,187 cases, including 63 deaths), followed by Brazil (n= 12,968 cases, including 16 deaths), Colombia (n= 4,279 cases), Mexico (n= 4,184 cases, including 35 deaths), and Peru (n= 3,949 cases, including 23 deaths) (19).

Of 61,512 cases of mpox, reported between May 2022 and October 2024, with available information on sex and age, in the Americas Region, 96% are males (n= 58,966 cases) and 40% of the cases are in the 30-39 age group (n= 24,335 cases) with a median age of 33 years, with an age range between 0 and 95 years. In addition, there are 759 confirmed cases in children under 18 years of age in 16 countries of the Region (1.2% of cases). Of 22,498 cases with available information on human immunodeficiency virus (HIV) status, 59% were persons living with HIV (19).

Of the 52,044 cases of mpox for which information was available, 8% were hospitalized (n= 4,039 cases), 24% of these cases being for clinical management (n= 956 cases). In 60% of the cases the cause (n= 2,422 cases) of hospitalization was unknown (10, 19).

## Situation in the Americas Region in 2024

In 2024 in the Americas Region, 15 countries record a total of 4,645 confirmed cases of mpox including six deaths: Argentina (n= 87 cases), Bolivia (n= 1 case), Brazil (n= 1,490 cases), Canada (n= 315 cases), Chile (n= 15 cases), Colombia (n= 131 cases), Costa Rica (n= 1 case), the Dominican Republic (n= 8 cases), Ecuador (n= 24 cases), Guatemala (n= 1 case), Mexico (n= 105 cases, including one death), Panama (n= 5 cases), Peru (n= 90 cases, including two deaths), the United States (n= 2,371 cases, including three deaths), and Uruguay (n= 1 case) with the latter being the only new country to report cases since the last PAHO/WHO update (**Figure 2**) (10-18, 19).

In 2024, of 4,191 mpox cases with available information on sex and age, in the Americas Region, with 96% of cases reported as being male (n= 4,027 cases), being similar to the cases reported in 2022-2023, and 43% of cases are in the 30-39 year age group (n= 1,786 cases) with the median age being 34 years, with an age range between 0 and 75 years (9-17, 19). In addition, there are 33 confirmed cases in minors under 18 years of age in five countries of the Americas Region (0.8% of cases) (10-18, 19). Of 1,390 cases with available information on HIV status, 49% were persons living with HIV (19).

**Figure 2.** Confirmed cases of mpox by epidemiological week (EW) of symptom onset / notification and country\*. Americas Region, EW 1 to EW 44 of 2024.

\*Note: Includes only countries for which information is available by epidemiological week of onset of symptoms or notification.

**Source:** Adapted from Pan American Health Organization. mpox dataset Americas Region 2022-2024, Information submitted by International Health Regulations (IHR) National Focal Points (NFPs) or extracted from publicly available official sources. Washington, D.C.: PAHO; 2024 [cited 19 November 2024]. Unpublished (19).

### Summary of the situation by subregion and select countries

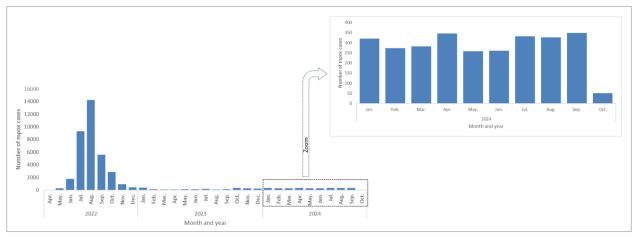
In the **North American** subregion<sup>1</sup>, between 2022 and as of EW 44 of 2024, 40,156 confirmed cases of mpox were reported, including 98 deaths. The highest proportion of cases was reported in the **United States** with 85% of cases (19).

During 2024, as of EW 44, the three countries that make up this subregion have reported cases (n= 2,791 cases including four deaths), since the last PAHO/WHO mpox epidemiological update, 124 additional mpox cases were reported in this subregion (**Figure 3**) (13, 15, 16).

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<sup>&</sup>lt;sup>1</sup> Canada, Mexico, and the United States.

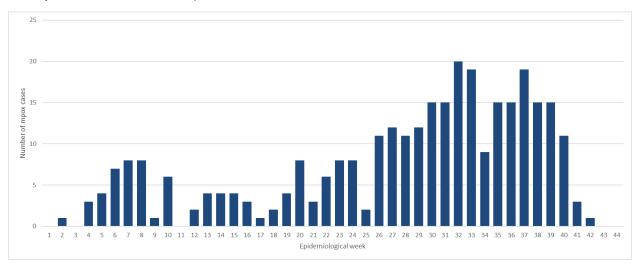
**Figure 3.** Confirmed cases of mpox by month and year of symptom onset/notification. North American sub-region, through epidemiologic week (EW) 44 of 2024.



**Source:** Adapted from Pan American Health Organization. Mpox case dashboard - Americas Region. Washington, D.C.: PAHO; 2024 [cited 13 November 2024]. Available from: <a href="https://shiny.paho-phe.org/mpox/">https://shiny.paho-phe.org/mpox/</a> and Pan American Health Organization. mpox dataset Americas Region 2022-2024; Information submitted by International Health Regulations (IHR) National Focal Points (NFPs) or extracted from publicly available official sources. Washington, D.C.: PAHO; 2024 [cited 19 November 2024]. Unpublished (10, 19).

In **Canada**, between EW 1 and EW 44 of 2024, 315 confirmed cases of mpox have been reported, with a weekly average of seven cases (**Figure 4**). Males accounted for 97% of cases (n= 306 cases) and 41% of cases were in the 30–39-year age group (n= 128 cases), with no cases reported in children under 18 years of age. Of 292 cases with available information, 0.7% of the cases were hospitalized (13, 19).

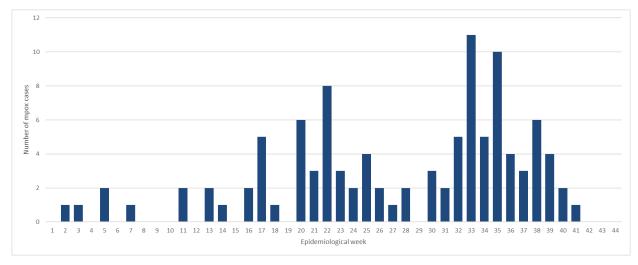
**Figure 4.** Confirmed cases of mpox by epidemiological week (EW) of symptom onset/notification. Canada, between EW 1 and EW 44 of 2024.



**Source:** Adapted from Pan American Health Organization. mpox dataset Americas Region 2022-2024, Information submitted by International Health Regulations (IHR) National Focal Points (NFPs) or extracted from publicly available official sources. Washington, D.C.: PAHO; 2024 [cited 19 November 2024]. Unpublished (19).

In **Mexico**, between EW 1 and EW 44 of 2024, 105 confirmed cases of mpox have been reported, including one death, with a weekly average of two cases (**Figure 5**). Ninety percent of the cases are in male (n= 95 cases) and 45% of the cases are in the 30-39 age group (n= 47 cases). Three cases were reported in children under 18 years of age. No hospitalized cases were reported (16, 19).

**Figure 5.** Confirmed cases of mpox according to epidemiological week (EW) of symptom onset/notification. Mexico, EW 1 to EW 44 of 2024.



**Source:** Adapted from Pan American Health Organization. mpox dataset Americas Region 2022-2024, Information submitted by International Health Regulations (IHR) National Focal Points (NFPs) or extracted from publicly available official sources. Washington, D.C.: PAHO; 2024. [cited 19 November 2024]. Unpublished (19).

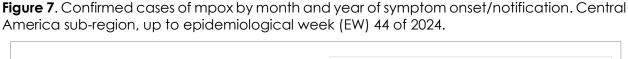
In the **United States**, between EW 1 and EW 44 of 2024, 2,371 confirmed cases of mpox were reported, including three deaths, with a weekly average of 54 cases (**Figure 6**). Males accounted for 96% of the cases (n= 1,943 cases) and 41% of the cases were in the 30-39 age group (n= 818 cases). There are eight cases in children under 18 years of age. Of 1,824 cases with available information, 11% were hospitalized (15, 19).

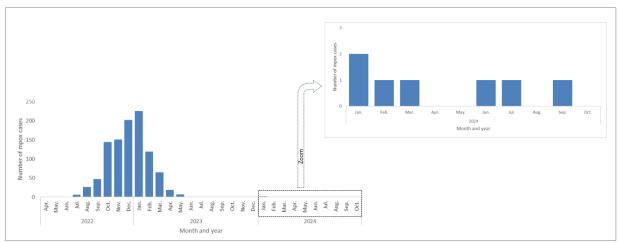
On 16 November 2024, the U.S. CDC reported laboratory confirmation by the California Department of Public Health of the first known case of clade I mpox in the United States, previously described (5).

**Figure 6.** Confirmed cases of mpox by epidemiologic week of symptom onset/notification. United States, between EW 1 and EW 44 of 2024.

**Source:** Adapted from Pan American Health Organization. mpox dataset Americas Region 2022-2024, Information submitted by International Health Regulations (IHR) National Focal Points (NFPs) or extracted from publicly available official sources. Washington, D.C.: PAHO; 2024 [cited 19 November 2024]. Unpublished (19).

In the **Central America** subregion<sup>2</sup>, between 2022 and as of EW 44 of 2024, 1,022 cases of mpox were reported, including three deaths. The highest proportion of cases was reported in **Guatemala** with 40% of the cases. Among the countries that make up this subregion, **Costa Rica**, **Guatemala**, and **Panama** reported cases in 2024 (n= 7 cases) (**Figure 7**) (9, 19).





**Source:** Adapted from Pan American Health Organization. Mpox case dashboard - Americas Region. Washington, D.C.: PAHO; 2024 [cited 13 November 2024]. Available from: <a href="https://shiny.paho-phe.org/mpox/">https://shiny.paho-phe.org/mpox/</a> and Pan American Health Organization. mpox dataset Americas Region 2022-2024, Information submitted by International Health Regulations (IHR) National Focal Points (NFPs) or extracted from publicly available official sources. Washington, D.C.: PAHO; 2024 [cited 19 November 2024]. Unpublished (9, 19).

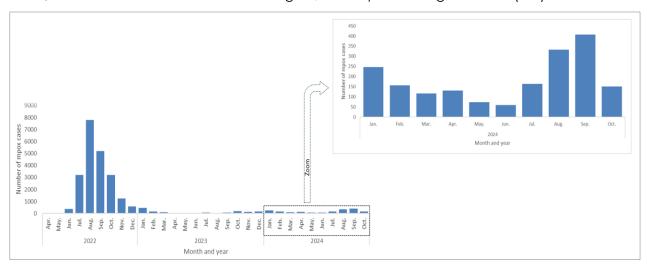
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<sup>&</sup>lt;sup>2</sup> Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.

In the **South American** subregion<sup>3</sup>, ten countries have reported cases between 2022 and as of EW 44 of 2024, 24,946 cases of mpox were reported, including 47 deaths. The highest proportion of cases was reported in **Brazil** with 52% of cases, followed by **Colombia** with 17%, and **Peru** with 16%.

Within the countries that make up this subregion, eight countries reported cases in 2024 (n= 1,839 cases including two deaths): **Argentina**, **Bolivia**, **Brazil**, **Chile**, **Colombia**, **Ecuador**, **Peru**, **and Uruguay**, since the last PAHO/WHO epidemiological update on mpox, 308 additional mpox cases were reported in this subregion (**Figure 8**) (11, 12, 14, 17-19).

**Figure 8.** Confirmed cases of mpox according to month and year of symptom onset/notification. South America sub-region, as of epidemiological week (EW) 44 of 2024.



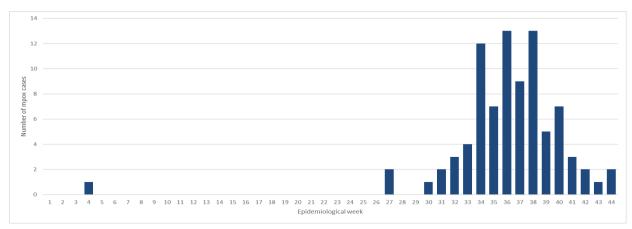
**Source:** Adapted from Pan American Health Organization. Dashboard of mpox cases - Americas Region. Washington, D.C.: PAHO; 2024 [cited 13 November 2024]. Available from: <a href="https://shiny.paho-phe.org/mpox/">https://shiny.paho-phe.org/mpox/</a> and Pan American Health Organization. mpox dataset Americas Region 2022-2024, Information submitted by International Health Regulations (IHR) National Focal Points (NFPs) or extracted from publicly available official sources. Washington, D.C.: PAHO; 2024 [cited 19 November 2024]. Unpublished (9, 19).

In **Argentina**, between EW 1 to EW 44 of 2024, 87 confirmed cases of mpox have been reported, with a weekly average of seven cases (**Figure 9**) and with the highest number of cases so far in EW 36 with 11 cases. Ninety-nine percent of the cases were males (n= 68 cases) and 48% of the cases were in the 30-39 age group (n= 33 cases). One case in children under 18 years of age was reported. Of 59 cases with available information, 7% of the cases were hospitalized (10, 19).

**Figure 9.** Confirmed cases of mpox according to epidemiological week (EW) of symptom onset/notification. Argentina, between EW 1 and EW 44 of 2024.

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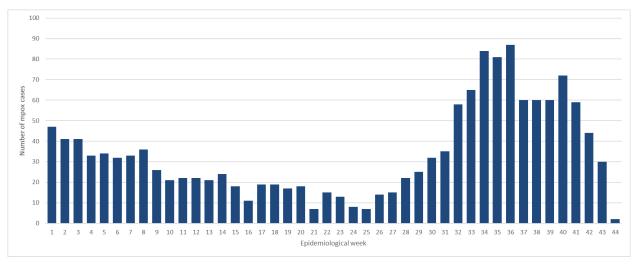
<sup>&</sup>lt;sup>3</sup> Argentina, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela (Bolivarian Republic of).



**Source:** Adapted from Pan American Health Organization. mpox dataset Americas Region 2022-2024, Information submitted by International Health Regulations (IHR) National Focal Points (NFPs) or extracted from publicly available official sources. Washington, D.C.: PAHO; 2024 [cited 19 November 2024]. Unpublished (19).

In **Brazil**, between EW 1 and EW 44 of 2024, 1,490 confirmed cases of mpox have been reported, with a weekly average of 31 cases (**Figure 10**), with an upward trend starting in EW 30 of 2024. Ninety-five percent of the cases were male (n= 1,376 cases) and 45% were in the 30-39 age group (n= 653 cases). There are 16 cases in children under 18 years of age. Of 1,173 cases with available information, 10% of the cases were hospitalized (11, 19).

**Figure 10.** Confirmed cases of mpox according to epidemiological week (EW) of symptom onset. Brazil, between EW 1 and EW 44 of 2024.

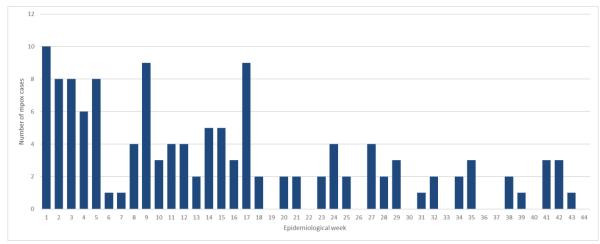


**Source:** Adapted from Pan American Health Organization. mpox dataset Americas Region 2022-2024, Information submitted by International Health Regulations (IHR) National Focal Points (NFPs) or extracted from publicly available official sources. Washington, D.C.: PAHO; 2024 [cited 19 November 2024]. Unpublished (19).

In **Colombia**, between EW 1 and EW 44 of 2024, 131 confirmed cases of mpox have been reported, with a weekly average of three cases (**Figure 11**). Ninety-nine percent of the cases correspond to males (n= 128 cases) and 43% of the cases are in the 30-39 years age group

(n= 55 cases). There are no cases in children under 18 years of age. Of 123 cases with available information, 22% of cases were hospitalized (13, 19).

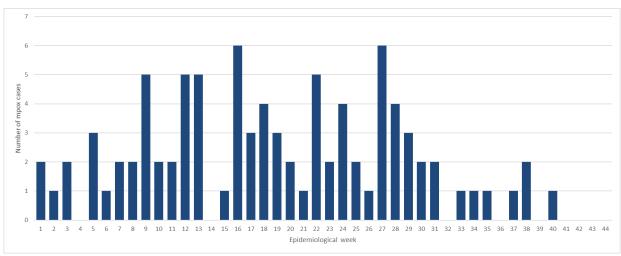
**Figure 11.** Confirmed cases of mpox according to epidemiological week of symptom onset/notification Colombia, between EW 1 and EW 44 of 2024.



**Source:** Adapted from Pan American Health Organization. mpox dataset Americas Region 2022-2024, Information submitted by International Health Regulations (IHR) National Focal Points (NFPs) or extracted from publicly available official sources. Washington, D.C.: PAHO; 2024 [cited 13 November 2024]. Unpublished (19).

In **Peru**, between EW 1 and EW 44 of 2024, 90 confirmed cases of mpox have been reported, including two deaths, with a weekly average of two cases (**Figure 12**). Ninety-six percent of the cases are males (n= 86 cases) and 44% of the cases are in the 30-39 years age group (n= 40 cases). One case is recorded in a child under 18 years of age (16, 19).

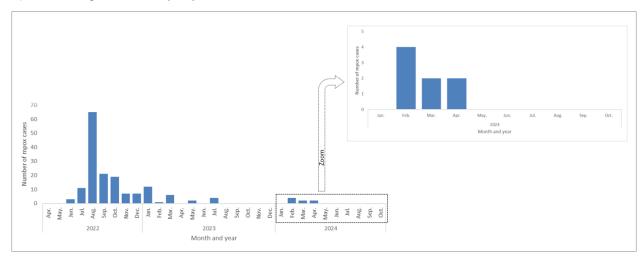
**Figure 12.** Confirmed cases of mpox according to epidemiological week (EW) of symptom onset/notification. Peru, between EW 1 and EW 44 of 2024.



**Source:** Adapted from Pan American Health Organization. mpox dataset Americas Region 2022-2024, Information submitted by International Health Regulations (IHR) National Focal Points (NFPs) or extracted from publicly available official sources. Washington, D.C.: PAHO; 2024 [cited 19 November 2024]. Unpublished (19).

In the Caribbean and Atlantic Ocean Islands subregion<sup>4</sup>, thirteen countries and territories have reported cases. Between 2022 and as of EW 40 of 2024, 166 cases of mpox were reported, including two deaths. The highest proportion of cases was reported in the Dominican Republic with 66% of cases, followed by Jamaica with 13% and Cuba with 5%. The Dominican Republic is the only country in this subregion that reported cases during 2024 (Figure 13) (9, 19).

**Figure 13.** Confirmed cases of mpox according to month and year of symptom onset/notification. Subregion of the Caribbean and Atlantic Ocean Islands, up to epidemiological week (EW) 44 of 2024.



**Source:** Adapted from Pan American Health Organization. mpox case dashboard - Americas Region. Washington, D.C.: PAHO; 2024 [cited 13 November 2024]. Available from: <a href="https://shiny.paho-phe.org/mpox/">https://shiny.paho-phe.org/mpox/</a> and Pan American Health Organization. Mpox dataset Americas Region 2022-2024, Information submitted by International Health Regulations (IHR) National Focal Points (NFPs) or extracted from publicly available official sources. Washington, D.C.: PAHO; 2024 [cited 19 November 2024]. Unpublished (9, 19).

# **Guidance to Member States**

Since the declaration of the public health emergency of international concern (PHEIC) on 14 August 2024, WHO has issued temporary recommendations and maintains the current standing recommendations for mpox (all clades) for an additional 12 months (2, 20).

Given the recent identification of clade I in the Americas Region, health authorities are encouraged to continue their surveillance efforts to characterize the situation and respond rapidly in the event of an introduction of this or any other variant of the virus (MPXV).

Virgin Islands.

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<sup>&</sup>lt;sup>4</sup> Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Bermuda, Bonaire, Cayman Islands, British Virgin Islands, Cuba, Curaçao, Dominica, Dominican Republic (the), Falklands Islands, French Guiana, Grenada, Guadeloupe, Guyana, Haiti, Jamaica, Martinique, Montserrat, Puerto Rico, Saba, Saint Barthélemy, Saint Kitts and Nevis, Saint Lucia, Saint Martin, Saint Pierre and Miquelon, Saint Vincent and the Grenadines, Saint Eustatius, Sint Maarten, Suriname, Trinidad and Tobago, Turks and Caicos, and the U.S.

Member States are reminded of the key recommendations for surveillance, clinical management, prophylaxis, and risk communication (21).

#### Surveillance

The main objective of mpox surveillance and case investigations is the rapid detection of cases and clusters in order to provide appropriate clinical care; isolation of cases to prevent onward transmission; the identification, management, and follow-up of contacts in order to recognize early signs or symptoms of infection; determining the groups at highest risk of infection and severe illness; protection of frontline healthcare workers; and the adoption of effective control and prevention measures (22).

It is crucial to maintain epidemiological surveillance based on laboratory testing and timely notification of probable and confirmed cases. This includes the follow-up of clinical characteristics compatible with mpox through existing surveillance programs and the implementation of clear case definitions for suspected, probable, confirmed, and reinfection cases according to current guidelines (22, 23).

Integrating mpox surveillance, detection, prevention, care, and research into HIV and other sexually transmitted infections (STI) prevention and control programs and services will facilitate early detection of outbreaks, reduce barriers to health services, and improve the response to HIV- MPXV co-infection (24).

The need for laboratory confirmation and the implementation of genomic surveillance is reiterated to determine the circulating clades and their evolution, and meanwhile, contribute to the knowledge base by sharing genetic sequence data for relevant public health actions.

#### Laboratory diagnosis

Considering the emergence of MPXV clade lb, previous guidelines for molecular detection and confirmation of suspected mpox cases should be maintained. However, it is recommended to carefully follow the proposed algorithms for differentiation of circulating clades and proper identification of clade lb.

Detection of viral DNA by polymerase chain reaction (PCR) is the laboratory test of choice for mpox. The best diagnostic specimens are those taken directly from the rash lesion Including: vigorous swabbing of lesion surface and/or exudate, upper edges of lesions, or crusts (25). Swabs of lesions are usually sufficient for diagnosis; in case upper edges or crusts of lesions are taken, sharps injury prevention measures should be strictly followed. In the absence of skin lesions and in the presence of mucosal lesions, oropharyngeal, anal, or rectal swabs can be performed (25). However, while a positive oropharyngeal, anal, or rectal swab result is indicative of mpox, a negative result is not sufficient to exclude MPXV infection. Attempted blood screening is not recommended. On the other hand, antibody detection methods can be used for retrospective case classification, but not for diagnosis. It should be restricted to reference laboratories and may not be useful, as it often does not distinguish between different orthopoxviruses (25).

Clade I, which is currently increasing transmission in Africa, has been documented to have a deletion in the genome and additional mutations that have not been identified in clade II,

leading to its classification as clade Ib (26). Although molecular detection using the recommended generic PCR protocol (only to detect MPXV) continues to work correctly, clade I specific PCR (previously recommended) does not detect novel clade (Ib) of the virus. (26). Therefore, after initial detection with the (generic) detection protocol, if the clade identification PCR is negative for both clade I and clade II, samples should be sequenced (25). There are currently PCR protocols for the specific detection of clade Ib, which may support the confirmation of a positive suspect case for the generic MPXV detection assay; however, validation data for these protocols are still lacking, so it is always recommended to perform the sequencing, especially for the index case or the first cases detected in an outbreak (25).

Laboratory guidelines for the detection and diagnosis of mpox virus infection are available from: <a href="https://www.paho.org/en/documents/laboratory-guidelines-detection-and-diagnosis-monkeypox-virus-infection-27-august-2024">https://www.paho.org/en/documents/laboratory-guidelines-detection-and-diagnosis-monkeypox-virus-infection-27-august-2024</a>.

#### Vaccination

PAHO reminds Member States that mass vaccination against mpox in the population is neither required nor recommended. Every effort should be made to control the person-to-person spread of mpox through early detection and diagnosis of cases, isolation, and contact tracing (27).

All decisions on immunization with mpox vaccines should be on a case-by-case basis of the assessed risks and benefits through shared clinical decision-making. Vaccination implementation should be accompanied by robust pharmacovigilance, and vaccine efficacy studies under clinical trial protocols are recommended (27).

In May 2022, the PAHO Technical Advisory Group on Vaccine Preventable Diseases recommended that vaccination should only be offered to high-risk close contacts of a confirmed case of mpox (27). In this case, the vaccine should ideally be administered within four days of exposure.

From May 2022 to November 2024, six countries administered doses of mpox vaccine: Chile (n= 13,926), Brazil (n= 12,302), Ecuador (n= 3,761), Panama (n= 665), Peru (n= 650) and the Dominican Republic (n= 29). Of these doses, 11,915 (38%) were administered to people between 30 and 39 years of age. Among the other age groups, people aged 40-49 years received 7,730 (25%) doses, while people aged 20-29 years received 6,586 (21%) doses. All countries administered Modified Vaccinia Ankara-Bavarian Nordic (MVA-BN) vaccine.

Following the declaration of the public health emergency of international concern (PHEIC) on 14 August 2024, WHO published the **Mpox global strategic preparedness and response plan** (28), which states that in response to the mpox outbreak, it is critical to improve control strategies through strategic vaccination. The implementation of targeted vaccination strategies can help reduce the spread of the virus by focusing on those at highest risk of infection, thereby reducing overall transmission. This vaccination strategy prioritizes people at substantially higher risk of exposure than in the general population. Identification of populations at risk of exposure should be based on epidemiologic data (28).

In outbreak response management, vaccination should be considered as an additional measure to complement primary public health interventions. At the individual level, vaccination should not replace other protective measures.

## Clinical management

Identifying cases of mpox can be challenging given the similarity to other infections and conditions (29, 30). It is important to distinguish mpox from chickenpox, measles, bacterial skin infections, scabies, herpes, syphilis, other sexually transmitted infections, and drug-associated allergies. A person with mpox may also simultaneously have another sexually transmitted infection, particularly syphilis, or have an undiagnosed HIV infection. Alternatively, a child or adult with suspected mpox may also have chickenpox. For these reasons, testing is key to getting people into appropriate care as soon as possible and to prevent further spread (30).

People with HIV without antiretroviral therapy, particularly when they have advanced disease (CD4 cell count below 200/mm³), have a disproportionate burden of disease and increased mortality. Chronic necrotizing lesions, proctitis and severe perianal pain, ocular lesions and other infrequent manifestations have been described in these patients (31). Therefore, it is recommended to offer an HIV serology test to all suspected cases of mpox, and if positive, to confirm the diagnosis and initiate antiretroviral treatment as soon as possible. If the HIV test is negative, persons at risk of HIV exposure should be identified and linked to prevention services.

During the care of suspected, probable, and/or confirmed cases of mpox, early identification is required through screening protocols adapted to local settings. These cases should be isolated immediately and require prompt implementation of appropriate infection prevention and control (IPC) measures, testing to confirm the diagnosis, symptomatic management of patients with mild or uncomplicated mpox, and follow-up and treatment of severe complications and conditions (30, 32).

Patients with mpox with mild to moderate clinical presentation who are able to receive home care require careful assessment of the ability to safely isolate themselves and maintain the required IPC precautions in their home to prevent transmission to other household and community members. Precautions (isolation and IPC measures) should be maintained until a new layer of skin has formed under the scabs (30, 32). WHO has recently published guidelines for home-based care of mpox cases (33).

Treatment is based on lesion care, pain control, and prevention of complications. The use of specific antiviral drugs, such as tecovirimat, has been proposed, particularly for severe cases or people at higher risk of complications, but there is still no evidence of its effectiveness (32). WHO recommends the use of tecovirimat in randomized clinical trials (RCTs) in order to contribute to the generation of evidence, and if this is not possible, to use it in the framework of monitored emergency use of unregistered and experimental interventions (MEURI) (32). WHO recently issued a call for countries to express interest in receiving a donation of tecovirimat for use under the revised WHO MEURI protocol (interested countries can contact the PAHO/WHO Country Office). In addition, the mpox clinical platform is offered as a tool for data collection and the mpox lesion atlas to harmonize lesion assessments (29, 34).

#### Risk communication

Promoting the dissemination of public health messages aimed at health personnel, the general population, and in particular, populations at highest risk (men who have sex with men, including those with HIV, as well as people with extensive sexual networks), and those in antiretroviral treatment or pre-exposure prophylaxis (PrEP) programs is key in order to inform and educate the target population about prevention measures and improve early detection, reporting, and prompt initiation of treatment of these cases. Continued efforts to raise awareness among authorities and health personnel about the ongoing outbreak in the Democratic Republic of the Congo and the possibility of travel-associated cases of mpox are also needed (35).

Disseminating simple information, education, and communication (IEC) materials on transmission, symptoms, prevention, and treatment through various media (including social networks, dating apps, or closed-circuit television in healthcare facilities with services for populations with higher prevalence of HIV and other STIs) is recommended.

Among the key messages, WHO suggests the constant use of condoms during sexual activity (oral/anal/receptive and insertive vaginal) during the 12 weeks following recovery from a confirmed case, in order to reduce the potential transmission of mpox by this route, considering that this risk is still unknown (36).

Avoid the spread of rumors and false, inaccurate or incorrect information about mpox. It is important that public health authorities systematically listen to and analyze information shared through social media to identify key questions and information gaps and develop communication strategies based on this. The public should be encouraged to obtain information only from official sources (36).

Continue risk communication and community engagement activities and work with civil society organizations to engage with key affected populations such as gay, bisexual and other MSM, including those living with HIV (36).

# References

- 1. World Health Organization. 2022-24 Mpox (Monkeypox) Outbreak: Global Trends. Geneva: WHO; 2024 [cited 13 November 2024]. Available from: <a href="https://worldhealthorg.shinyapps.io/mpx\_global/#1">https://worldhealthorg.shinyapps.io/mpx\_global/#1</a> Overview.
- World Health Organization. First meeting of the International Health Regulations (2005)
   Emergency Committee regarding the upsurge of mpox 2024. Geneva: WHO; 2024.
   Available from: <a href="https://www.who.int/news/item/19-08-2024-first-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-upsurge-of-mpox-2024.">https://www.who.int/news/item/19-08-2024-first-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-upsurge-of-mpox-2024.</a>
- 3. European Centre for Disease Prevention and Control. Confirmed mpox clade lb case in Germany, risk remains low for EU/EEA. Stockholm: ECDC; 2024. Available from: <a href="https://www.ecdc.europa.eu/en/news-events/confirmed-mpox-clade-ib-case-germany-risk-remains-low-eueea">https://www.ecdc.europa.eu/en/news-events/confirmed-mpox-clade-ib-case-germany-risk-remains-low-eueea</a>.
- 4. National Centre for Disease Control, Directorate General of Health Services, Government of India. CD Alert Mpox. October 2024. New Delhi: NCDC; 2024. Available from: <a href="https://ncdc.mohfw.gov.in/wp-content/uploads/2024/10/Revised-CD-Alert-Mpox-1.pdf">https://ncdc.mohfw.gov.in/wp-content/uploads/2024/10/Revised-CD-Alert-Mpox-1.pdf</a>.
- 5. United States Centers for Disease Control and Prevention. California confirms first clade I mpox case. Atlanta: CDC; 2024. Available from: https://www.cdc.gov/media/releases/s1116-california-first-clade.html.
- 6. European Centre for Disease Prevention and Control. Communicable disease threats report, 2-8 November 2024, week 45. Solna: ECDC; 2024. <a href="https://www.ecdc.europa.eu/sites/default/files/documents/Communicable-disease-threats-report-week-45-2024.pdf">https://www.ecdc.europa.eu/sites/default/files/documents/Communicable-disease-threats-report-week-45-2024.pdf</a>.
- 7. World Health Organization. Disease Outbreaks News. Mpox Sweden. Geneva: WHO; 2024. Available from: <a href="https://www.who.int/emergencies/disease-outbreak-news/item/2024-DON531">https://www.who.int/emergencies/disease-outbreak-news/item/2024-DON531</a>.
- 8. Department of Disease Control Thailand. Nonthaburi. DDC Confirms Mpox Clade Ib Strain Detected in a European Patient. Nonthaburi: DDC;2024. Available from: <a href="https://ddc.moph.go.th/oic/news.php?news=45761&deptcode=oic">https://ddc.moph.go.th/oic/news.php?news=45761&deptcode=oic</a>.
- 9. World Health Organization. 2022-24 Mpox (Monkeypox) Outbreak: Global Trends Genomic epidemiology. Geneva: WHO; 2024 [cited 13 November 2024]. Available from: https://worldhealthorg.shinyapps.io/mpx global/#6 Genomic epidemiology.
- 10. Pan American Health Organization. Mpox case dashboard Americas Region. Washington, D.C.: PAHO; 2024 [cited 13 November 2024]. Available from: <a href="https://shiny.paho-phe.org/mpox/">https://shiny.paho-phe.org/mpox/</a>.
- 11. Argentina International Health Regulations National Focal Point (IHR NFP). Communication received 11 November 2024 by e-mail. Buenos Aires; 2024. Unpublished.
- 12. Brazil International Health Regulations National Focal Point (IHR NFP). Communication received 8 November 2024 by e-mail. Brasilia; 2024. Unpublished.
- 13. Canada International Health Regulations National Focal Point (IHR NFP). Communication received 30 October 2024 by e-mail 2024 via e-mail. Ottawa; 2024. Unpublished.
- 14. Colombia International Health Regulations National Focal Point (IHR NFP). Communication received 8 November 2024 by e-mail Bogotá; 2024. Unpublished.

- 15. United States of America International Health Regulations National Focal Point (IHR NFP). Communication received 18 October 2024 by e-mail via e-mail. Washington, D.C.; 2024. Unpublished.
- 16. Mexico International Health Regulations National Focal Point (IHR NFP). Communication received 24 October 2024 by e-mail Mexico City; 2024. Unpublished.
- 17. Peru International Health Regulations National Focal Point (IHR NFP). Communication received 8 November 2024 by e-mail Lima; 2024. Unpublished.
- 18. Pan American Health Organization/ World Health Organization. Epidemiological Update Mpox in the Americas Region, 29 October 2024. Washington, D.C.: PAHO/WHO; 2024. Available from: <a href="https://www.paho.org/en/documents/epidemiological-update-mpox-americas-region-29-october-2024">https://www.paho.org/en/documents/epidemiological-update-mpox-americas-region-29-october-2024</a>.
- 19. Pan American Health Organization. Mpox dataset Americas Region 2022-2024, Information submitted by International Health Regulations (IHR) National Focal Points (NFPs) or extracted from publicly available official sources. Washington, D.C.: PAHO; 2024 [cited 19 November 2024]. Unpublished.
- 20. World Health Organization. WHO Director-General declares a public health emergency of international concern over the outbreak of monkeypox (mpox) 14 August 2024. Geneva: WHO; 2024. Available from: <a href="https://www.who.int/news/item/14-08-2024-who-director-general-declares-mpox-outbreak-a-public-health-emergency-of-international-concern/">https://www.who.int/news/item/14-08-2024-who-director-general-declares-mpox-outbreak-a-public-health-emergency-of-international-concern/</a>.
- 21. Pan American Health Organization. Mpox. Washington, D.C.; PAHO; 2024 [cited 13 November 2024]. Available from: <a href="https://www.paho.org/en/mpoxdisease">https://www.paho.org/en/mpoxdisease</a>.
- 22. World Health Organization. Surveillance, case investigation and contact tracing for mpox: interim guidance 20 March 2024. Geneva: WHO; 2024. Available from: https://www.who.int/publications/i/item/WHO-MPX-Surveillance-2024.1.
- 23. World Health Organization. Fifth meeting of the International Health Regulations (2005) Emergency Committee (IHR) on the outbreak of monkeypox in several countries, 11 May 2023. Geneva: WHO; 2023. Available from: <a href="https://www.who.int/news/item/11-05-2023-fifth-meeting-of-the-international-health-regulations-(2005)-(ihr)-emergency-committee-on-the-multi-country-outbreak-of-monkeypox-(mpox)">https://www.who.int/news/item/11-05-2023-fifth-meeting-of-the-international-health-regulations-(2005)-(ihr)-emergency-committee-on-the-multi-country-outbreak-of-monkeypox-(mpox).</a>
- 24. World Health Organization. Report of the fourth meeting of the International Health Regulations (2005) Emergency Committee (IHR) on the outbreak of monkeypox in several countries, February 15, 2023. Geneva: WHO; 2023. Available from: <a href="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).</a>
- 25. Pan American Health Organization. Laboratory Guidelines for the Detection and Diagnosis of Monkeypox Virus Infection- 27 August 2024 Washington, D.C.: PAHO; 2024. Available from: <a href="https://www.paho.org/en/documents/laboratory-guidelines-detection-and-diagnosis-monkeypox-virus-infection-27-august-2024">https://www.paho.org/en/documents/laboratory-guidelines-detection-and-diagnosis-monkeypox-virus-infection-27-august-2024</a>.
- 26. McQuiston JH, Luce R, Kazadi DM, Bwangandu CN, Mbala-Kingebeni P, Anderson M, et al. U.S. Preparedness and response to increasing clade I mpox cases in the Democratic Republic of the Congo United States, 2024 Weekly / 16 May 2024 / 73 (19); 435-440; Atlanta: CDC; 2024. Available from: https://www.cdc.gov/mmwr/volumes/73/wr/mm7319a3.htm.

- 27. Pan American Health Organization. VIII Ad Hoc Meeting of PAHO's Technical Advisory Group (TAG) On Vaccine-Preventable Diseases: Technical Briefing on the Multi-Country Monkeypox Outbreak, 31 May 2022 (virtual). Washington, D.C.: PAHO; 2022. Available from: <a href="https://iris.paho.org/handle/10665.2/56083">https://iris.paho.org/handle/10665.2/56083</a>.
- 28. World Health Organization. Mpox global strategic preparedness and response plan, 26 August 2024. Geneva: WHO; 2024. Available from: <a href="https://www.who.int/publications/m/item/mpox-global-strategic-preparedness-and-response-plan">https://www.who.int/publications/m/item/mpox-global-strategic-preparedness-and-response-plan</a>.
- 29. World Health Organization. Atlas of mpox lesions: a tool for clinical researchers, version 1.0, 28 April 2023. Geneva: WHO; 2023. Available from: <a href="https://www.who.int/publications/i/item/WHO-MPX-Clinical-Lesions-2023.1">https://www.who.int/publications/i/item/WHO-MPX-Clinical-Lesions-2023.1</a>.
- 30. Pan American Health Organization. Guidance on Clinical Suspicion and Differential Diagnosis of Monkeypox. Provisional Technical Note, June 2022. Washington, D.C.: PAHO; 2022. Available from: <a href="https://iris.paho.org/handle/10665.2/56218">https://iris.paho.org/handle/10665.2/56218</a>.
- 31. Mitjà O, Alemany A, Marks M, Lezama J, Rodríguez J, Torres M, et al. Mpox in people with advanced HIV infection: a global case series. Lancet. 2023 Mar 18;401(10380):939-949. doi: 10.1016/S0140-6736(23)00273-8. Epub 2023 Feb 21. Erratum in: Lancet. 2023 Apr 8;401(10383):1158. doi: 10.1016/S0140-6736(23)00584-6. PMID: 36828001. Available from: <a href="https://pubmed.ncbi.nlm.nih.gov/36828001/">https://pubmed.ncbi.nlm.nih.gov/36828001/</a>.
- 32. World Health Organization. Clinical Management and Prevention and Control of mpox Infection. Interim rapid response guidance, 10 June 2022. Geneva: WHO; 2022. Available from: <a href="https://www.who.int/publications/i/item/WHO-MPX-Clinical-and-IPC-2022.1">https://www.who.int/publications/i/item/WHO-MPX-Clinical-and-IPC-2022.1</a>.
- 33. World Health Organization. Infection prevention and control and water, sanitation and hygiene measures for home care and isolation for mpox in resource-limited settings. Geneva: WHO; 2024. Available from: https://www.who.int/publications/i/item/9789240101654.
- 34. World Health Organization. World Health Organization. The WHO Global Clinical Platform for mpox. Geneva: WHO; 2024. Available from: <a href="https://www.who.int/tools/global-clinical-platform/monkeypox">https://www.who.int/tools/global-clinical-platform/monkeypox</a>.
- 35. European Centre for Disease Prevention and Control. Epidemiological Update, Outbreak of Mpox caused by Monkeypox virus clade I in the Democratic Republic of the Congo, 5 April 2024. Stockholm; ECDC; 2024. Available from: <a href="https://www.ecdc.europa.eu/en/news-events/outbreak-mpox-caused-monkeypox-virus-clade-i-democratic-republic-congo">https://www.ecdc.europa.eu/en/news-events/outbreak-mpox-caused-monkeypox-virus-clade-i-democratic-republic-congo</a>.
- 36. World Health Organization. Risk communication and community engagement readiness and response toolkit: mpox, 23 April 2024. Geneva: WHO; 2024. Available from: https://www.who.int/publications/i/item/9789240091559.