Epidemiological Alert
Monkeypox in non-endemic countries

20 May 2022

Given the occurrence of cases of monkeypox in countries within and outside of the Region of the Americas, the Pan American Health Organization / World Health Organization (PAHO/WHO) shares with its Member States a series of considerations in relation to the identification of cases, the isolation, identification and follow-up of contacts, the clinical management, and the prevention and control of healthcare-associated infections. Guidance regarding available treatment and vaccines is also provided.

Situation Summary

On 15 May 2022, the World Health Organization (WHO) was notified of 4 confirmed cases of monkeypox from the United Kingdom. Two days later, two other countries reported cases: Portugal and Sweden. All of the cases had no reported history of travel to an area endemic for monkeypox and there was no epidemiological link between the cases reported in different countries. As of 20 May 2022, 11 countries have reported cases: Australia, Belgium, Canada, France, Germany, Italy, Portugal, Spain, Sweden, the United Kingdom, and the United States of America. (*1, 2, 3*)

Monkeypox ICD-10 B04 *(7, 8)*

Monkeypox is commonly found in Central and West Africa, where there are tropical forests and animals that can carry the virus.

Monkeypox is a viral zoonosis caused by the monkeypox virus, which belongs to the *Orthopoxvirus* genus, which includes variola virus (which causes smallpox). There are two genetically distinct strains of monkeypox virus: the Congo Basin (Central African) strain and the West African strain. Human infections with the West African strain appear to cause less severe disease compared to the Congo Basin strain.

In the Region of the Americas, 3 cases of monkeypox have been reported, in Canada (2 cases) and the United States of America (1 case) (*4, 5, 6*).

These cases have no recent history of travel to an endemic area in West Africa or Central Africa, and most of the initial cases have been detected in sexual health clinics. The geographical scope of the cases in Europe suggests that transmission may have been ongoing for some time, so the occurrence of additional cases in other countries cannot be ruled out.

Transmission

Monkeypox has traditionally been transmitted mainly through direct or indirect contact with blood, body fluids, or skin or mucosal lesions of infected animals. **Secondary or person-to-person transmission can occur through close contact with infected respiratory secretions or skin lesions of an infected person, or with objects recently contaminated with fluids from the patient or materials from the lesion**. Transmission occurs primarily through respiratory droplets. Infections are also transmitted by inoculation or transplacentally (congenital monkeypox). There is currently no evidence that monkeypox virus is sexually transmitted.

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The incubation period is usually 6 to 16 days but has been reported as ranging from 5 to 21 days.

WHO and health authorities from the Member States that have reported cases are conducting intensive case finding, laboratory investigation, clinical management, case isolation, and retrospective and prospective contact tracing.

Guidance for national authorities

Given the occurrence of cases of monkeypox in some countries within and outside the Region of the Americas, the Pan American Health Organization / World Health Organization (PAHO/WHO) shares with its Member States a series of considerations related to the identification of cases, isolation, identification and follow-up of contacts, clinical management, and prevention and control of healthcare-associated infections. Information on available treatment and vaccination is also provided. This guidance will be updated based on the findings of ongoing investigations.

Surveillance

Health authorities should be on alert for the appearance of patients presenting with an atypical rash that progresses in sequential stages of macules, papules, vesicles, pustules, and crusts that are often associated with fever, lymphadenopathy, and myalgia. Although in Europe, the majority of cases were detected in sexual health clinics, these could occur in different healthcare and community settings, including internal medicine, pediatrics, obstetrics/gynecology, dermatology, and urology services.

Suspected cases must be immediately notified to the corresponding public health authorities, so that timely public health actions can be implemented. Surveillance among healthcare workers potentially exposed to patients is also paramount.

To facilitate surveillance, **the following working case definition[1] is proposed for non-endemic countries**:

Suspected case:

A person of any age presenting in a country non-endemic for monkeypox with an unexplained acute rash

AND

one or more of the following signs or symptoms since 15 March 2022:

- Headache
- Acute onset of fever (>38.5°C)
- myalgia
- back pain
- asthenia
- lymphadenopathy

AND

for which the following common causes of acute rash have been ruled out: varicella zoster, herpes zoster, measles, Zika, dengue, chikungunya, herpes simplex, bacterial skin infections, disseminated *Gonococcus* infection, primary or secondary syphilis, chancroid, lymphogranuloma venereum, granuloma inguinale, molluscum contagiosum, allergic reaction (e.g., to plants); and any other locally relevant common causes of papular or vesicular rash.

[1] The current case definitions as established on 20 May 2022 which will be updated as necessary.

Probable case:

A person meeting the case definition for a suspected case

AND

one or more of the following:

- has an epidemiological link (close exposure without respiratory protection; direct physical contact, including sexual contact; or contact with contaminated materials such as clothing or bedding) to a probable or confirmed case of monkeypox in the 21 days before symptom onset.
- reported travel history to a monkeypox endemic country in the 21 days before symptom onset.

Confirmed case:

A case meeting the definition of either a suspected or probable case and is laboratory-confirmed for monkeypox virus by molecular methods (real-time PCR), and or sequencing (if available).

Notification of cases must include at least the following information: date of notification; place of notification; name, age, gender, and residence of the case; date of symptom onset; recent travel history; recent exposure to a probable or confirmed case; type of contact with the probable or confirmed case (when applicable); recent history of having had multiple sexual partners; smallpox vaccination status; presence of rash; presence of other clinical signs or symptoms according to the case definition; confirmation date (and in which laboratory it was confirmed); confirmation method (if applicable); genomic characterization (if available); and other relevant clinical or laboratory findings, particularly to exclude common causes of rash according to the case definition. If the case is hospitalized, include the date of hospitalization (and where hospitalized); date of discharge, and date of death (if applicable).

Genomic sequencing, if available, is helpful in determining and confirming the strain of monkeypox virus involved.

Case Investigation

During human monkeypox outbreaks, **close contact with infected persons is the most important risk factor for infection**. If this is suspected, the investigation should consist of:

- reviewing the clinical history: evolution of the lesions, possible sources of infection, and the presence of a similar disease in the patient's social network and contacts.
- conducting a clinical exam of the patient.
- collection and shipment of samples for laboratory analysis for monkeypox.

The investigation regarding the case's exposures should cover the period between 5 and 21 days prior to the onset of symptoms. Any patient with suspected monkeypox should be isolated during the presumed and known infectious periods, that is, during the prodromal and rash stages of the disease, respectively.

Laboratory confirmation of suspected or probable cases is important but should not delay public health action.

Cases identified during retrospective case finding may no longer show clinical symptoms of monkeypox (they have recovered from an acute illness) but may show dermal scars and other sequelae. It is important to collect epidemiological information on cases resulting from the retrospective case finding; these can be classified with anti-orthopoxvirus antibody tests, if available.

Identification and follow-up of contacts

Contact identification, education about control measures, and contact tracing is a key public health measure to control the spread of monkeypox. It allows for the interruption of transmission and can also prevent people at higher risk from developing serious illness by early identification of their exposure.

In the current context, as soon as a suspected case is identified, contact identification and tracing should be initiated. **Close contacts of the case should be informed of their contact status within 24 hours of identification.**

Contact definition

A contact is defined as a person who was exposed in different contexts[2] to a probable or confirmed case of monkeypox during the infectious period, from the case's onset of symptoms until all the scabs of the skin lesions have fallen off. Exposure considers the following situations:

- exposure without respiratory protection (particularly relevant for healthcare workers)
- direct physical contact, including sexual contact
- contact with contaminated materials such as clothing or bedding

Contact tracing

Contact monitoring is recommended every 24 hours for the appearance of signs and symptoms for a period of 21 days since the last contact with a patient during the infectious period. Signs and symptoms include headache, fever, chills, sore throat, malaise, fatigue, maculopapular skin lesions, and lymphadenopathy. Contacts should have their temperature checked twice a day.

Asymptomatic contacts may continue with routine daily activities, but should remain close to home for the duration of surveillance and should not donate blood, cells, tissues, organs, breast milk, or semen while under monitoring. In the event that asymptomatic contacts occur in preschool-age children, it is recommended to prevent them from going to daycare centers or other group settings (8, 9).

If a contact develops a rash, they should be isolated and evaluated as a suspected case, and a sample should be collected for laboratory analysis for the detection of monkeypox.

Clinical management and infection prevention and control

Clinically, the infection can be divided into two periods:

- The ***period of invasion*** (between days 0 and 5), characterized by fever, severe headache, lymphadenopathy (swollen lymph nodes), lower back pain, myalgia (muscle pain), and severe asthenia.

- The ***skin rash period*** (between 1 and 3 days after the onset of fever), when the different phases of rash appear, which usually affects the face first and then spreads to the rest of the body. The most affected areas are the face (in 95% of cases), and the palms of the hands and the soles of the feet (in 75% of cases). The evolution of the rash from maculopapular (flat-based lesions) to vesicles (fluid-filled blisters), pustules, and subsequent crusting occurs in about 10 days. Complete removal of the scabs can take up to three weeks.

[2] Exposure settings: home, workplace, school/daycare, sexual contacts, healthcare, places of worship, transportation, sports, social gatherings, and any other social interactions.

The number of lesions varies from a few to several thousand, and they affect the mucous membranes of the mouth (70% of cases), the genitalia (30%), the palpebral conjunctiva (20%) and the cornea. **The case-fatality rate has varied widely during the different epidemics, but has been less than 10% in the documented events.**

Healthcare workers caring for suspected or confirmed cases of monkeypox should implement standard, contact, and droplet precautions. During aerosol-generating procedures, health professionals must use respirators. This includes eye protection, surgical masks, gowns, and disposable gloves. These precautions apply to all healthcare facilities, including inpatient and outpatient services. While performing aerosol-generating procedures, health professionals must use N95 masks or equivalent.

Appropriate case management should be established to avoid nosocomial transmission, with an adequate flow from triage to isolation rooms (at any level of care), avoiding contact with other patients in waiting rooms and/or rooms with patients hospitalized for other reasons. If the clinical condition allows it, during transport, patients should use surgical masks covering the mouth and nose. For cases requiring hospitalization, single or cohort rooms (confirmed with confirmed, suspected with suspected) with adequate ventilation and assigned bathrooms are recommended. **Isolation and additional transmission-based precautions should continue until resolution of the vesicular rash.**

Standard and transmission-based precautions should be implemented in combination with other administrative and engineering control measures.

Samples collected from people or animals with suspected monkeypox must be handled safely by trained personnel working in properly equipped laboratories. National and international regulations on the transport of infectious substances must be strictly followed during sample packaging and transport to reference laboratories. Reference laboratories must be informed in advance about the shipment of these samples so that they can minimize the risk to laboratory workers.

Considerations related to treatment and vaccination

There are no specific treatments for monkeypox virus infection. Symptoms of monkeypox usually resolve naturally. It is important to care for the rash by allowing it to dry or by covering it with a moist dressing to protect the area if necessary. Touching any sores in the mouth or eyes should be avoided.

Smallpox vaccination has been shown to help prevent or attenuate the disease and protect against monkeypox, with an efficacy of 85%. People vaccinated against smallpox have, in the past, been shown to have some protection against monkeypox. However, it should be noted that vaccination against smallpox ended in 1980; after this, the disease was declared eradicated.

Smallpox vaccines are no longer available on the market.

There is a vaccine that was developed for monkeypox (MVA-BN), also known as Imvamune, Imvanex, or Jynneos, which was approved in 2019 and is not yet widely available. WHO is coordinating with the manufacturer to improve access for this vaccine.

Because monkeypox infection is rare, universal vaccination is not warranted.

Sources of information

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