Surveillance, case investigation and contact tracing for Monkeypox

Interim guidance
22 May 2022

World Health Organization

Key points

- There is currently a multi-country outbreak of monkeypox in several regions of the world, the full extent and impact of which remains unclear. The overall goal of surveillance, case investigation and contact tracing in this context is to break chains of human to human transmission and stop the outbreak.
- The key objectives of surveillance and case investigation for monkeypox in the current context are to rapidly identify cases and clusters in order to provide optimal clinical care; to isolate cases to prevent further transmission; to identify and manage contacts; to protect frontline health workers; and to tailor effective control and prevention measures.
- The situation is rapidly evolving and WHO expects there will be more cases of monkeypox identified as surveillance expands in non-endemic countries. Immediate actions focus on: informing those who may be most at risk for monkeypox virus (MPXV) infection with accurate information; stopping further spread; and protecting frontline workers.
- Clinicians should report suspected cases immediately to public health authorities.
- Probable and confirmed cases of monkeypox should be reported immediately to WHO through IHR national focal points (NFPs) under the International Health Regulations (IHR 2005).
- If monkeypox is suspected, case investigation should consist of clinical examination of the patient with appropriate PPE, questioning the patient about possible sources of infection, and safe collection and dispatch of specimens for MPXV laboratory examination.
- In the current context, as soon as a suspected case is identified, contact identification and contact tracing should be initiated.
- Contacts should be monitored at least daily for the onset of any signs/symptoms for a period of 21 days from last contact with a patient or their contaminated materials during the infectious period.
- Quarantine or exclusion from work are not necessary during the contact tracing period as long as no symptoms develop.

Introduction

This guidance serves to provide interim recommendations for the surveillance, case investigation and contact tracing for human monkeypox in the context of the current multi-country outbreak in several regions of the world (May 2022). This is the first time that cases and apparent sources and chains of transmission have been reported in non-endemic countries without epidemiological links to endemic areas of West Africa; the full extent and impact of the outbreak remains unclear. The overall goal of surveillance, case investigation and contact tracing in this context is to break chains of human to human transmission and stop the outbreak. This guidance will be updated as more specific information about the epidemiology of this outbreak becomes available.

Case Definitions

These definitions may be updated as additional information becomes available.

Suspected case:

A person of any age presenting in a monkeypox non-endemic country[1] 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)**
- **Lymphadenopathy (swollen lymph nodes)**
- **Myalgia (muscle pain/body aches)**
- **Back p**ain
- Asthenia (profound weakness)

AND

for which the following common causes of acute rash do not explain the clinical picture: varicella zoster, herpes zoster, measles, 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.

N.B. It is not necessary to obtain negative laboratory results for listed common causes of rash illness in order to classify a case as suspected.

Probable case:

A person meeting the case definition for a suspected case

AND

One or more of the following:

- has an epidemiological link (face-to-face exposure, including health care workers without appropriate PPE; direct physical contact with skin or skin lesions, including sexual contact; or contact with contaminated materials such as clothing, bedding or utensils) 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
- has had multiple or anonymous sexual partners in the 21 days before symptom onset
- has a positive result of an orthopoxvirus serological assay, in the absence of smallpox vaccination or other known exposure to orthopoxviruses
- is hospitalized due to the illness

Confirmed case:

A case meeting the definition of either a suspected or probable case

AND

is laboratory confirmed for monkeypox virus by detection of unique sequences of viral DNA either by real-time polymerase chain reaction (PCR) and/or sequencing.

Discarded case:

A suspected or probable case for which laboratory testing of lesion fluid, skin specimens or crusts by PCR and/or sequencing is negative for MPXV. Conversely, for example, a retrospectively detected probable case for which lesion testing can no longer be adequately performed (i.e. after the crusts fall off) would remain classified as a probable case.

[1] Countries which are endemic for monkeypox are: Cameroon, Central African Republic, Côte d'Ivoire, Democratic Republic of the Congo, Gabon, Liberia, Nigeria, Congo, and Sierra Leone. In Ghana, the monkeypox virus was identified in animals only. Benin and South Sudan have documented imported cases in the past. Countries currently reporting cases of the West African clade are Cameroon and Nigeria, and of the Congo Basin clade are Cameroon, Central African Republic and Democratic Republic of the Congo. With this case definition, all countries except these four (Cameroon, Central African Republic, Democratic Republic of the Congo and Nigeria) should report new cases of monkeypox as part of the current multi-country outbreak. Should countries of Central Africa identify any case of monkeypox due to the West Africa clade, these should also be reported.

These case definitions were developed by consensus of experts within WHO in consultation with affected countries, with a view to balance the importance of detecting cases and interrupting chains of transmission, while avoiding an overly sensitive definition that would overburden public health, diagnostic and treatment resources. Public health authorities may adapt these case definitions to suit local circumstances. All efforts should be made to avoid unnecessary stigmatization of individuals and communities potentially affected by monkeypox.

These definitions may be adjusted as additional information about this outbreak becomes available.

These definitions are for surveillance purposes and should not be used to guide clinical management. WHO interim guidance for monkeypox clinical management will be published separately.

Surveillance

The key objectives of surveillance and case investigation for monkeypox in the current context are to rapidly identify cases and clusters of infections and the sources of infections as soon as possible in order to provide optimal clinical care; to isolate cases to prevent further transmission; to identify and manage contacts; to protect frontline health workers; and to tailor effective control and prevention measures based on the most commonly identified routes of transmission.

One case of monkeypox is considered an outbreak. Because of the public health risks associated with a single case of monkeypox, clinicians should report suspected cases immediately to national or local public health authorities regardless of whether they are also exploring other potential diagnoses, according to the case definitions above or nationally tailored case definitions. Probable and confirmed cases should be reported immediately to WHO through IHR national focal points (NFPs) under the International Health Regulations (IHR 2005).

The current epidemiological pattern of this outbreak (as of 21 May 2022; see WHO Disease Outbreak News) — the sudden and unexpected appearance of monkeypox in several non-endemic countries where this disease has never been reported or where there have only been cases linked to endemic countries — suggests that there has been undetected transmission for a period of time. Transmission may have been amplified by a point source event or events, however (at the time of writing) retrospective investigations are still ongoing. Based upon current surveillance activities, cases of monkeypox have so far been identified primarily but not exclusively among men, including men presenting to sexual health clinics with genital rash. Countries and clinicians should be on alert for signals related to patients presenting with unusual rash, vesicular or pustular lesions or lymphadenopathy, often associated with fever, in a range of community and health care settings, including but not limited to primary care, fever clinics, sexual health services, infectious disease units, obstetrics and gynaecology, emergency departments, and dermatology clinics. Surveillance for rash illness should be intensified and guidance provided for safe collection of skin samples for confirmatory testing. WHO interim laboratory guidance for detection of MPXV is provided separately. In countries detecting cases of monkeypox, epidemiological and transmission patterns should be investigated wherever possible in order to inform ongoing response activities to stop the outbreak.

Indicators for monitoring the quality of monkeypox surveillance include:

1. Proportion of cases with complete demographic information
2. Proportion of suspected cases with laboratory testing performed.
3. Proportion of cases with complete clinical and risk factor information.

Reporting

Case reports should include at a minimum the following information:

- date of report
- reporting location
- name, age, sex and residence of case
- date of onset of first symptoms
- Date of fever onset
- Date of rash onset
- recent travel history (in the five to 21 days before onset of illness)
- recent exposure to a probable or confirmed case (in the five to 21 days before onset of illness)
- relationship and nature of contact with probable or confirmed case (where relevant)
- recent history of multiple or anonymous sexual partners (in the five to 21 days before onset of illness)
- occupation (including whether health worker)
- smallpox vaccination status
- presence of rash
- number and location of lesions on the body
- presence of other clinical signs or symptoms as per case definition
- Date of specimen collection
- date of lab confirmation (where done)
- method of confirmation (where done)
- genomic characterization (if available; in particular whether West or Central African clade)
- other relevant clinical or laboratory findings, particularly to exclude common causes of rash as per the case definition
- whether hospitalized
- date of hospitalization (where relevant)
- outcome status at time of reporting. (recovered, deceased, ill)
- Final case classification (suspected, probable, confirmed, discarded, lost to follow-up)

A global case reporting form is under development.

Case Investigation

During human monkeypox outbreaks, close physical contact with infected persons is the most significant risk factor for monkeypox virus infection. If monkeypox is suspected, the investigation should consist of

(i) clinical examination of the patient using appropriate infection prevention and control (IPC) measures (IPC guidance is under development).

(ii) questioning the patient about possible sources of infection and the presence of similar illnesses in the patient's community and contacts (both backward to identify the source and forward contact tracing to reduce onward transmission)

(iii) safe collection and dispatch of specimens for monkeypox laboratory examination.

The minimum data to be captured are included above under 'Reporting'.

Exposure investigation should cover the period between five and 21 days prior to symptom onset. 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 illness, respectively. Laboratory confirmation of suspected cases is important but should not delay implementation of public health actions. Suspected presence of similar illnesses in the patient's community or amongst contacts should be further investigated (also known as "backwards contact tracing").

Retrospective cases found by active search may no longer have the clinical symptoms of monkeypox (they have recovered from acute illness) but may exhibit scarring and other sequelae. It is important to collect epidemiological information from retrospective cases in addition to active ones. Retrospective cases cannot be laboratory confirmed; however, serum from retrospective cases can be collected and tested for anti-orthopoxvirus antibodies to aid in their case classification.

Samples taken from people with suspected monkeypox or animals with suspected monkeypox virus infection should be safely handled by trained staff working in suitably equipped laboratories. National and international regulations on transport of infectious substances should be strictly followed during the sample packing and transportation to the testing laboratories. Careful planning is required to consider national laboratory testing capacity. Clinical laboratories should be informed in advance of samples to be submitted from persons with suspected or confirmed monkeypox, so that they can minimise risk to laboratory workers and, where appropriate, safely perform laboratory tests that are essential for clinical care.

Contact tracing

Contact tracing is a key public health measure to control the spread of infectious disease pathogens such as monkeypox virus. It allows for the interruption of transmission and can also help people at a higher risk of developing severe disease to more quickly identify their exposure, so that their health status can be monitored and they can seek medical care quickly if they become symptomatic. Case-patients should be interviewed to elicit the names and contact information of all such persons. Contacts should be notified within 24 hours of identification.

In the current context, as soon as a suspected case is identified, contact identification and contact tracing should be initiated, while further workup of the source case is ongoing to determine if the case can be classified as probable or confirmed; in the event that the case is discarded, contact tracing may be aborted.

Definition of a contact

A contact is defined as a person who, in the period beginning with the onset of the source case's first symptoms, and ending when all scabs have fallen off, has had one or more of the following exposures with a probable or confirmed case of monkeypox:

- face-to-face exposure (including health workers without appropriate PPE)
- direct physical contact, including sexual contact
- contact with contaminated materials such as clothing or bedding

Contact identification

Case-patients can be prompted to identify contacts across a number of contexts, including household, workplace, school/nursery, sexual contacts, healthcare (including laboratory exposure), houses of worship, transportation, sports, bars/restaurants, social gatherings, festivals, and any other recalled interactions. Attendance lists, passenger manifests, etc. can be further used to identify contacts.

Contact monitoring

Contacts should be monitored at least daily for the onset of signs/symptoms for a period of 21 days from last contact with a probable or confirmed case-patient or their contaminated materials during the infectious period. Signs/symptoms of concern include headache, fever, chills, sore throat, malaise, fatigue, rash, and lymphadenopathy. Contacts should monitor their temperature twice daily. Asymptomatic contacts should not donate blood, cells, tissue, organs, breast milk, or semen while they are under symptom surveillance.

Asymptomatic contacts can continue routine daily activities such as going to work and attending school (i.e., no quarantine is necessary), but should remain close to home for the duration of surveillance. It may, however, be prudent to exclude pre-school children from day care, nursery or other group settings.

Options for monitoring by public health authorities are dependent on available resources. Contacts can be monitored passively, actively, or directly. In passive monitoring, identified contacts are provided with information on the signs/symptoms to monitor, permitted activities, and how to contact the public health department if signs/symptoms develop. Active monitoring is when public health officials are responsible for checking at least once a day to see if a person under monitoring has self-reported signs/symptoms. Direct monitoring is a variation of active monitoring that involves at least daily either physically visiting or visually examining via video for signs of illness.

A contact who develops initial signs/symptoms other than rash should be isolated and closely watched for signs of rash for the next seven days. If no rash develops, the contact can return to temperature monitoring for the remainder of the 21 days. If the contact develops a rash, they need to be isolated and evaluated as a suspected case, and a specimen should be collected for laboratory analysis to test for monkeypox.

Monitoring exposed health workers and caregivers

Any health worker or household member who has cared for a person with probable or confirmed monkeypox should be alert to the development of symptoms that could suggest monkeypox infection, especially within the 21-day period after the last date of care. Health workers should notify infection control, occupational health, and public health authorities to be guided about a medical evaluation.

Health workers who have unprotected exposures (i.e., not wearing appropriate PPE) to patients with monkeypox or possibly contaminated materials do not need to be excluded from work duty if asymptomatic, but should undergo active surveillance for symptoms, which includes measurement of temperature at least twice daily for 21 days following the exposure. Prior to reporting for work each day, the health worker should be interviewed regarding evidence of any relevant signs/symptoms as above.

Health workers who have cared for or otherwise been in direct or indirect contact with monkeypox patients while adhering to recommended infection control precautions may undergo self-monitoring or active monitoring as determined by local public health authorities.

Post-exposure vaccination (ideally within four days of exposure) may be considered by some countries for higher risk contacts such as health workers including laboratory personnel.

Travel-related contact tracing

Public health officials should work with travel operators and public health counterparts in other locations to assess potential risks and to contact passengers and others who may have had exposure to an infectious patient while in transit.

Monitoring and evaluation of contact tracing quality

Indicators for monitoring the quality of monkeypox contact tracing include:

1. Proportion of probable and confirmed cases with identified contacts.
2. Number of contacts per probable and confirmed case.
3. Proportion of contacts with complete follow-up information.

Process and methodology

The recommendations in this guidance are based on the inputs of experts within the WHO Secretariat; supplemented with discussions with the Strategic and Technical Advisory Group on Infectious Hazards (STAG-IH) and clinical and laboratory experts in Portugal, Spain, and Sweden, the United Kingdom, and the United States of America; and a rapid literature search conducted by WHO, focusing on case definitions and epidemiology guidance previously developed for other monkeypox outbreaks.

Limitations

Information on the specific drivers of transmission in this outbreak currently remains limited, as do the optimal control strategies in non-endemic countries. These interim recommendations take into consideration constraints in laboratory diagnostics, vaccines, and therapeutics for monkeypox. This document will be updated as necessary.

Plans for updating

WHO continues to monitor the situation closely for any changes that may affect this interim guidance. Should any factors change, WHO will issue a further update. Otherwise, this interim guidance will expire three months after the date of publication.

Contributors

This guidance was developed through the contributions of an expert group from the WHO secretariat, in consultation with STAG-IH and clinical and laboratory experts in Portugal, Spain, and Sweden, the United Kingdom, and the United States of America.

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