

Surveillance, case investigation and contact tracing for monkeypox

Interim guidance
24 June 2022



Key points

- A multi-country outbreak of monkeypox is ongoing in several regions of the world and the number of reported cases has markedly increased since May 2022. The overall goal of surveillance, case investigation and contact tracing in this context is to stop human-to-human transmission to control 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, manage and follow up contacts to recognize early signs of infection; to protect frontline health workers; to identify risk groups; 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 continues and expands. Immediate actions focus on: informing those who may be most at risk for monkeypox virus (MPXV) infection with accurate information; offer post-exposure prophylaxis to high and medium risk contacts, stopping further spread; and protecting frontline workers.
- Clinicians should report suspected cases immediately to local and national public health authorities.
- Probable and confirmed cases of monkeypox should be reported as early as possible, including a minimum dataset of epidemiologically relevant information, to WHO through IHR national focal points (NFPs) under Article 6 of the International Health Regulations (IHR 2005).
- If monkeypox is suspected, case investigation should consist of clinical examination of the patient while using appropriate personal protective equipment (PPE), questioning the patient about possible sources of infection, and safe collection and dispatch of specimens for monkeypox virus laboratory examination.
- As soon as a suspected case is identified, contact identification and forward contact tracing should be initiated.
- Contacts of probable and confirmed cases should be monitored, or should self-monitor, daily for any sign or symptom for a period of 21 days from last contact with a case 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. During the 21 days of monitoring, WHO encourages contacts without any symptoms to rigorously practice hand hygiene and respiratory etiquette, avoid contact with immunocompromised people, children or pregnant women, and avoid any form of sexual contact. Non-essential travel is discouraged.

Changes from earlier version

This is an updated version of the previous guidance published on 22 May 2022. The guidance has been updated to apply to all countries with potential monkeypox cases, including countries that have historically documented monkeypox transmission and those that have not. The confirmed case definition has been updated to include polymerase chain reaction (PCR) positive cases, regardless of associated symptoms or their absence, in order to more fully characterize pre-symptomatic, pauci-symptomatic or asymptomatic infections. The contact definition has been amended to include more examples of potential exposures, as well as the contact risk levels established by the monkeypox immunization guidance. This guidance also links to recently developed epidemiological tools, including: the minimum data set Case Reporting Form (CRF) for reporting to WHO; an in-depth Case Investigation Form (CIF) for

Member States' use to conduct epidemiologic investigations of cases and contacts; and recent guidance documents for clinical management and infection prevention and control, as well as vaccines and immunization for monkeypox.

This guidance will be updated as additional information about the outbreak becomes available.

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.¹ This is the first time that cases and sustained chains of transmission have been reported in countries without direct or immediate epidemiological links to areas of West or Central Africa. The number of reported confirmed and probable cases has markedly increased since May 2022.

The incubation period of monkeypox has historically ranged from 5 to 21 days.² Typically, the prodromal phase of clinical illness lasts 1-5 days during which time patients may experience fever, headache, back pain, muscle aches, and lymphadenopathy. This is followed by a second phase which typically occurs after the fever subsides, with the appearance of a centrifugal synchronous rash that may involve the oral mucous membranes, conjunctiva, cornea and/or genitalia. Typically, this rash progresses through macules, papules, vesicles, and pustules, before crusting over and desquamating over a period of 2 to 3 weeks. In the context of this outbreak, some patients are presenting with atypical symptoms or progression such as one or a few lesions localized to the genital or perineal/perianal area, asynchronous rash (lesions appearing at different stages of progression), or the appearance of rash prior to the development of typical prodromal or constitutional symptoms (such as fever, fatigue). Lymphadenopathy remains a common feature, usually appearing early in the course of illness.

Human-to-human transmission of monkeypox can occur through direct contact with infectious skin or mucocutaneous lesions, this includes face-to-face, skin-to-skin, mouth-to-mouth or mouth-to-skin contact and respiratory droplets (and possibly short-range aerosols requiring prolonged close contact). The virus then enters the body through broken skin, mucosal surfaces (e.g. oral, pharyngeal, ocular and genital), or via the respiratory tract. The infectious period can vary, but generally patients are considered infectious until skin lesions have crusted, the scabs have fallen off and a fresh layer of skin has formed underneath. Transmission can also occur from the environment to humans from contaminated clothing or linens that have infectious skin particles (also described as fomite transmission) If shaken, these particles can disperse into the air and be inhaled, land on broken skin or mucosal membranes and lead to transmission and infection; one documented health worker infection has been published suggesting monkeypox virus transmitted through contact with contaminated bedding.³

For respiratory transmission close proximity and longer exposure appear to be necessary. While virus has been found in the semen of affected patients in a few cases to date,^{4,5} the role of sexual transmission through seminal or vaginal fluids is not yet well understood.

During pregnancy, virus can cross the placenta causing intrauterine exposure of the foetus and congenital infection of the infant.⁶

The current epidemiological pattern of this outbreak (as of 22 June 2022; see WHO Disease Outbreak News)¹ — the sudden appearance of monkeypox in several countries where this disease has never been reported or where in recent years there have only been cases linked to travel to/from West or Central Africa — is unexpected. Transmission appears to have been amplified by travel and gatherings in several countries. Cases of monkeypox have so far been identified primarily but not exclusively among men, including men presenting to sexual health clinics with genital rash;¹ Most reported cases have not been severe.^{4,7,8}

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.

Surveillance Case Definitions

The case definitions for use in this outbreak may be reviewed as additional information becomes available.

*For further guidance on testing please refer to Laboratory testing for the monkeypox virus: Interim guidance.*⁹

Suspected case:

A person of any age presenting since 01 January 2022 with an unexplained acute rash or one or more acute skin lesions

AND

one or more of the following signs or symptoms:

- Headache
- Acute onset of fever (>38.5°C)
- Lymphadenopathy (swollen lymph nodes)
- Myalgia (muscle pain/body aches)
- Back pain
- Asthenia (profound weakness)

AND

for which the following common causes of acute rash or skin lesions do not fully 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. Further, if suspicion of monkeypox infection is high due to either history and/or clinical presentation or possible exposure to a case, the identification of an alternate pathogen which causes rash illness should not preclude testing for MPXV, as coinfections have been identified.

Probable case:

A person meeting the case definition for a suspected case

AND

One or more of the following:

- has an epidemiological link [prolonged^a face-to-face exposure in close proximity, including health workers without appropriate PPE (gloves, gown, eye protection and respirator)³; 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
- has had multiple or anonymous sexual partners in the 21 days before symptom onset
- has detectable levels of anti-orthopoxvirus (OPXV) IgM antibody^b (during the period of 4 to 56 days after rash onset); or a four-fold rise in IgG antibody titre based on acute (up to day 5-7) and convalescent (day 21 onwards) samples; in the absence of a recent smallpox/monkeypox vaccination or other known exposure to OPXV
- has a positive test result for orthopoxviral infection (e.g. OPXV-specific PCR without MPXV-specific PCR or sequencing)^c

^a Evidence is currently lacking as to the duration of exposure necessary for infection by the respiratory route, including how it relates to the severity of the index case's disease. Characterization of this parameter is one of the goals of the case investigation form described below.

^b Serology can be used for retrospective case classification for a probable case in specific circumstances such as when diagnostic testing through PCR of skin lesion specimens has not been possible, or in the context of research with standardized data collection. The primary diagnostic test for monkeypox diagnosis is PCR of skin lesion material or other specimen such as an oral or nasopharyngeal swab as appropriate. Serology should not be used as a first line diagnostic test.

^c PCR on a blood specimen may be unreliable and should also not be used alone as a first line diagnostic test. If blood PCR is negative and was the only test done, this is not sufficient to discard a case that otherwise meets the definition of a suspected for probable case. This applies regardless of whether the blood PCR was for OPXV or MPXV specific.

Confirmed case:

Laboratory confirmed monkeypox virus by detection of unique sequences of viral DNA by real-time polymerase chain reaction (PCR)^c and/or sequencing.

For further guidance on testing please refer to Laboratory testing for the monkeypox virus: Interim guidance.

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^c. Conversely, a retrospectively detected probable case for which lesion testing can no longer be adequately performed (i.e., after the crusts fall off) and no other specimen is found PCR-positive, would remain classified as a probable case.

These case definitions were developed 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 are for surveillance purposes and should not be used to guide clinical management. WHO interim guidance for Clinical Management and Infection Prevention and Control for monkeypox has been published separately.³

Surveillance

The key objectives of surveillance and case investigation for monkeypox in the current context are to rapidly identify cases and clusters of infections as well as the sources of infection as soon as possible in order to provide optimal clinical care; to isolate cases to prevent further transmission; to identify, manage and follow-up contacts to recognize early signs of infection; to protect frontline health workers; to identify risk groups; 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 of monkeypox should be reported as early as possible, including a minimum dataset of epidemiologically relevant information, to WHO through IHR national focal points (NFPs) under Article 6 of the International Health Regulations (IHR 2005).

Countries and clinicians should be on alert for signals related to patients presenting with monkeypox. It is important to note that patients may present to various 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. Guidance for clinical management, infection prevention and control, and the safe collection of samples for confirmatory testing should therefore be disseminated widely.^{3,9} In countries detecting cases of monkeypox, epidemiological and transmission patterns should be investigated wherever possible in order to inform ongoing response activities to control 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.

Indications for monkeypox testing

Any individual meeting the definition for a suspected case should be offered monkeypox testing, where resources allow; severely ill suspected cases should be tested if at all possible. Due to the range of conditions that cause skin rashes, it can be challenging to differentiate monkeypox solely based on the clinical presentation, particularly for cases with an atypical presentation. The decision to test should be based on both clinical and epidemiological factors, linked to an assessment of the likelihood of infection. When suspicion of monkeypox infection is high due to history and/or clinical presentation, the identification of an alternate pathogen which causes rash illness should not preclude testing for MPXV, as coinfections have been identified. Given the epidemiological criteria observed in the outbreak, criteria such as being a man who has sex with man (MSM), reporting a high number of sexual partners in the prior three weeks, and having attended a gathering where a confirmed case was reported can be suggestive of the need to test for MPXV.

Reporting

WHO has published a Case reporting Form (CRF)¹⁰ which constitutes the minimum data countries are requested to report to the respective WHO Regional Office, and includes the following information:

- Record ID
- Reporting Country
- Reporting location (subnational ADM1 level)
- Date of notification
- Case classification
- Age, sex, gender, sexual orientation
- Health worker
- Medical history (pregnancy, immunosuppression, HIV status)
- Smallpox vaccination status and vaccination date
- Clinical signs or symptoms
- Date of onset of first symptoms
- Presence of rash
- Date of rash onset
- Concurrent sexually transmitted infections
- Monkeypox treatment
- Hospital admission
- Intensive care unit (ICU) admission
- Recent travel history (in the 21 days before onset of illness)
- Recent exposure to a probable or confirmed case (in the 21 days before onset of illness)
- Nature of contact with probable or confirmed case (where relevant)
- Contact with animals
- Mode of transmission
- Type of specimen collected for diagnosis
- Method of confirmation (where done)
- Genomic characterization (if available)
- Accession number of the genomic sequence uploaded to public database
- Outcome status at time of reporting

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 as reported in the specific guidance.³
- (ii) questioning the patient about possible sources of infection and the presence of similar illnesses in the patient's community and contacts, both prior to becoming a case (backward contact tracing) to identify the source, and from the beginning of the infectious period through isolation (forward contact tracing) to reduce onward transmission. Current evidence suggest that a case is infectious from the symptom onset to the moment all vesicle scabs fall off.^{11,12}
- (iii) safe collection and dispatch of specimens for monkeypox laboratory examination.⁹

In addition to the minimum dataset (CRF), WHO has published a monkeypox Case investigation form (CIF) designed as a tool for Member States and researchers to conduct in-depth epidemiological investigation of suspected, probable and confirmed cases of monkeypox, as well as their contacts, either prospectively or retrospectively. The CIF is designed to address the key unknowns about MPXV transmission, such as the highest-risk behaviours, and exposure times necessary for respiratory transmission. The full form is meant for in-country use and the data are not required to be reported to WHO.¹⁰

Exposure investigation should cover the period of 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. 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 IgM antibodies to aid in their probable case classification.

Samples taken from persons with suspected monkeypox 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 sample packing and transportation. 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. For more details, please refer to the Laboratory testing for monkeypox virus interim guidance.⁹

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 they can monitor their health status and seek medical care quickly if they become symptomatic. Case-patients should be interviewed to elicit the names and contact information of all such persons, as well as to identify places visited where contact with other people may have occurred. 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 investigation 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:

- direct skin-to-skin physical contact (such as touching, hugging, kissing, intimate or sexual contact)
- contact with contaminated materials such as clothing or bedding, including material dislodged from bedding or surfaces during handling of laundry or cleaning of contaminated rooms
- prolonged face-to-face respiratory exposure in close proximity
- respiratory exposure (i.e., possible inhalation of) or eye mucosal exposure to lesion material (e.g., scabs/crusts) from an infected person
- The above also apply for health workers potentially exposed in the absence of proper use of appropriate personal protective equipment (PPE)

Based on the recommendation to offer smallpox or monkeypox vaccine for post-exposure prophylaxis, WHO has established three levels of risk for contacts of a monkeypox case as follows:¹³

High risk

Direct exposure of skin or mucous membranes to skin or respiratory secretions of a person with confirmed, probable or suspected monkeypox, their body fluids (e.g., lesion vesicular or pustular fluid) or potentially infectious material (including clothing or bedding) if not wearing appropriate PPE. This includes:

- inhalation of droplets or dust from cleaning contaminated rooms
- mucosal exposure due to splashes from body fluids
- physical contact with someone who has monkeypox, including direct contact during sexual activities. This includes face-to-face, skin-to-skin or mouth-to-skin contact or exposure to body fluids or contaminated materials or objects (fomites)
- normally sharing a residence (permanently or occasionally) during the presumed incubation period with a person who has been diagnosed with monkeypox, or
- a penetrating sharps injury from a contaminated device or through contaminated gloves.

Medium risk

- no direct contact but close proximity in the same room or indoor physical space as a symptomatic monkeypox patient, if not wearing appropriate PPE.²

Lower or minimal risk

- contact with a person with confirmed, probable or suspected monkeypox or an environment that may be contaminated with monkeypox virus, while wearing appropriate PPE and without any known breaches of PPE or of donning and doffing procedures
- community contact, such as being in an outdoor setting with a symptomatic case without close proximity or physical contact
- no known contact with a symptomatic monkeypox case in the last 21 days, or
- laboratory personnel handling routine clinical blood samples or other specimens not directly related to monkeypox diagnostic testing.

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.

As some cases may be reluctant to provide the names of all contacts, public health authorities should also encourage cases to directly notify their contacts. Research in sexually transmitted diseases has shown that activities such as partner notification, i.e. voluntarily notifying a partner that they have been exposed to an infection, can yield good contact tracing results.¹⁴ In the context of monkeypox, cases should be offered adequate counselling on how to notify their contact, the recommendations for the contact's movement and activities, and referral information about health providers who can support the contact with information, or in case of symptoms, with health services. All information should also be provided in written form (e.g., leaflets, cards, links to webpages, and QR codes) to avoid misinterpretation.

Contact monitoring

Contacts should be monitored, or should self-monitor, daily for the onset of signs or symptoms for a period of 21 days from last contact with a probable or confirmed case or their contaminated materials during the infectious period. Signs and symptoms of concern include headache, fever, chills, sore throat, malaise, fatigue, rash, and lymphadenopathy. Contacts should monitor their temperature twice daily.

During the 21 days monitoring period contact should regularly practice hand hygiene and respiratory etiquette. As a precautionary measure, asymptomatic contacts should not donate blood, cells, tissue, organs, breast milk, or semen while they are under symptom surveillance. Contacts should also try to avoid physical contact with children, pregnant women, immunocompromised individuals and animals, including pets. Non-essential travel is discouraged.

Asymptomatic contacts that adequately and regularly monitor their status can continue routine daily activities such as going to work and attending school (i.e., no quarantine is necessary). Local health authorities may choose 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 and symptoms to monitor, permitted activities, and how to contact the public health department if signs or 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 or symptoms other than rash should be isolated and closely watched for signs of rash for the next five^d days. If no rash develops, the contact can return to temperature monitoring for the remainder of the 21 days. If the contact develops skin lesions, they need to be isolated and evaluated as a probable case, and a specimen should be collected for laboratory analysis to test for monkeypox.

Monitoring exposed health workers

Any health worker who has cared for a person with probable or confirmed monkeypox should be alert to the development of symptoms that could suggest monkeypox virus infection, especially within the 21-day period after the last date of care. WHO recommends that health workers with an occupational exposure to MPXV should notify infection control, occupational health, and public health authorities to receive an assessment and management plan of the potential infection.³

^d This duration is based on experience from past outbreaks; more data are needed to confirm this parameter.

Health workers who have occupational 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; and should be instructed not to work with vulnerable patients during this period. Prior to reporting for work each day, the health worker should be interviewed regarding evidence of any relevant signs or symptoms as above.

Where vaccines are available, post-exposure vaccination (ideally within four days of exposure) is recommended for health workers, including laboratory personnel, who came in contact with a case or potentially infectious material without use of appropriate PPE. For more details on vaccines and immunization for monkeypox, please consult the specific guidance.¹³

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 travelling or in transit. If a probable or confirmed case is reported in a long-distance travel conveyance (e.g., lasting more than 4 hours), travellers seated in the same row, two rows in front and two rows behind the sick traveller as well as the cabin crew who served the case, can be considered medium-risk contacts if they had no physical contact with the case and were not wearing protective PPE such as face mask. Any passenger or crew team member who reports physical contact with a symptomatic case without using PPE can be considered a high-risk contact.

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 reported per probable and confirmed case
3. Proportion of contacts with complete follow-up information
4. Proportion of cases coming from a contact tracing list
5. Proportion of high and medium risk contact who received post-exposure prophylaxis.

Data collection and sharing

In order to facilitate data collection of cases following the requested minimum dataset, WHO has prepared a macro-enabled Microsoft Excel form that countries have received through IHR communication channels; however, any reporting format agreed with the respective Regional Office may be used.

WHO has also implemented the in-depth case investigation form in the Go.Data platform¹⁵ to facilitate local capture, analysis, and/or sharing of the relevant data. Analysis of transmission chains and network visualization have been used in past outbreaks to identify clusters, understand patterns of exposure, and quantify viral transmission across different settings. In the context of the current monkeypox outbreak, understanding these patterns of transmission will be critical not only to finding which control measures are effective, but will allow for the characterization of the extent of respiratory transmission and determining if multiple introductions (human or zoonotic) have occurred. To date, limited tools are available for countries to be able to graph these chains of transmission and identify clusters or contexts of transmission in real-time. Through its "visualization" feature, Go.Data will allow Member States, partners and institutions to enhance outbreak response activities, particularly by visualizing, in real-time, chains of transmission which will facilitate the monitoring of disease progression as well as identifying potential new cases that are missed through undetected circulation of the virus. The Go.Data monkeypox outbreak template and associated metadata description can be obtained upon request by emailing godata@who.int, and technical support for implementation is available from WHO.

Data collected in a harmonized way through the WHO case investigation form could also be collated across multiple countries in a collaborative effort, increasing the sample size and allowing for more robust analyses.

Methodology

The recommendations in this guidance are based on the inputs of expert contributors (see below); 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 countries that had not reported cases previously. These interim recommendations take into consideration constraints in laboratory diagnostics, vaccines, and therapeutics for monkeypox.

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 headquarters and regional offices, in consultation with the Strategic and Technical Advisory Group on Infectious Hazards (STAG-IH) and clinical and laboratory experts in Portugal, Spain, Sweden, the United Kingdom, and the United States of America. Additional contributions have been provided by colleagues from the United States Centers for Disease Control and Prevention (CDC) and the European Centre for Disease Prevention and Control (ECDC).

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