



**Australian Government**  
**Department of Health and Aged Care**



# Monkeypox Virus Infection

CDNA National Guidelines for Public Health Units

**Version 3.0**

**Date 20/12/2022**

## Summary of revision history

Version	Date	Revised by	Changes
Version 3.0	20 December 2022	CDNA	Full revision to present evidence-based recommendations for public health.  Revised: The disease, Routine prevention activities, Surveillance objectives, Case management, Specific settings
Version 2.0	08 September 2022	CDNA	Revised: The disease, Case management, Contact definitions, Contact management.
Version 1.0	27 July 2022	CDNA	Developed by the Monkeypox Working Group.

### Disclaimer

These guidelines outline Australia's national minimum standard for surveillance, laboratory testing, case management and contact management for monkeypox virus infection. The intention of these guidelines is to reflect the current available evidence base, with pragmatic guidance provided where evidence is still evolving.

Jurisdictions may implement policies that exceed the national minimum standard based on local epidemiological context. CDNA will continue to review and update these guidelines as new information becomes available on monkeypox (mpox) and the situation in Australia.

Readers should not rely solely on the information contained within these guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a public health specialist or other health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the Australian Health Principal Protection Principal Committee (AHPPC), and the Australian Government as represented by the Department of Health (Health) do not warrant or represent that the information contained in these guidelines is accurate, current or complete. The CDNA, the AHPPC and Health do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these guidelines.

# Contents

<b>1. Summary</b>	4
Public health priority	4
Actions in the event of a suspected case	4
Actions in the event of a probable or confirmed case	4
Management of contacts	4
<b>2. The disease</b>	5
Infectious agent	5
Reservoir	5
Disease occurrence and public health significance	5
Mode of transmission	6
Incubation period	6
Infectious period	6
Clinical presentation and outcomes	7
Mortality	8
Groups at increased risk of severe disease	8
High-risk settings and communities	8
<b>3. Routine prevention activities</b>	9
Vaccination	9
<b>4. Surveillance objectives</b>	10
<b>5. Data management</b>	10
<b>6. Case definition</b>	10
<b>7. Testing</b>	10
Specimen collection and handling	11
<b>8. Case management</b>	11
Response times	11
Response procedure	11
Exclusion and restriction	12
Case clearance	14
Treatment	14
<b>9. Contact definitions</b>	15
<b>10. Contact management</b>	17
<b>11. Infection control</b>	19
Management in healthcare settings	19
<b>12. Specific settings</b>	19
Sex on premises venues	19
Congregate living settings	20
Aboriginal and Torres Strait Islander Communities	21
Healthcare settings	21
<b>13. References</b>	22
<b>Appendices</b>	24

# 1. Summary

## Public health priority

Monkeypox virus infection (mpox or monkeypox) is a nationally notifiable disease.

Urgent: Respond to suspected, probable and confirmed cases immediately (within 24 hours).

Data entry timeline: Within 1 working day for all probable and confirmed cases

## Actions in the event of a suspected case

Suspected cases should be notified to the relevant state or territory Public Health Unit (PHU).

When a suspected case has been identified, immediately (within 24 hours):

- Arrange for appropriate [testing](#) to be undertaken in collaboration with the diagnosing clinician and relevant laboratory.
- Advise the suspected case to follow [case exclusions and restrictions](#) until a negative result is received.
- Consider identifying [contacts](#) and assessing their risk while waiting for test results.

## Actions in the event of a probable or confirmed case

All probable and confirmed cases should be notified immediately to the relevant state or territory PHU.

When a probable or confirmed case has been identified, immediately (within 24 hours):

- Advise the case to follow [case exclusions and restrictions](#) to prevent further disease spread.
- [Identify contacts](#) during the case's infectious period and follow the [contact management](#) guidance.
- Attempt to identify the source of infection and/or risk factors.

Refer to [case management](#) for further details on response times and procedures, treatment and exclusion and restriction guidance.

## Management of contacts

For **contacts** of probable and confirmed mpox cases:

- Monitor for mpox symptoms for 21 days after the date of last exposure.
- If symptoms compatible with mpox develop, advise the contact to follow case exclusions and restrictions, and contact the local PHU for further guidance.

Refer to contact management for information about physical distancing and other public health measures recommended for medium and high-risk contacts.

## 2. The disease

### Infectious agent

On 28 November 2022, the World Health Organization (WHO) announced a change in disease name from monkeypox to mpox. Mpox is caused by infection with monkeypox virus. Monkeypox virus is an enveloped double-stranded deoxyribonucleic acid (dsDNA) virus of the genus Orthopoxvirus (related to the Poxviridae family), which also includes variola virus (which causes smallpox), vaccinia virus (which is used to produce the smallpox vaccine) and cowpox virus (1).

Monkeypox virus historically had two distinct genetic clades, the Central African (Congo Basin) clade that caused more severe disease and the West African clade (1, 2). On 12 August 2022, the WHO announced new nomenclature for the monkeypox virus. The former Congo Basin (Central African) clade is referred to as Clade one (I) and the former milder West African clade as Clade two (II). Additionally, Clade II consists of two subclades, Clade IIa and Clade IIb. Clade IIb refers primarily to the group of variants largely circulating in the 2022 global outbreak (3).

### Reservoir

The natural reservoir of monkeypox virus remains unknown. Mpox has been isolated from several African rodents and primates, including the Gambian pouched rat, tree squirrel, rope squirrel and sooty mangabey monkey, marking them as potential reservoirs for the virus (4, 5).

### Disease occurrence and public health significance

Following the eradication of smallpox in 1980 and subsequent cessation of smallpox vaccination programs, monkeypox virus has emerged as the most significant Orthopoxvirus for public health. Historically, monkeypox has primarily occurred in central and west Africa, often in proximity to tropical rainforests (1, 6).

Before 2018, the only cases with transmission outside Africa occurred in the United States of America, in a 2003 outbreak associated with imported rodents from Ghana that infected prairie dogs sold as pets (7, 8). Since early May 2022, monkeypox virus transmission has been reported in multiple countries outside Africa, including Australia. Cases notified since 20 May 2022 represent the first time the virus has been detected in Australia (9). The WHO declared the mpox outbreak a public health emergency of international concern on 23 July 2022. On 26 July 2022 (10), Australia's Chief Medical Officer declared mpox to be a Communicable Disease Incident of National Significance (CDINS) – this was announced on 28 July 2022 (11). On 25 November 2022 the national response to mpox was stood down and the declaration of mpox (formerly monkeypox) as a CDINS was rescinded.

It has been suggested that the increasing case numbers and geographic spread of mpox in recent years may be related to decreasing population immunity due to cessation of smallpox vaccination programs and increasing urbanisation (12). Smallpox vaccination is protective against other Orthopoxviruses, including monkeypox virus (13, 14).

## Mode of transmission

Transmission of monkeypox virus can occur when a person comes into contact with the virus from an infectious animal or human, or with materials contaminated with the virus (fomites) (15, 16). Transmission occurs through broken skin (even if not visible), or mucous membranes (respiratory tract, conjunctiva, nose, mouth, or genitalia), and may occur through contact with infectious material from skin lesions of an infected person, through respiratory droplets in prolonged face-to-face contact, or through fomites. The highest risk of transmission is associated with direct and close contact, including sexual contact.

Other potential routes of transmission are outlined below.

- Limited evidence suggests the potential for transmission through blood, semen or vaginal fluids (17-19).
- Aerosol-generating procedures are also a transmission risk (20).
- Vertical transmission from infected pregnant women has previously been documented in endemic regions. The frequency of this occurrence, particularly in the Clade IIb outbreak remains unclear (21-24).
- Human to animal transmission of monkeypox virus has been described following a case study of likely transmission to a dog due to close contact (25).

## Incubation period

The incubation period is typically 7 to 14 days, with a range of 5 to 21 days (4, 26, 27). The incubation period may be influenced by the route of transmission, with invasive exposure (e.g. contact with broken skin or mucous membrane) having a shorter incubation period than non-invasive exposure (28).

## Infectious period

The infectious period begins with the onset of symptoms, either prodromal or rash. Cases remain infectious until the rash has resolved, and all lesions have formed scabs and fallen off, leaving fresh skin underneath. Cases are not considered infectious prior to the onset of symptoms, however some cases may not be aware of their exact symptom onset date as initial symptoms may be both very subtle and/or not visible (16, 29-32).

## Clinical presentation and outcomes

Mpox is usually a self-limiting disease with symptoms lasting for 2 to 4 weeks.

The illness may have a prodromal period lasting 1 to 5 days that is characterised by lymphadenopathy, fever ( $\geq 38^{\circ}\text{C}$ ) or history of fever, headache, myalgia, arthralgia, back pain and **sore throat** (33). Not all cases report prodromal symptoms (33).

A maculopapular rash is typical of mpox and may develop 1 to 5 days after the onset of fever. The rash may be generalised or localised, discrete or confluent. It is classically described as centrifugal, more concentrated on the face and extremities than the trunk. Skin lesions often present at first as macules (lesions with a flat base), which progress to papules (slightly raised firm lesions), vesicles (lesions filled with clear fluid) and pustules (lesions filled with yellowish fluid). Crusted scabbing usually begins 14 to 21 days after rash onset. Scabs then fall off, leaving dyspigmented scars (34).

A typical distinguishing feature of mpox (Clade I and IIa), not observed in smallpox or varicella, is the presence of lymphadenopathy such as swelling at the maxillary, cervical or inguinal lymph nodes (35).

However, many cases in the current global outbreak of Clade IIb, have not presented with the classically described clinical picture for mpox (fever, swollen lymph nodes, followed by centrifugal rash) (24). Differing presentations of cases in the current Clade IIb outbreak have been described as follows<sup>1</sup>:

- Lymphadenopathy may not be present in 56% of cases (18).
- Cases have usually been mild, sometimes with very few lesions, or a single lesion, with 39% of cases with 5 lesions or less (18).
- Lesions have appeared in the genital or perianal area and have not spread further (68% of cases with mucosal lesions) (18).
- Visible skin lesions have been absent in some cases (5% of cases), instead presenting with proctitis, urethritis, rectal pain and/or rectal bleeding (18).
- Lesions may also appear in the oral cavity.
- Appearance of rashes and lesions before the onset of fever, malaise and other constitutional symptoms (absence of prodromal period) is common (18).

Symptomatic manifestations of mpox can cause severe pain and affect vulnerable anatomic sites; in particular painful proctitis or oral lesions may be the primary presentation. More severe complications of mpox infection include secondary infections including cellulitis, bronchopneumonia, sepsis, encephalitis and infection of the cornea with subsequent scarring and loss of vision. Severe dehydration may

---

<sup>1</sup> Proportion estimates of specific symptoms in Clade II outbreak cases presented above have been informed by a single study with a small sample size and should be considered accordingly.

occur, secondary to vomiting, diarrhoea and oral lesions preventing adequate hydration (23).

## Mortality

Internationally, the mpox case fatality rate globally ranges from 0% to 11%, but there are challenges in accurately estimating this rate (36). The multi-country outbreak in non-endemic countries, which began in May 2022 is associated with Clade IIb. In general, Clade II variants are considered to be milder than Clade I.

The Clade I variant has a case fatality rate (CFR) estimated at 10% (37), Clade IIa has an estimated CFR ranging between 1 and 6% (37, 38), and Clade IIb has an estimated CFR of <1%.

For more information about global mpox case data, including deaths, please see: WHO Emergency situation reports.

## Groups at increased risk of severe disease

In the context of the current outbreak, groups at increased risk of severe disease do not necessarily align with those at increased risk of acquiring mpox. Evidence on severe disease outcomes are limited but occur more frequently among people who are unvaccinated (30).

Immunocompromised individuals, including those with HIV infection that is not well-controlled (CD4 count <200 cells/ $\mu$ L), are also believed to be at higher risk of severe disease (40-42).

Clade I outbreaks have recorded severe outcomes in children, especially children (younger than 10 years). This could be related to the cessation of smallpox vaccination, prolonged close contact with family members or caregivers who are cases and in endemic countries due to malnutrition and co-infections (43-46).

Pregnant women and their foetus may also be at increased risk as vertical transmission has been recorded (21).

## High-risk settings and communities

Anyone who is in very close contact with someone with mpox, particularly where skin-to-skin contact occurs, is at risk. While the mode of transmission means that anyone can acquire or transmit mpox, cases in the current outbreak have occurred primarily, but not exclusively, in gay, bisexual and other men who have sex with men (24, 33, 34, 47).

Cases have sometimes been associated with large events or parties, including festivals in Europe (49).

High-risk settings and activities for transmission in the context of the current outbreak include:

- sexual activity (50)



- households (44)
- sex-on-premises venues (SOPV) (51-53)
- events or venues where skin-to-skin contact and other intimate contact occurs (53)
- healthcare settings
- travelling to endemic countries or areas with high risk of exposure (9).

### 3. Routine prevention activities

Consideration of the following measures by PHUs may prevent transmission of the monkeypox virus and reduce mpox infections.

- Development and dissemination of educational material regarding the monkeypox virus infection to key priority groups.
- Establish partnerships with local sexual health clinics, S100 GP and other high-caseload practices, to facilitate testing and connect cases and contacts with relevant community support organisations.
- Engage with local community-controlled LGBTIQ, people living with HIV and sex worker organisations to increase communications on universal prevention measures and importance of vaccination.

Individuals should also consider additional advice to minimise their risk of acquiring mpox.

- If having sex while travelling or attending venues or events where intimate contact with a large number of people occurs, condom use is recommended and individuals should be aware of the risk of mpox – however condoms may not be sufficient to stop transmission based on the location of lesions, and the ability for monkeypox virus to be transmitted via respiratory droplets or other fomites such as clothes/linen.
- Limiting sexual contact with partners when returning from overseas for three weeks following their return.
- If travelling to countries in Central and West Africa where mpox is known to be endemic, avoid contact with sick animals that could harbour monkeypox virus, including rodents, other mammals, and primates, and avoid handling or eating wild game and bush meat.

### Vaccination

Mpox is vaccine-preventable. The global supply of vaccines is limited, and vaccination should be prioritised for higher risk priority groups. Both post-exposure preventative vaccination (PEPV) and primary preventative vaccination (PPV) can reduce the likelihood of widespread community transmission.

Refer to [ATAGI clinical guidance on vaccination against Monkeypox for advice on specific vaccines available](#) and the [Australian Human Monkeypox Treatment](#)

[Guidelines](#) for advice on the prevention and management of vaccine related complications relating to the second-generation vaccine.

## 4. Surveillance objectives

Key surveillance objectives are to:

- Identify and describe the epidemiology of cases to inform public health interventions.
- Rapidly identify cases, clusters of infection and sources of infection to ensure linkage to clinical care and prevent further transmission through case exclusions and restrictions and contact management.
- Enable effective prevention and control measures and effective communication strategies based on identified routes of transmission and high-risk settings.

## 5. Data management

Confirmed and probable cases should be entered on to the National Notifiable Diseases Surveillance System (NNDSS) by jurisdictional PHUs, ideally within one working day of notification.

The date of onset is the date of symptom onset, which may be prodromal/systemic symptoms, or may be a rash.

Cases subsequently shown not to have mpox should be excluded within one working day.

Multi-jurisdictional outbreaks requiring national coordination may require support from the National Incident Centre (NIC).

## 6. Case definition

For case definitions please see [CDNA surveillance case definitions | Australian Government Department of Health and Aged Care](#).

## 7. Testing

Before testing, suspected cases should be notified to the relevant state or territory PHU.

Subject to advice from the jurisdictional PHU, patients with symptoms who present with a history suggestive of exposure to mpox should have a specimen collected and be referred for laboratory testing.

Testing is performed at jurisdictional public health laboratories. The testing laboratory may be contacted to arrange receipt of specimens. General advice is outlined in the [Public Health Laboratory Network Guidance on Monkeypox patient referral, specimen collection and test requesting for general practitioners and sexual health physicians](#). Specific advice from the medical microbiologist at the testing

laboratory may be sought to obtain advice on specimen collection, safe packaging and transport.

## Specimen collection and handling

Appropriate personal protective equipment (PPE) should be worn while collecting samples from patients suspected of monkeypox virus infection.

Lesion material should be collected from people with suspected monkeypox virus infection who have an active lesion or rash. Acceptable sample types include lesion fluid, lesion tissue, lesion crust or skin biopsy.

It is advisable to collect samples from more than one lesion where possible, however excessive sample collection should be discouraged to minimise risk to healthcare workers or laboratory personnel.

Lesion specimens are preferred however throat or nasopharyngeal swabs are also suitable specimens. Such specimens may be collected in persons with prodromal symptoms who present with no lesions, e.g., a contact who develops symptoms.

Material should be collected using a sterile dry swab. Avoid using transport medium, as this may dilute the sample and increase risk of leakage. For further advice, including on appropriate PPE and safe handling and transport of specimens, refer to the [Monkeypox Laboratory Case Definition](#).

## 8. Case management

### Response times

Urgent: immediately (within 24 hours).

### Response procedure

PHUs should begin follow-up investigation for all probable and confirmed cases on the day of notification to identify the source of exposure and contacts.

PHUs should ensure that action has been taken to:

- Conduct relevant pathology tests and confirm results.
  - Provide collectors and laboratory staff with information about infection control requirements (see [Monkeypox Laboratory Case Definition- Specimen collection and handling](#)).
- Interview the case (or caregiver)
  - Ensure the diagnosis has been discussed with the case (or caregiver) before an interview.
  - Ascertain the onset date of illness and symptoms.
  - The interview should include symptom history including travel history, identification of any high-risk settings or activities, any exposure to a confirmed or probable case, the nature of any contact with a confirmed

or probable case, sexual contact and intimate partners within 21 days of symptom onset, smallpox and mpox vaccination status, other relevant clinical findings to exclude other common causes of rash.

- Prioritise identification of high and medium-risk contacts.
  - Active case finding
    - Ask local doctors, sexual health clinics, emergency departments and laboratories to report suspected cases of mpox to the local PHU immediately.
    - Provide advice on appropriate management including PPE and other infection control measures and specimen collection.
    - Consider the need for communications to assist in case finding.
- Identify the likely source of infection.
- Implement public health management of confirmed and probable cases and their contacts.
- Ensure infection control guidelines are followed in caring for the case.
  - Wear PPE including gloves and a surgical mask.
  - Avoid exposure to body fluids, lesion material or contaminated material from an infected person.
  - Avoid contact with any materials, such as bedding, that have been in contact with an infected person.
  - Practise regular hand hygiene.

## Exclusion and restriction

Exclusion and restriction of mpox cases should occur during the presumed and known infectious periods, including the prodromal and rash stages of the illness. Cases should be advised to do the following during their infectious period and until advice has been provided by PHUs regarding clearance of infection.

Until they meet the clearance criteria:

Cases should not:

- Attend high-risk settings such as early childhood education and care services, aged care, healthcare settings, and schools, especially settings with young children and those at higher risk of severe disease, including for routine appointments, unless seeking medical attention.
- Donate any human tissue, including blood, cells, tissue, breast milk, semen, or organs (while unwell and for 12 weeks following clearance).

Cases should avoid:

- Physical or intimate contact with others including sexual activity.
- Contact with people who are at higher risk of severe disease, including immunosuppressed people, people who are pregnant, and young children.

- Close contact with animals, particularly dogs and rodents (mice, rats, hamsters, gerbils, guinea pigs, squirrels etc), due to the possibility of human-to-animal transmission.

Cases should:

- Stay at home, except for undertaking essential activities (see below).
- While at home, they should:
  - Sleep in a separate room (if available) and limit contact with household members.
  - Wear a mask when in the same room as others and cover skin lesions (where possible).
  - Do not share clothing, bedding, towels and unwashed crockery and cutlery. If others must touch these items, they should wear gloves and a surgical mask.
  - Discourage visitors to the home.
- Work from home where possible.
- Avoid touching their face or rubbing their eyes, especially if blisters are present on or near their eyes.
- Practise careful hand and respiratory hygiene.

Essential activities:

- Cases should only leave the home for essential activities in non-crowded settings including to buy groceries, medicines or for solo outdoor exercise.
- Cases should avoid appointments that can be postponed, particularly those in high-risk settings such as healthcare, educational or aged care settings, unless seeking medical attention.
- If medical attention is required where a mpox diagnosis is suspected or known, cases should call ahead to advise the practice.

If a case needs to leave the home for essential activities, they should:

- Wear a surgical mask, ensure any rash or lesions are covered, and avoid close contact with others- especially if using public transport

If cases cannot work from home, PHUs may conduct a risk assessment on a case-by-case basis, to inform whether the case can attend the workplace. Factors to consider include: the type and nature of their work, number and location of their lesions, and mode of transport to and from work.

- For example, a person who works primarily in an outdoor setting where physical distancing can be maintained, may be considered as being able to attend work. Those working in a high-risk setting, particularly in a care-giving role, should not attend work.

PHUs should ensure people with mpox have access to a PHU contact number to seek advice or support where required.

## Case clearance

Cases can resume normal activity when all lesions have crusted, scabs have fallen off and a fresh layer of skin has formed underneath.

The PHU or managing clinician will advise on clearance of a case.

For 12 weeks following clearance, cases should:

- wear a condom during sexual activity (receptive and insertive oral/anal/vaginal sex) (19, 24).
- not donate blood, cells, tissue, breast milk, semen or organs.

### **Guidance for cases with non-visible skin lesions**

For cases with non-visible skin lesions (e.g., cases with proctitis), it is recommended they follow the case exclusion and restriction requirements above until complete resolution of all symptoms.

### **Asymptomatic cases**

International reports of asymptomatic monkeypox virus infection in the current global Clade IIb outbreak are rare and generally only detected and described in research studies. There is limited evidence available to determine whether asymptomatic cases are infectious.

## Treatment

Monkeypox virus infection is generally a self-limiting infection. Most cases will not require specific treatment other than supportive management or treatment of complications (e.g., antibiotics for secondary cellulitis).

Advice on clinical management should be sought from an infectious disease's physician. If antiviral treatment is indicated, it should be initiated in consultation with an infectious disease physician and/or sexual health physician. Tecovirimat (TPOXX) is the preferred treatment for severe monkeypox virus infection.

For further advice, refer to the [Australian Human Monkeypox Treatment Guidelines](#).

## 9. Contact definitions

**Table 1: Contact definitions and examples**

Contact type	Definition of exposure during the case's infectious period	Examples
<b>High risk</b>	<ul style="list-style-type: none"> <li>Household contacts<sup>1</sup></li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>Direct contact<sup>2</sup> via <u>broken skin</u> or <u>mucous membranes</u> with a mpox case (while symptomatic), potentially contaminated materials (including bed linens and healthcare equipment), crusts, or bodily fluids</li> </ul>	<ul style="list-style-type: none"> <li>Sexual or intimate partners</li> <li>Someone whose eyes, nose or mouth, orifice, or an exposed wound has had contact with body fluid from a case</li> <li>Caregivers of symptomatic mpox cases, or those receiving care from a symptomatic mpox case</li> <li>Direct household contacts, who were not wearing appropriate PPE<sup>2</sup></li> </ul>
<b>Medium risk</b>	<ul style="list-style-type: none"> <li>Direct contact<sup>2</sup> via <u>intact skin</u> (while case is symptomatic), with potentially contaminated materials (including bed linens and healthcare equipment), crusts, or bodily fluids, while the contact was not wearing appropriate PPE<sup>3</sup></li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>Indirect contact<sup>4</sup> with a mpox case, while the contact was not wearing appropriate PPE<sup>3</sup>, during any procedure that may create aerosols from oral secretions, skin lesions or resuspension of dried exudates (e.g., shaking of soiled linens, showering patients, or conducting procedures involving the oropharynx)</li> </ul>	<ul style="list-style-type: none"> <li>Those providing personal care with direct or indirect contact with a mpox case while not wearing appropriate PPE<sup>2</sup> or in the case of a PPE breach</li> <li>Healthcare workers present during an aerosol-generating procedure without appropriate PPE<sup>2</sup></li> <li>Cleaning or laundry staff who are changing or laundering the bedding of a mpox case who has rash/lesions without wearing appropriate PPE<sup>2</sup></li> </ul>
<b>Low risk</b>	<ul style="list-style-type: none"> <li>Indirect contact with a mpox case in a high-risk setting, including higher- risk social settings or situations*, while the contact was not wearing a mask, based on a risk assessment.</li> </ul> <p>Note: Contact tracing of flights, buses and other public transport is not required**</p> <p>Note: Low risk contacts do not require follow up, but some</p>	<ul style="list-style-type: none"> <li>People in a crowded or enclosed social setting who were not wearing a mask while within 1.5 metres of a case for 3 hours or more</li> <li>People in a high-risk setting who were not wearing a mask while within 1.5 metres of a case, regardless of duration.</li> </ul>

	jurisdictions may choose to do so at their own discretion.	
--	--	--

Note:

<sup>1</sup> **Household contacts** who have intimate contact or are in a caring role may be considered high-risk contacts. Individuals who reside in the same household may not be considered high risk outside of these circumstances.

<sup>2</sup> **Direct contact** is defined as physical contact with a mpox case during their infectious period, and/or contact with materials such as linens, clothing, healthcare equipment, soiled surface), with crusts from lesions, or with bodily fluids of a case.

<sup>3</sup> **Appropriate PPE** as determined by the PHU based on a risk assessment including the nature of contact, likely transmission pathway/s and setting type, noting the minimum standard defined in [section 11 Infection control](#).

<sup>4</sup> **Indirect contact** is defined as being within 1.5 metres of a case for more than 3 hours during their infectious period.

**\*A higher risk social setting or situation** constitutes those settings where the nature of interaction may pose some risk of transmission e.g., sex-on-premises venues, raves, festivals and other mass gatherings where there is likely to be prolonged close contact. A risk assessment should consider the case's symptoms and location of lesions. This should be limited to identifiable social contacts unless broader communications for the venue is considered necessary by the PHU.

**\*\***At present, there is no evidence of transmission in these settings as part of the global outbreak in 2022, however some countries have identified that the exact route of acquisition is not always possible to ascertain. Should there be transmission demonstrated in these settings, the evidence and advice will be reviewed.



## 10. Contact management

Contacts of probable and confirmed mpox cases should monitor for signs and symptoms of mpox for 21 days after the date of their last exposure. All contacts should be encouraged to practise good hand hygiene and respiratory etiquette.

See Table 2 below for detailed guidance on management of high- and medium-risk contacts.

**Table 2: Management of high- and medium-risk mpox contacts**

Type of contact	Recommended contact management
<p><b>High-risk contact</b></p>	<p><b>Surveillance:</b> Routine active monitoring<sup>1</sup></p> <p><b>Post-exposure preventative vaccination (PEPV) administration<sup>2</sup>:</b></p> <ul style="list-style-type: none"> <li>• Vaccination with MVA-BN should be offered if available and clinically appropriate, <b>ideally within 4 days</b>, noting the evidence on the timeline for effectiveness of PEPV</li> <li>• Vaccination with ACAM2000, or other PEPV where MVA-BN is not available may be warranted following a risk benefit assessment, if there are no contraindications.</li> </ul> <p><b>Testing priority:</b> High if compatible symptoms develop</p> <p><b>Additional recommendations:</b></p> <p>For <b>21 days</b> from last exposure:</p> <ul style="list-style-type: none"> <li>• Avoid close physical contact with others; maintain a distance of 1.5 metres at all times including in the home</li> <li>• Avoid contact with animals, particularly dogs and rodents (mice, rats, hamsters, gerbils, guinea pigs, squirrels etc)</li> <li>• Abstain from sexual activity</li> <li>• Do not visit high risk settings<sup>3</sup> such as childcare and aged care facilities; avoid healthcare facilities unless seeking medical attention</li> <li>• Avoid contact with those potentially at higher risk of severe infection (infants, older people, immunocompromised people, and pregnant women)</li> <li>• Work from home, if possible, otherwise if unable to do so, in most circumstances, high risk contacts can go to work. Workers in settings such as healthcare, childcare and aged care facilities who need to attend work should be managed on a case-by-case basis in consultation with PHUs</li> <li>• Wear a surgical mask when outside the home and when in the same room as other people in the home</li> <li>• Do not donate blood, cells, tissue, breast milk, semen, or organs</li> </ul>
<p><b>Medium-risk contact</b></p>	<p><b>Surveillance:</b> Active monitoring<sup>1</sup> on a case-by-case basis</p> <p><b>PEPV administration<sup>2</sup>:</b> Consider vaccination with MVA-BN following a case-by-case risk assessment.</p> <p><b>Testing priority:</b> High if a clinically compatible rash develops; intermediate if compatible prodromal symptoms develop</p> <p><b>Additional recommendations:</b></p> <p>For <b>21 days</b> from last exposure:</p> <ul style="list-style-type: none"> <li>• If working in a high-risk setting<sup>3</sup>, ensure symptom free and wear a surgical mask</li> <li>• Avoid childcare and aged care facilities, other than for work purposes; avoid healthcare settings unless seeking medical attention</li> </ul>

	<ul style="list-style-type: none"> <li>• Avoid close contact with those at potential higher risk of severe infection (infants, older people, immunocompromised people, and pregnant women)</li> <li>• Do not donate blood, cells, tissue, breast milk, semen, or organs</li> </ul>
<b>Low risk</b>	<ul style="list-style-type: none"> <li>• Low risk contacts do not require follow up</li> <li>• At their discretion, some PHUs may advise low-risk contacts to self-monitor for signs and symptoms, and if any signs or symptoms occur within 21 days of last exposure, to follow exclusion and restriction advice and report to public health officials.</li> </ul>

Note:

<sup>1</sup> **Active monitoring** is

- Recording temperature twice a day.
- Watching for signs or symptoms compatible with mpox infection; if they appear, follow case exclusion and restriction criteria and immediately report to public health officials.
- Monitoring from public health officials (i.e., by phone, email, text) to check the emergence of any signs or symptoms.

<sup>2</sup> For current ATAGI recommendations and the latest evidence for mpox vaccines, please see [ATAGI clinical guidance on vaccination against Monkeypox](#).

<sup>3</sup> **High-risk settings** are defined as childcare, aged care and disability facilities and healthcare environments.

## 11. Infection control

### Management in healthcare settings

Mpox is spread by contact with lesions, body fluids and respiratory secretions, and contaminated materials. The extent to which transmission occurs via the respiratory route remains unclear. The Infection Prevention and Control Expert Group (ICEG) continues to review evidence and update its guidance on appropriate measures for infection control in relation to mpox. Refer to the latest guidance here: [ICEG interim Guidance on Monkeypox for Health Workers](#).

## 12. Specific settings

### Sex on premises venues

In the event a case/s is reported to have attended an SOPV whilst infectious, a PHU may consider the following outbreak management strategies. PHUs should:

- Encourage SOPV owners and/or proprietors to notify the PHU if they become aware of a mpox case attending their venue.
- Consider engaging with local community-controlled LGBTIQ organisations to increase communications on universal prevention measures and importance of vaccination.
- Distribute messaging to patrons of the venue, through venue owners and/or proprietors, advising date and time of attendance of the mpox case.
- Advise patrons and staff to monitor for symptoms and to seek medical advice as soon as possible if they develop symptoms.
- Provide venue cleaning and disinfection advice. PHUs should consider the [ICEG interim guidance on the infection prevention and control of monkeypox at home or in a non-healthcare settings](#) in their development of this advice.

Methods of messaging and the ability to contact trace may be limited due to the willingness of patrons to provide contact information. Best practice may require assessment on a case by case basis.

To minimise the risk of an outbreak occurring at an SOPV, venues are encouraged to implement the following preventative measures:

- Display informative posters and provide clear information about mpox prevention and risk reduction strategies including the potential for transmission through sexual and close contact, post-exposure preventative vaccination (PEPV) and primary preventative vaccination (PPV) recommendations and identification of symptoms and encouragement to seek medical assessment and testing.
- Ensure appropriate infection prevention and control measures are taken to prevent the spread of mpox including routine cleaning and disinfection.

## Congregate living settings

Congregate living settings are facilities or other housing where people who are not related reside in close proximity and share at least one common room (e.g., sleeping room, kitchen, bathroom, living room). Congregate living settings can include correctional and detention facilities, homeless shelters, group homes, dormitories at institutes of higher education, boarding schools, seasonal worker housing, residential substance use treatment facilities and other similar settings, but excludes healthcare settings.

In the event of a case/s in a congregate living setting, PHUs may consider the following outbreak management strategies:

- Undertake contact tracing to identify staff, volunteers or residents who may have been exposed to a mpox case.
- Distribute messaging to staff, volunteers and residents providing information about mpox and advising a case/s has been detected.
- Advise staff, volunteers, or residents who are suspected to have mpox to seek testing and medical evaluation and facilitate this if required.
- Ideally, people identified to have mpox, should have their own bedroom and bathroom facilities; where this is not possible, cohorting of cases may be considered.
  - If required, multiple residents who test positive for mpox can stay in the same room.
  - If cohorting is not possible improve ventilation where possible, ensure residents with mpox maintain physical distancing from others, cover any skin lesions with clothing, bandages, or a sheet or gown and wear a well-fitting disposable mask over their nose and mouth in situations where they are unable to physically distance.
  - It is recommended the number of staff engaging with cases is reduced to those essential for operations or care.
  - Staff and volunteers who test positive should follow advice for cases. If there are workforce shortage concerns, a risk assessment for workplace attendance may be undertaken by a PHU on case-by-case basis.
- Appropriate infection prevention and control measures should be implemented, including provision of PPE to staff, volunteers, and residents.
- Vaccination may be considered on a case-by-case basis including post-exposure preventative vaccination (PEPV) and targeted primary preventative vaccination (PPV) for certain groups within the facility.

To minimise the risk of an outbreak occurring in a congregate living setting facility, the following preventative measures may be implemented:

- Clearly communicate and provide information about mpox prevention, including the potential for transmission through close, sustained physical contact, including sexual activity.
- Ensure appropriate infection prevention and control measures are taken including the cleaning and disinfection of areas where people with mpox spent time while infectious, waste and laundry management, the accessibility of handwashing facilities and provision of and training in the use of appropriate personal protective equipment. For more information please see [ICEG Interim guidance on the infection prevention and control of monkeypox at home or in a non-healthcare setting](#).

## Aboriginal and Torres Strait Islander Communities

If introduction of mpox occurs in an Aboriginal and Torres Strait Islander community, the risk of mpox transmission may be higher than the general community, due to inadequate and overcrowded housing. For this reason, a low threshold should be used to initiate disease control measures, including consideration of communications and broader vaccination strategies. PHUs may consider targeted action to all community members in a remote Aboriginal or Torres Strait Islander community if supported by the epidemiological context. The nature of any action will depend on factors including the size and remoteness of the community. Community engagement should be central to any community-based response and should continue throughout implementation to ensure actions are culturally appropriate.

## Healthcare settings

Workers in healthcare settings should always follow the [ICEG interim guidance on Monkeypox for health workers](#) when treating a mpox case. If this guidance is followed appropriately, the risk of transmission between cases and contacts in a healthcare setting is minimal.

## 13. References

1. Sah R, Padhi BK, Siddiq A, Abdelaal A, Reda A, Ismail Lashin B, et al. Public Health Emergency of International Concern declared by the World Health Organization for Monkeypox. *Global Security: Health, Science and Policy*. 2022;7(1):51-6.
2. Estep RD, Messaoudi I, O'Connor MA, Li H, Sprague J, Barron A, et al. Deletion of the monkeypox virus inhibitor of complement enzymes locus impacts the adaptive immune response to monkeypox virus in a nonhuman primate model of infection. *J Virol*. 2011;85(18):9527-42.
3. World Health Organization. Monkeypox: experts give virus variants new names [News Release]. Geneva2022 Available from: <https://www.who.int/news/item/12-08-2022-monkeypox--experts-give-virus-variants-new-names>.
4. World Health Organization. Monkeypox 2022 Available from: <https://www.who.int/news-room/fact-sheets/detail/monkeypox>.
5. Alakunle E, Moens U, Nchinda G, Okeke MI. Monkeypox Virus in Nigeria: Infection Biology, Epidemiology, and Evolution. *Viruses*. 2020;12(11).
6. Durski KN, McCollum AM, Nakazawa Y, Petersen BW, Reynolds MG, Briand S, et al. Emergence of Monkeypox - West and Central Africa, 1970-2017. *MMWR Morb Mortal Wkly Rep*. 2018;67(10):306-10.
7. Ligon BL. Monkeypox: a review of the history and emergence in the Western hemisphere. *Semin Pediatr Infect Dis*. 2004;15(4):280-7.
8. Centers for Disease Control and Prevention. Update: Multistate Outbreak of Monkeypox --- Illinois, Indiana, Kansas, Missouri, Ohio, and Wisconsin, 2003 Centers for Disease Control and Prevention2003 Available from: <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5227a5.htm>.
9. Australian Department of Health and Aged Care. Monkeypox (MPX) 2022 updated 6 July 2022. Available from: <https://www.health.gov.au/diseases/monkeypox-mpx>.
10. World Health Organization. WHO Director-General's statement at the press conference following IHR Emergency Committee regarding the multi-country outbreak of monkeypox - 23 July 2022 2022 updated 23 July 2022. Available from: <https://www.who.int/news-room/speeches/item/who-director-general-s-statement-on-the-press-conference-following-IHR-emergency-committee-regarding-the-multi-country-outbreak-of-monkeypox--23-july-2022>.
11. Australian Department of Health and Aged Care. Chief Medical Officer's statement declaring monkeypox a Communicable Disease Incident of National Significance 2022 updated 28 July 2022. Available from: <https://www.health.gov.au/news/chief-medical-officers-statement-declaring-monkeypox-a-communicable-disease-incident-of-national-significance>.
12. Reynolds MG, Damon IK. Outbreaks of human monkeypox after cessation of smallpox vaccination. *Trends Microbiol*. 2012;20(2):80-7.
13. Australian Department of Health and Aged Care. ATAGI Clinical Guidance on Vaccination Against Monkeypox. In: Care ADoHaA, editor. 3.0 ed2022. p. 1-22.
14. Centers for Disease Control and Prevention. Monkeypox - Vaccine Basics 2022 updated 30 August 2022. Available from: <https://www.cdc.gov/poxvirus/monkeypox/vaccines/vaccine-basics.html>.
15. Morgan CN, Whitehill F, Doty JB, Schulte J, Matheny A, Stringer J, et al. Environmental Persistence of Monkeypox Virus on Surfaces in Household of Person with Travel-Associated Infection, Dallas, Texas, USA, 2021. *Emerging Infectious Diseases*. 2022;28(10):1982-9.
17. Peiro-Mestres A, Fuertes I, Camprubi-Ferrer D, Marcos MA, Vilella A, Navarro M, et al. Frequent detection of monkeypox virus DNA in saliva, semen, and other clinical samples from 12 patients, Barcelona, Spain, May to June 2022. *Euro Surveill*. 2022;27(28).
18. Thornhill JP, Barkati S, Walmsley S, Rockstroh J, Antinori A, Harrison LB, et al. Monkeypox Virus Infection in Humans across 16 Countries - April-June 2022. *N Engl J Med*. 2022;387(8):679-91.

19. Lapa D, Carletti F, Mazzotta V, Matusali G, Pinnetti C, Meschi S, et al. Monkeypox virus isolation from a semen sample collected in the early phase of infection in a patient with prolonged seminal viral shedding. *The Lancet Infectious Diseases*. 2022;22(9):1267-9.
20. Verreault D, Killeen SZ, Redmann RK, Roy CJ. Susceptibility of monkeypox virus aerosol suspensions in a rotating chamber. *J Virol Methods*. 2013;187(2):333-7.
21. Mbala PK, Huggins JW, Riu-Rovira T, Ahuka SM, Mulembakani P, Rimoin AW, et al. Maternal and Fetal Outcomes Among Pregnant Women With Human Monkeypox Infection in the Democratic Republic of Congo. *The Journal of Infectious Diseases*. 2017;216(7):824-8.
22. Centers for Disease Control and Prevention. Monkeypox - How it Spreads 2022 updated 29 July 2022. Available from: <https://www.cdc.gov/poxvirus/monkeypox/if-sick/transmission.html>.
23. Lum FM, Torres-Ruesta A, Tay MZ, Lin RTP, Lye DC, Renia L, et al. Monkeypox: disease epidemiology, host immunity and clinical interventions. *Nat Rev Immunol*. 2022.
24. World Health Organization. Multi-country monkeypox outbreak: situation update 2022 updated 27 June 2022.
25. Seang S, Burrell S, Todesco E, Leducq V, Monsel G, Le Pluart D, et al. Evidence of human-to-dog transmission of monkeypox virus. *The Lancet*. 2022;400(10353):658-9.
26. Nolen LD, Osadebe L, Katomba J, Likofata J, Mukadi D, Monroe B, et al. Extended Human-to-Human Transmission during a Monkeypox Outbreak in the Democratic Republic of the Congo. *Emerg Infect Dis*. 2016;22(6):1014-21.
27. European Centre for Disease Prevention and Control. Factsheet for health professionals on monkeypox: European Centre for Disease Prevention and Control; 2022 Available from: <https://www.ecdc.europa.eu/en/all-topics-z/monkeypox/factsheet-health-professionals>.
28. Miura F, van Ewijk CE, Backer JA, Xiridou M, Franz E, Op de Coul E, et al. Estimated incubation period for monkeypox cases confirmed in the Netherlands, May 2022. *Eurosurveillance*. 2022;27(24):2200448.
29. United Kingdom Health Security Agency. Guidance Principles for monkeypox control in the UK: 4 nations consensus statement 2022 [Available from: <https://www.gov.uk/government/publications/principles-for-monkeypox-control-in-the-uk-4-nations-consensus-statement/principles-for-monkeypox-control-in-the-uk-4-nations-consensus-statement>].
30. Brown K, Leggat PA. Human Monkeypox: Current State of Knowledge and Implications for the Future. *Trop Med Infect Dis*. 2016;1(1).
31. World Health Organization. Clinical management and infection prevention and control for monkeypox: Interim rapid response guidance, 10 June 2022. 2022.
32. World Health Organization. Disease Outbreak News; Multi-country monkeypox outbreak in non-endemic countries: World Health Organization; 2022 [Available from: <https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON393>].
33. Public Health England. Monkeypox: information for primary care: Public Health England; 2019 [Available from: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/850059/Monkeypox\\_information\\_for\\_primary\\_care.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/850059/Monkeypox_information_for_primary_care.pdf)].
34. Di Giulio DB, Eckburg PB. Human monkeypox: an emerging zoonosis. *The Lancet Infectious Diseases*. 2004;4(1):15-25.
35. McCollum AM, Damon IK. Human monkeypox. *Clin Infect Dis*. 2014;58(2):260-7.
36. Public Health Laboratory Network. Monkeypox (Monkeypox Virus) Laboratory Case Definition (LCD). 2022.
37. Isidro J, Borges V, Pinto M, Sobral D, Santos JD, Nunes A, et al. Phylogenomic characterization and signs of microevolution in the 2022 multi-country outbreak of monkeypox virus. *Nature Medicine*. 2022;28(8):1569-72.
38. World Health Organization. Monkeypox 2022 [Available from: <https://www.who.int/news-room/fact-sheets/detail/monkeypox>].
39. Centers for Disease Control and Prevention. Monkeypox - 2022 Global Map & Case Count: Centers for Disease Control and Prevention

2022 [Available from: <https://www.cdc.gov/poxvirus/monkeypox/response/2022/world-map.html>].

40. European Centre for Disease Prevention and Control. Joint ECDC-WHO Regional Office for Europe Monkeypox Surveillance Bulletin 2022 [updated 21 September 2022. Available from: <https://monkeypoxreport.ecdc.europa.eu/>].
41. Martinez JI ME, Bueno SJ et al. Monkeypox Outbreak Predominantly affecting Men who have Sex with men, Madrid, Spain, 26 April to 16 June 2022. *Outbreaks*. 2022;27(27):1-7.
42. Perez Duque M RS, Martins et al. Ongoing monkeypox virus outbreak, Portugal, 29 April to 23 May 2022. *Eurosurveillance*. 2022;27(22):1-13.
43. Bunge EM, Hoet B, Chen L, Lienert F, Weidenthaler H, Baer LR, et al. The changing epidemiology of human monkeypox—A potential threat? A systematic review. *PLOS Neglected Tropical Diseases*. 2022;16(2):e0010141.
44. World Health Organization. Monkeypox - Questions and Answers 2022 [Available from: <https://www.who.int/news-room/questions-and-answers/item/monkeypox>].
45. Centers for Disease Control and Prevention. Clinician FAQs. 2022.
46. Centers for Disease Control and Prevention. Monkeypox in the United States: What Clinicians Need to Know June 2022. 2022.
47. European Centre for Disease Prevention and Control/WHO Regional Office for Europe. Monkeypox, Joint Epidemiological overview. 2022.
48. World Health Organization. Multi-country outbreak of monkeypox, External situation report #3 - 10 August 2022. 2022(3).
49. World Health Organization. Monkeypox in the European Region: what we know so far and how we need to respond. 2022.
50. Egan C, Kelly CD, Rush-Wilson K, Davis SW, Samsonoff WA, Pfeiffer H, et al. Laboratory-confirmed transmission of vaccinia virus infection through sexual contact with a military vaccinee. *J Clin Microbiol*. 2004;42(11):5409-11.
51. UK Government. Guidance-Monkeypox: cleaning sex-on-premises venues 2022 [updated 8 June 2022. Available from: <https://www.gov.uk/guidance/monkeypox-cleaning-sex-on-premises-venues>].
52. World Health Organization for Europe. Interim advice for public health authorities on summer events during the monkeypox outbreak in Europe, 2022. Joint Report. European Centre for Disease Prevention and Control (ECDC); 2022 14 June 2022.
53. Centers for Disease Control and Prevention. Social Gatherings, Safer Sex, and Monkeypox: US Department of Health and Human Services; 2022 [updated September 9, 2022. Available from: <https://www.cdc.gov/poxvirus/monkeypox/specific-settings/social-gatherings.html>].

## Appendices

**Appendix A:** [Mpox Public Health Unit Checklist](#)