

Monkeypox

Purpose

This document provides expert infection prevention and control guidance on monkeypox to support community, hospital, and institutional settings including sexual health clinics, primary care, and laboratories. The Clinical Excellence Commission will continue to review emerging evidence on the current monkeypox virus outbreak and this guidance will be updated as appropriate. This document should be read in conjunction with [CEC infection prevention and control practice handbook](#).

What is Monkeypox?

Monkeypox is a rare zoonotic viral disease caused by a double-stranded DNA *Orthopoxvirus*. Monkeypox is endemic in parts of Central and West Africa and until recently transmission was associated with travel from these endemic areas. Since May 2022, multiple cases have been identified in non-endemic countries and work is ongoing to better understand transmission and epidemiology. Refer to [NSW Health](#) for the latest updates.

What are the symptoms?

Symptoms usually begin 7-14 days after exposure. This can be as short as 5 days or as long as 21 days.

The initial symptoms are:

- Fever
- Headache
- Muscle aches
- Backache
- Swollen lymph nodes

- Chills
- Exhaustion.

A rash usually appears within 1 to 3 days (sometimes longer) of the onset of fever. This usually starts on the face, then spreads to other parts of the body. There is often involvement of mucous membranes, including conjunctiva. In the current outbreak, the rash has often been localised in the genital area.

The rash is initially macular which develops into vesicles then pustules which crust and fall off.

The illness typically lasts for 2–4 weeks.

Screening for Monkeypox

Healthcare settings should assess people for clinical and epidemiological risk factors and undertake screening questions to identify.

Clinical and epidemiological risk factors:

- Monkeypox-like symptoms
- Close contact with a confirmed case of monkeypox
- Recent overseas travel to affected areas
- Immunisation history (smallpox vaccination).

How is Monkeypox Spread?

Transmission of monkeypox virus occurs when a person comes into contact with the virus from an animal, human, or materials contaminated with the virus. The virus enters the body through broken skin (even if not visible), the respiratory tract via large respiratory droplets, or the mucous membranes (eyes, nose, or mouth). It spreads from one person to another through prolonged close contact (by exposure to infected respiratory

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secretions), or direct contact with infected bodily fluids, skin-to skin contact or contaminated surfaces or items, such as bedding or clothes. It does not spread via casual contact.

Monkeypox does not easily spread between people and the risk of airborne transmission appears low.

Person-to-person spread may occur through:

- sexual or intimate contact with an infected person
- contact with clothing or linen (such as bedding or towels) used by an infected person
- direct contact with monkeypox skin lesions or scabs
- direct contact with respiratory secretions from an individual with monkeypox

Refer to *Table 1 Monkeypox risk assessment summary for different category of population.*

Sample collection

Samples from patients with suspected monkeypox virus infection should be collected wearing appropriate personal protective equipment (PPE). This includes long sleeved disposable fluid resistant gown; fluid resistant surgical mask; disposable gloves, and goggles or a face shield. Consider wearing a fit-checked P2.N95 particulate respirator (PFR) or equivalent if:

- the patient has respiratory symptoms
- Varicella or measles is suspected, or
- High-risk exposure event anticipated (e.g prolonged exposure with patient such as a

hospitalised patient or aerosol generating activities.

Clinical laboratories should be contacted, method of collection confirmed and informed in advance that the samples may be suspected for monkeypox. This will ensure patient specimens are safely prepared for transport and risk is minimised to laboratory workers.

Safe Handling and Transport of specimens

Refer to [Infection Prevention and Control Practice Handbook](#) section 4.9.2 Safe handling and transport of patient specimens and [NSW Health Pathology](#).

Prevention

Several measures can be taken to prevent infection with monkeypox virus:

- Early identification of people with a clinical or epidemiological risk of monkeypox
- Implementation of standard and transmission-based precautions (contact, and droplet at a minimum and airborne when indicated based on a risk assessment). The extent of airborne spread remains unclear, but until more information is available higher levels of respiratory precautions (airborne precautions) are recommended
- People who have monkeypox should isolate from others until the rash is **fully resolved** (this usually takes between 2 – 4 weeks) and advised by their treating clinician. Once all scabs have fallen off, a person is no longer contagious

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- Practice good hand hygiene after contact with people with monkeypox. For example, washing your hands with **soap and water or using an alcohol-based hand sanitizer**
- Use personal protective equipment (PPE) **around people who are infected**
- Avoid contact with any items or materials, such as bedding, personal care items (towels, razors, toothbrushes etc.), that have been in contact with an infected person.

Infection Prevention and Control (IPAC) in Healthcare Facilities

Applying Standard Precautions and specific Transmission-based Precautions (contact and droplet at a minimum) including isolating the patient, rapid identification, use of PPE (gown, gloves, eye protection, respiratory protection-surgical mask or respirator based on risk assessment) when caring for patients can limit the transmission of the monkeypox virus.

These include:

- Hand Hygiene for all patient and environment contact
- Containment and disposal of contaminated waste
- Standard precautions when handling soiled linen
- Standard precautions when handling used patient-care equipment
- Standard precautions when cleaning and disinfecting equipment and environmental surfaces in the patient care environment.

Precautions

Patients presenting with a potentially infectious vesicular / pustular rash require standard, contact **and** droplet precautions as the first line of defence. This also applies to outpatient settings.

For patients who have suspected or confirmed monkeypox, add airborne precautions as there is a potential risk of airborne transmission. Manage in a negative pressure room where available, however if unavailable, risk assess for the appropriate use of a single room with door closed.

Monkeypox virus = Standard + Contact + Airborne.

PPE

Health workers (HW)

HWs should implement standard and transmission-based precautions. **Contact and droplet precautions are considered the minimum level of PPE.**

- Protective eyewear / face shield
- **Surgical mask** or use of P2/N95 Respirator including fit checking **(prolonged care; aerosol generating activities)**
- Use of disposable impervious gown and gloves for patient and environment contact.

Donning: PPE should be donned before entering the patient's room and used for all patient contact.

Doffing: Gown and gloves should be disposed of prior to leaving the isolation room or anteroom or designated doffing area where the patient is admitted. Above neck PPE (eye protection and respiratory protection) should be doffed outside the room or immediately after exiting.

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NB: sessional use of PPE is not appropriate when caring for these patients and all PPE must be changed between patient encounters.

Patient

- Surgical mask if tolerated when in a shared space or in transit
- Cover any exposed skin lesions with waterproof dressing.

Isolation

Hospital inpatients with suspected or confirmed monkeypox should be isolated using the below priority:

- Negative pressure room (with anteroom and ensuite).

If a negative pressure room is unavailable:

- Negative flow or 100% exhaust room (with ensuite)
- Single room with ensuite and with door closed (designated bathroom if ensuite facilities unavailable).

See section below for home isolation.

Vaccination

A newer vaccine based on a modified attenuated vaccinia virus (Ankara strain) was approved for the prevention of monkeypox in 2019. This is a two-dose vaccine for which availability remains limited. Smallpox and monkeypox vaccines are developed in formulations based on the vaccinia virus due to cross-protection afforded for the immune response to orthopoxviruses. These vaccines are live attenuated vaccines and therefore can spread vaccinia, you must take precautions when caring for the place on your arm where you are

vaccinated so you can prevent the vaccinia virus from spreading including covering the area. For more information refer to [CDC Caring for the vaccine site](#).

Handling Linen and Laundry

- All used linen should be managed as potentially infectious (standard precautions) and appropriate PPE should be worn including facial protection to prevent inhalation of skin squames from linen and gowns for environmental contact
- Care must be exercised when handling soiled linen (e.g., bedding, towels, personal clothing) to avoid physical contact with lesion material
- Soiled linen should never be shaken or handled in any manner that may disperse infectious particles
- Clear leak-proof bags are to be used to contain linen that is heavily soiled with blood, other body substances (including wet with water)
- Hand hygiene must be performed as per the 5 moments of hand hygiene including following the handling of used linen.

Environmental Cleaning and Disinfection

HWs should wear appropriate PPE (gown, gloves, eye protection and respirator) using TGA approved cleaning and disinfection agent demonstrating efficacy against the vaccinia virus (e.g., 0.1 % sodium hypochlorite or similar). Particular attention should be paid to toilets and frequently touched surfaces including in outpatient settings.

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Waste Management

Waste should be handled using standard precautions.

- General waste to be disposed of into general waste stream including used PPE unless contaminated with blood or body substances
- Contaminated waste (e.g., soiled dressings) to be placed in clinical waste
- Laboratory waste is classified as Category A waste and should be managed as per PD2020_049 Clinical and Related Waste Management for Health Services.

Isolation at Home

The case or contact should be separated into different rooms and separate bathrooms where able. All reasonable steps should be taken to avoid further contact. Persons with monkeypox should not leave the home except as required for follow-up medical care, or for solo outdoor exercise. Unexposed persons who do not have an essential need to be in the home should not visit. Household members should limit contact with the person with monkeypox.

Avoid unnecessary handling of linen and waste and hands must be cleaned after handling any contaminated linen or waste.

Skin lesions should be covered to the best extent possible (e.g., non-stick dressings, long sleeves, long pants) to minimise risk of contact with others.

Hand hygiene (i.e., hand washing with soap and water or use of an alcohol-based hand rub) should be performed after handling linen and waste, as well as cleaning and disinfection.

Linen - linen should be laundered regularly in a warm/hot water cycle. Launder contaminated items in a separate load.

Waste - waste generated should be disposed of at the point of use. e.g., bagging contaminated waste in patient's room, tied off bagged waste should then be disposed of directly into the bin and not recycling and hands cleaned.

Sharing of items - designated household items (clothes, bed linen, towels, razor, toothbrushes), should not be shared with other members of the household. No special precautions are needed for eating and drinking utensils. Used dishes and eating utensils should be washed in a dishwasher or by hand with warm water and soap and dried.

Cleaning - regular cleaning of the home environment followed by disinfection using household disinfectant should be undertaken. Particular attention should be paid to toilets and frequently touched surfaces. To minimise cross-contamination, clean and disinfect in the following order: laundry, hard surfaces, dishes, furniture, and carpet.

Cleaning and disinfection should be done where able by the household members using the correct PPE and products. Where this is not an option engaging external cleaners should be assessed on a case-by-case basis.

Risk assessment

In situations where an occupational exposure or a PPE breach, particularly involving spillage or aerosolisation with exposure of mucosa, carries high probability of infection and moderate risk of the disease. Refer to *Table 1 Monkeypox risk assessment summary for different category of population* for more information. Due to an

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expected higher impact, the risk may be higher for exposed HWs and laboratory personnel who are older or immunocompromised.

Health worker exposure management

Any HW who has cared for a monkeypox patient 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, and should notify IPAC, work health and safety (WHS), and infectious diseases (ID) if they develop symptoms.

HWs who have unprotected exposures (i.e., not wearing PPE) to patients with monkeypox do not need to be excluded from work, but should undergo active surveillance for symptoms (headache, fever, chills, sore throat, malaise, fatigue, rash, and lymphadenopathy), which includes measurement of temperature at least twice daily for 21 days following the exposure and not to work with vulnerable patients during this period. Prior to reporting for work each day, the HW should be screened for any relevant signs or symptoms as above.

During the 21 days monitoring period vigilance is needed for both hand hygiene and respiratory etiquette.

HWs who have cared for or otherwise been in direct or indirect contact with monkeypox patients while adhering to recommended PPE may undergo self-monitoring or active monitoring for symptoms.

Post exposure prophylaxis (PEP) is rarely indicated for HWs caring for patients with monkeypox and Table 2 provides advice for exposure risk assessment and IPAC

recommendations for HWs exposed to a patient with monkeypox. Pregnant HWs should be excluded from providing care to patients suspected or confirmed with monkeypox.

Where can I find more information?

Further online information is available at:

Australian Department of Health [Monkeypox \(MPX\) resources](#)

CDC 2022 [Interim Guidance for Household Disinfection of Monkeypox Virus](#)

CDC 2022 [Infection Prevention and Control of Monkeypox in Healthcare Settings](#)

NSW Health 2022 [Monkeypox](#)

NSW Health [PD2020_049 Clinical and Related Waste Management for Health Services](#)

WHO 2022 [Monkeypox](#)

The Infection Prevention and Control (IPAC) and Healthcare Associated Infections (HAI) Program provides expert support, advice, tools, and information on IPAC and assists local health districts and specialty networks in NSW to manage and monitor the prevention and control of HAIs.

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Key Recommendations summary

- Monkeypox 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
- Isolate people with suspected, probable, or confirmed monkeypox to prevent further disease spread
- Inpatients in acute settings with confirmed or probable monkeypox should be isolated in a room with private bathroom facilities
- Standard and transmission-based precautions, including contact and droplet precautions, are considered the minimum level of PPE when caring for a person with suspected, probable, and confirmed monkeypox
- Health workers may consider applying a fit-checked particulate filter respirator (PFR) – P2/N95 or equivalent, when providing certain care for a patient with probable or confirmed monkeypox (such as prolonged care; aerosol generating activities/procedures)
- Practice frequent hand hygiene by either using an alcohol-based hand rub or washing your hands with soap and water
- The hierarchy of controls can be used to support IPAC measures to minimise disease transmission.

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Table 1 Monkeypox risk assessment summary for different category of population

The risk may be higher for certain people in some of the below categories, particularly very young children, pregnant women, elderly, or immunocompromised persons.

Health Professionals					Broader Population
Health workers			Laboratory workers		
	PPE as per transmission-based precautions	PPE Breach or unprotected exposure	PPE as per transmission-based precautions	PPE breach or unprotected exposure	
Probability	Very Low	High	Very Low	High	Very Low
Impact	Low	Low	Low	Moderate	Low
Overall risk	Low	Moderate	Low	High	Low

Adapted from [European Centre for Disease Prevention and Control. Monkeypox multi-country outbreak](#) – 23 May 2022. ECDC: Stockholm; 2022

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Table 2 Risk assessment and IPAC recommendations for HWs exposed to a patient with Monkeypox

Degree of Exposure	Exposure Characteristics	Recommendations
High risk	<p>Unprotected exposure of skin or mucus membrane and the skin, lesions, or bodily fluids from a patient or contaminated material (e.g., linen, clothing)</p> <p>Being inside the patient’s room during any procedures that may create aerosols from oral or respiratory secretions, skin lesions, or resuspension of dried exudates without a respirator and eye protection</p> <p>Inhalation of droplets or dust from cleaning contaminated rooms without appropriate PPE</p> <p>Penetrating sharps injury from a contaminated device or through contaminated gloves</p>	<p>Monitor for symptoms</p> <p>Consider PEP in consultation with IPAC and ID.</p>
Medium risk	<p>Activities resulting in contact between sleeves and other parts of HWs clothing and the patient’s skin lesions or bodily fluids, or soiled linen or dressings (e.g., turning, bathing, or assisting with transfer) while wearing gloves but not wearing a gown</p> <p>No direct contact but close proximity in the same room or indoor physical space as a symptomatic monkeypox patient, without surgical mask at a minimum</p>	<p>Monitor for symptoms</p> <p>PEP – in consultation with IPAC/ID on an individual basis to determine whether benefits of PEP outweigh risks</p>
Low or minimal risk	<p>Contact with a person with confirmed, probable or suspected monkeypox or an environment that may be contaminated with monkeypox virus, while wearing appropriate PPE (including a surgical mask) and without any known breaches of PPE or of donning and doffing procedures</p>	<p>Monitor for symptoms</p> <p>PEP- None</p>