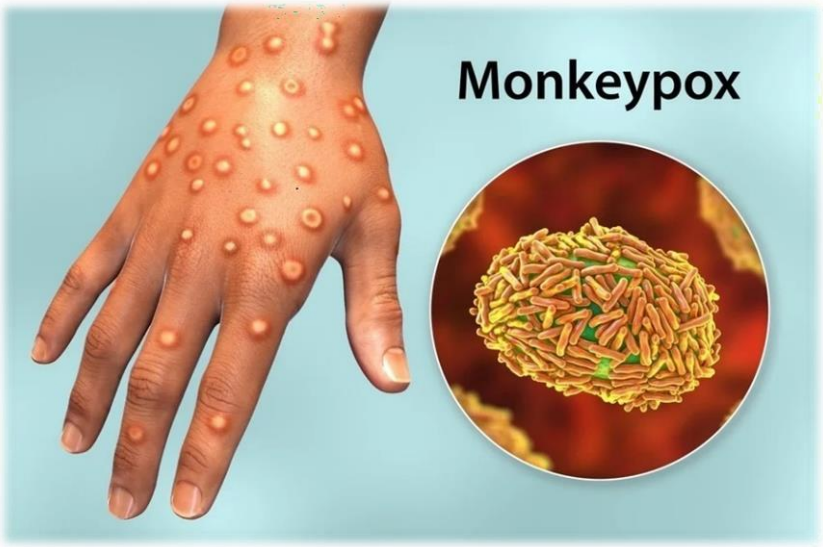
وزارة الصحـــــــة
Ministry of Health

Center for Disease Control and Prevention



Preparedness and Response Plan
For Monkey Pox in Oman

Version 4, October 2025

Background

Monkeypox (Mpox) is a rare zoonotic viral disease, typically transmitted from animals to humans. The symptoms in humans are similar to those of smallpox but are generally less severe. Although smallpox eradicated in 1980's, Mpox continues to occur sporadically in certain parts of Africa. The Mpox virus belongs to the genus Orthopoxvirus within the family Poxviridae.

The Causative Agent

The Mpox virus belongs to the Orthopoxvirus genus within the family Poxviridae. This genus also includes the variola virus (which causes smallpox), the vaccinia virus (used in the smallpox vaccine), and the cowpox virus. Two phylogenetically distinct clades of the Mpox virus identified: the Central African (Congo Basin) clade and the West African clade. The Central African clade reported more frequently and is associated with a higher case fatality rate—up to 10%—compared to about 1% for the West African clade.

Modes of Transmission

Person-to-person transmission of Mpox can occur through direct contact with infectious skin or other lesions such as in the mouth or on genitals; this includes contact, which is

- face-to-face (talking or breathing)
- skin-to-skin (touching or vaginal/anal sex)
- mouth-to-mouth (kissing)
- mouth-to-skin contact (oral sex or kissing the skin)
- respiratory droplets or short-range aerosols from prolonged close contact

The virus then enters the body through broken skin, mucosal surfaces (e g oral, pharyngeal, ocular, genital, anorectal), or via the respiratory tract. Mpox can spread to other members of the household and to sex partners. People with multiple sexual partners are at higher risk.

Animal to human transmission of Mpox occurs from infected animals to humans from bites or scratches, or during activities such as hunting, skinning, trapping, cooking, playing with carcasses, or eating animals. People can contract Monkey pox from contaminated objects such as clothing or linens, through sharp injuries in health care, or in community settings such as tattoo parlors. Mpox virus spread to the foetus during pregnancy or to the newborn by close contact during and after birth.

Signs and symptoms

The incubation period

- Usually from 7 to 14 days but can range from 5 to 21 days
- The illness typically lasts for 2−4 week's infection and it can be divided into two periods:
  - <u>The Prodromal period</u>
    - Usually lasts between 0-5 days
    - Characterized by fever, intense headache, lymphadenopathy, back pain, myalgia and intense asthenia (lack of energy)
    - Lymphadenopathy is a distinctive feature of Mpox compared to other diseases that may initially appear similar (chickenpox, measles, smallpox)
    - The person is may be contagious at this stage. The patient should self-isolate at this period

- The skin eruption period

    - Usually begins within 1-3 days of the appearance of fever
    - The rash tends to be more concentrated on the face and extremities rather than on the trunk. But then spread to palms of the hands and soles of the feet, oral mucous membrane, genitalia, and conjunctivae as well as the cornea
    - The rash evolves through the following stages sequentially from macules (lesions with a flat base) to papules (slightly raised firm lesions), vesicles (lesions filled with clear fluid), pustules (lesions filled with yellowish fluid), and crusts which dry up and fall off. In severe cases, lesions can coalesce until large sections of skin slough off

Sexual history

Take a detailed sexual history from all patients with suspected or confirmed monkey pox infection. Patients should be approached with sensitivity and without judgment to obtain at least the following information;

- Gender and number of sex partners in the last 6 months
- Use of condoms
- History of HIV and other STIs
- Recent travel history

Further assistance can be sought from HIV focal point in the region.

HIV and other immunocompromised individuals

- People with HIV-associated immunosuppression and people with HIV who are not virologically suppressed can be at increased risk of severe Mpox
- People who are immunocompromised from other conditions or using immune-suppressive agents may be at increased risk of severe Mpox

Risk assessment

The risk assessment for monkeypox preparedness plan based on the following factors:

- Likelihood of importation and further spread: This is low, although it might increase with increasing flights from the endemic countries and spreading of the infection in new countries
- The potential impact on human health: The transmission thus the public health impact is low. However, risk groups for transmission should be noted such as, travel to endemic countries, contact with confirmed cases, MSM. Risk group for the morbidity and mortality includes children, young adults and immunocompromised.
- Diagnostic capacity: Currently PCR test available in the central public health laboratories (CPHL), more testing reagents will be requested from the ministry of health. The testing is done only in CPHL
- The potential impact on business and the economy, travel, and trade: This impact is assumed to be low
- Risk communication and the “infodemic”: Materials for community and health promotion will be prepared and disseminated by the respective departments.
- Supply chain coordination: This should be ensured for PPEs, lab testing, vaccine and medication.
- Upscaling country readiness, hospital capacity: This is done through HCW training and ensuring negative

pressure rooms in the hospitals.

Preparedness and Response Planning

The capacities required to prepare and respond to monkeypox importation are based on the National All Hazards Preparedness Plan. The plan is developed to have activity plans to be put in place as the epidemiology of the disease evolves globally and based on local risk assessment. The following will be adopted as the alert level definitions for specific action plans.

- **Alert level 1:** Preparedness
- **Alert level 2:** High-risk of imported cases of Monkeypox.
- **Alert level 3:** Imported cases of Monkeypox
- **Alert level 4:** Clusters of secondary local transmission of Monkeypox
- **Alert level 5:** Clusters of community transmission of Monkeypox

*** At the time of publishing this version of the preparedness plan (October 2025), the overall risk is assessed as low, and the impact is assessed as moderate.

Laboratory diagnosis

- Health workers should collect an appropriate sample upon suspicion
- Polymerase chain reaction (PCR) is the preferred laboratory test given its accuracy and sensitivity for confirmation of Mpox. The optimal diagnostic sample for Mpox is from skin lesions – the roof or fluid from vesicles and pustules, and dry crusts. PCR blood tests are usually inconclusive because of the short duration of viremia relative to the timing of specimen collection after symptoms begin and should not be routinely collected from patients
- It is important to consider other causes of differential diagnosis and obtain samples accordingly .This include testing for Herpes simplex ,VZV, Enterovirus, Syphilis, and other bacterial skin infections
- Screening for sexual transmitted infections like HIV, Hepatitis B, Hepatitis C, Gonorrhea and Chlamydia is recommended

Specimen types:

- A skin lesion material, including swabs of lesion surface and/or exudate, roofs from more than one lesion, in virus transport medium (VTM)
- A viral throat swab can be taken for high-risk contacts of a confirmed or highly probable case who have developed systemic symptoms but do not have a rash or lesions that can be sampled

Specimen Collection:

- Ensure wearing appropriate PPE (N95 mask, gloves, gown and face shield) when collecting the samples
- Swab the lesion vigorously, to ensure adequate viral DNA is collected
- The swabs should be placed in viral transport media (VTM). Two lesions of the same type should be collected in one single tube, preferably from different locations on the body and which differ in appearance
- Lesions, crusts and vesicular fluids should not be mixed in the same tube

Laboratory handling of samples from suspected and confirmed Mpox:

If a patient is suspected or confirmed for Mpox virus infection, testing to evaluate other illnesses on the clinical differential should continue while awaiting the Mpox testing results.

- **For suspected cases:**

- Standard biosafety precautions should be taken ALWAYS
- Conduct risk assessment for each procedure and take appropriate measures for mitigation
- For routine testing of blood samples from suspected or confirmed Mpox cases (for example for biochemistry or hematology), standard clinical laboratory precautions can be followed.
- Potentially infectious material, where there is a risk of generating aerosols (such centrifugation and vortexing), droplets or splashes, must be performed within a microbiological safety cabinet (Class II BSC) and use sealed centrifuge rotors or cups and should be loaded and unloaded in BSCs.
- Use appropriate PPE, including gloves, mask, and lab coat
- All samples for Mpox testing (lesions) should be directed to CPHL and should not be manipulated at the local hospital

- **For confirmed cases**

- Samples from confirmed and highly probable Mpox cases should be labelled appropriately so that laboratories can ensure that they are handled correctly with the necessary additional precautions as outlined above
- For routine testing of blood samples from suspected or confirmed Mpox cases (for example for biochemistry or haematology), standard clinical laboratory precautions can be followed, but aerosol generating procedures should be avoided
- The quantity of orthopoxvirus in clinical specimens, such as blood and body fluids, is likely low. Take standard universal precautions to protect against potential infectious agents in any specimen
- The risk of infection from these samples is less than that for hepatitis B or any other similar organism

Transport of samples to CPHL

- Use triple packing
- Ensure proper labelling for suspected and confirmed cases

Specimen Storage:

Transport samples to CPHL as soon as possible. If delay in transportation samples is expected then:

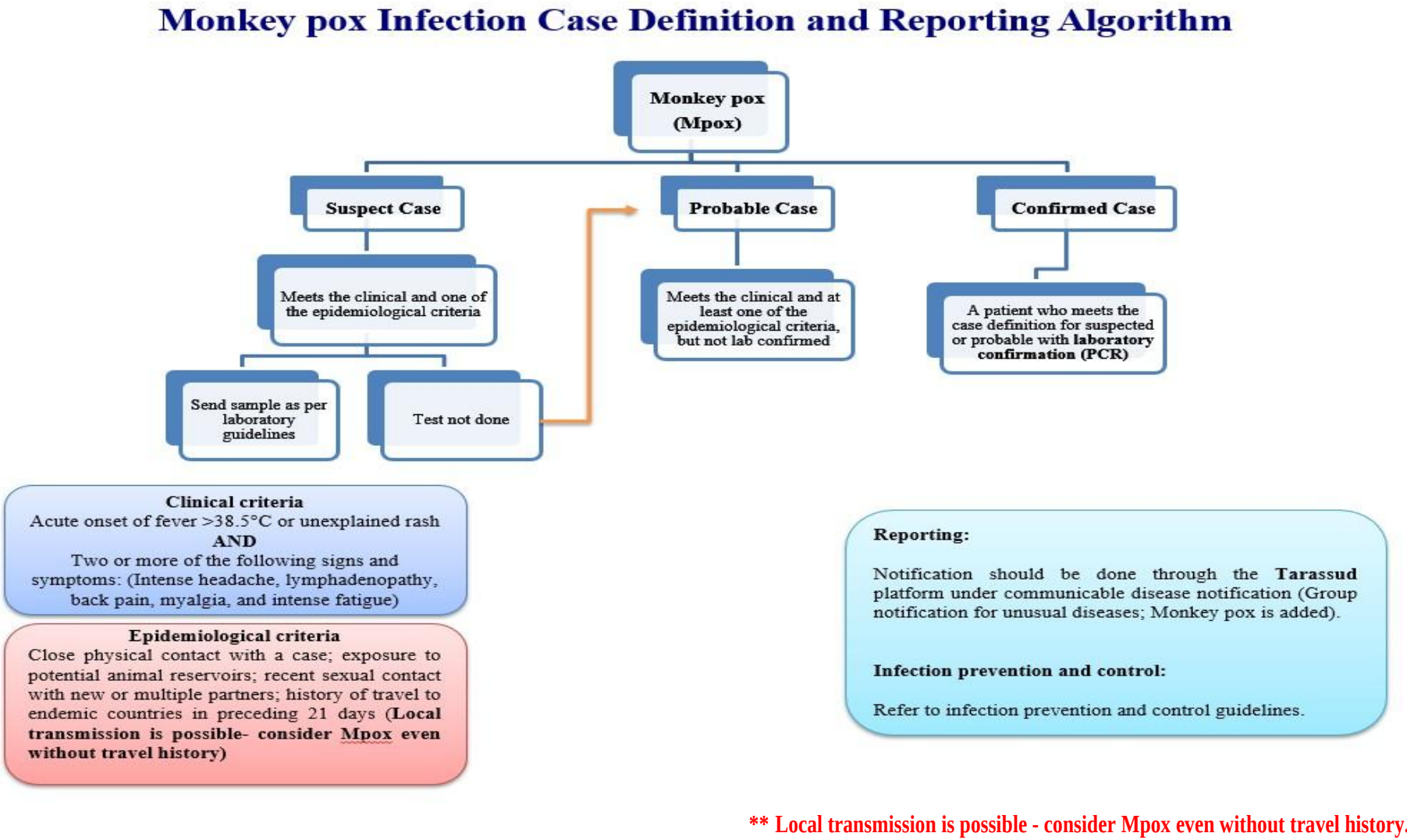
- Refrigerate (2–8 °C) or freeze (-20 °C or lower) within 1 hour of collection
- Store -20°C or lower after 7 days

Waste Disposal

Standard protocols for disinfection and waste disposal should be applied.

Surveillance and reporting

The case definition and reporting algorithm for Mpox cases is shown in the flowchart below.



** Local transmission is possible - consider Mpox even without travel history.

Contact Tracing

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 Mpox:

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

As soon as a suspected case is identified

- Contact identification, and contact tracing should be initiated and listed.
- Contacts should be notified within 24 hours of identification.
- Contacts should be monitored at least daily for the onset of signs/symptoms for a period of 21 days from the last contact with a patient in the infectious period.

Management of Monkey pox exposure at the community

People with Mpox remain isolated at home or at another location for the duration of illness, but that might not be possible in all situations. People with Mpox should follow these recommendations until Mpox infection has resolved:

- Friends, family or others without an essential need to be in the home should not visit.
- Avoid close contact with others.
- Avoid close contact with pets in the home and other animals.
- Do not engage in sexual activity. Confirmed case of Mpox should abstain from sex for 12 weeks after cure.
- Do not share potentially contaminated items, such as bed linens, clothing, towels, wash cloths, drinking glasses or eating utensils.
- Routinely clean and disinfect commonly touched surfaces and items
- Bathroom usage:
    - If possible, use a separate bathroom if there are others who live in the same household.
    - If there is not a separate bathroom in the home, the patient should clean and disinfect surfaces such as counters, toilet seats, faucets.
- Limit exposure to others:
    - Avoid contact with unaffected individuals until the rash has resolved, the scabs have fallen off, and a fresh layer of intact skin has formed.
    - Isolate in a room or area separate from other household members and pets when possible.
    - Limit use of spaces, items, and food that are shared with other household members.
    - Do not share dishes and other eating utensils. It is not necessary for the infected person to use separate utensils if properly washed. Wash soiled dishes and eating utensils in a dishwasher or by hand with warm water and soap.
- Limit contamination within household:
    - Try to avoid contaminating upholstered furniture and other porous materials that cannot be laundered by placing cover sheets, waterproof mattress covers, blankets, or tarps over these surfaces.
    - Additional precautions such as steam cleaning can be considered if there is concern about contamination.
- Considerations for isolating with animals in the home:

- People with Mpox should avoid contact with animals
    - If possible, friends or family members should care for healthy animals until the owner has fully recovered.
    - Keep any potentially infectious bandages, textiles (such as clothes, bedding) and other items away from pets, other domestic animals, and wildlife.
- If you notice an animal that had contact with an infected person appears sick (such as lethargy, lack of appetite, coughing, bloating, nasal or eye secretions or crust, fever, rash) contact the municipality

Risk exposure assessment and management for community

Risk exposure assessment and management for community is same as mentioned earlier in points 9 and 10 for HCWs

Home isolation measures:

- Stay home and isolate until all symptoms are resolved, all lesions have healed, scabs have fallen off, and no new skin lesions formed.
- Preferably stay in a separate room with a dedicated bathroom. If sharing, clean and disinfect the bathroom after each use.
- If you must leave your room or visit a healthcare provider for an emergency, cover any lesions, wear a surgical mask, and avoid crowded areas and waiting rooms.
- Wash hands frequently with soap and water for at least 20 seconds, especially after touching skin lesions. Alternatively, use hand sanitizer with at least 60% alcohol.
- Avoid Close Contact with other people in the home, especially children, pregnant/breastfeeding women, immunosuppressed individuals, and those with eczema.
- Avoid hugging, kissing, or having close conversations with others.
- Do not use contact lenses to prevent spreading the infection to your eyes.
- Avoid shaving areas of the body with blisters or lesions to prevent virus spread.
- Abstain from all sexual activity until symptoms are fully resolved.
- Wash bedding, towels, and clothing with warm water and detergent. Do not shake soiled laundry to avoid spreading infectious particles.
- Clean and disinfect items that have been worn or handled, as well as surfaces that have been touched by a lesions.
- Do not share dishes and other eating utensils. Wash them with warm water and soap

Infection Prevention and Control of Monkey pox in Healthcare Settings

Mpox is believed to be transmitted between humans via respiratory droplet and direct/indirect contact with materials contaminated with the virus (e.g., clothing, bedding). When handling a suspected or confirmed Mpox patients, the healthcare facilities should adhere to the following measures;

1. Administrative Interventions:

Health care facilities should observe and ensure that the facility is prepared for managing suspected/confirmed cases with Mpox including the following:

- ED and outpatient departments should implement infectious diseases triage (Reference to triage guideline; https://www.moh.gov.om/documents/236878/4743006/Triage-IPC- Guideline.pdf/8ba5fdc6-197d-e784-de43-45d1ab05d207)
- Health care workers should be aware of the signs and symptoms of Mpox and are encouraged to apply them to hospital visitors for early detection and isolation
- Use of signage to remind HCWs of the signs and symptoms
- Patients who are identified as suspected cases of Mpox must be placed in a single isolation room
- The case definition and algorithm issued by the MoH is available and disseminated to all HCWs and training on cases recognition provided especially for triage staff
- Visitors restriction should be applied for suspected/confirmed cases

2. Transmission Precautions:

- Apply standard precautions for all patients:
- Strict adherence to standard precautions should be applied for all patient care assumes that every person coming to the facility is a risk for infection transmission, includes:
  - ✓ Perform hand hygiene according to WHO five moments
  - ✓ Use of PPEs according risk exposure
  - ✓ Respiratory hygiene (cough etiquette)
  - ✓ Aseptic technique
  - ✓ Environmental cleaning and disinfection
- Transmission-based precautions for suspected/confirmed Mpox:
- Adhere to transmission-based precautions in addition to the standard precautions:
  Airborne & contact precautions: Should be implemented for suspected/confirmed Mpox patients

3. Patient Placement

Place suspected or confirmed Mpox patients as follows:

- A patient must be placed in a single isolation room with a dedicated toilet facility
- When single rooms are not available, cohort confirmed patients together ensuring at least 1.5 meters between beds and there is a dedicated toilet facility, DON'T cohort the suspected cases as this may facilitate the transmission of infection
- Put visible and clear isolation sign for all HCWs, patients and visitors
- Ensure availability of PPE at the entrance of the isolation room
- Use either disposable or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers).
- Use the log sheet for all persons who enter the isolation room

4. Personal Protective Equipment (PPE) for Health Care Workers (HCWs):

Personal protective equipment should be donned in an ante room before entering the patient's room and should be used for all patient contact.

The following PPE to be used by HCWs upon entry into patient rooms or care areas in the respected order:

- ✓ Gowns (clean, non-sterile, long-sleeved disposable gown)
- ✓ Eye protection (i.e., goggles or a face shield that covers the front and sides of the face)
- ✓ Gloves
- ✓ NIOSH-approved particulate respirator equipped with N95 filters or higher e.g PAPR

Remove PPE at the doorway or in the anteroom except for the N95 mask, after leaving the patient room and closing the door

PPEs to be removed and discarded in sequence:

- ✓ Gloves
- ✓ Goggles or face shield
- ✓ Gown
- ✓ Respirator and perform HH after each step of doffing

5. Patient Transport:

Avoid the movement and transport of patients out of the isolation room or area unless medically necessary. The use of designated portable X-ray, ultrasound, echocardiogram and other important diagnostic machines when possible. If transport within or outside the facility is unavoidable, the following to be observed;

- Notify the receiving area about the case to allow them to take the proper precautions prior to patient arrival.
- Use well-fitting source control (e.g., medical mask) and have any exposed skin lesions covered with a sheet or gown
- Ensure that the staff assisting with the transfer wear appropriate PPE (i.e. gloves, gown, and mask)
- Avoid moving patient through high patient flow or public access areas

6. Environmental Cleaning and Disinfection

- Housekeepers should wear appropriate PPEs when cleaning rooms of patients (surgical mask, gloves, long-sleeved gown)
- Keep areas around the patient free of unnecessary supplies and equipment to facilitate the daily cleaning
- Cleaning and disinfection of the environmental surfaces should be with approved MOH disinfectant, (e.g; Virex II- dilution 1ml in 256 ml H2O and Cavicides -with no dilution) with consideration to the contact time in accordance with manufacturer's instructions for environmental surface disinfection.
- The patient isolation room or cohort area to be cleaned and disinfected three times per day
- Focus on high touched surfaces (e.g., bedrails, bedside and over-bed tables, TV control, call button, telephone, doorknobs, commodes, ventilator and electronic monitor) in addition to floors and other horizontal surfaces.

7. Textiles (Linen and Laundry)

- Place soiled linen in a water-soluble bag then into a red hamper bag for transport to the laundry as per national guidelines
- Contain linen in a manner that prevents the linen bag from opening or bursting during transport and in the holding area
- Wear gloves, surgical mask and gown when directly handling soiled linen and textile
- Do not shake or handle soiled linen in a manner that might aerosolize infectious particles,
- Wash and dry linen as per the MoH Laundry Services Policy

8. Waste Management

Waste generated inside the patient's room with Mpox should be placed inside the infectious waste sealed container and transported offsite in triple containers (yellow plastic bag, sealed impervious hard container and dedicated yellow waste trolley)

9. Level of HCW's exposure:

Criteria for categorizing the level of exposure of HCW's and recommendation are shown in the table below:

Level of exposure	Criteria	Recommendation
High	· Unprotected contact between an exposed individual's broken skin or mucous membranes and the skin lesions or bodily fluids from a patient with Mpox (e.g., inadvertent splashes of patient saliva to the eyes or mouth of a person), or soiled materials (e.g., linens, clothing) · Being inside the patient's room or within 6 feet of a patient with Mpox during any medical procedures that may create aerosols from oral secretions (e.g., cardiopulmonary resuscitation, intubation)	· No need to exclude from work if asymptomatic · Active surveillance for symptoms, which includes measurement of temperature at least twice daily for 21 days following the exposure. · Prior to reporting for work each day, the healthcare worker should be interviewed regarding evidence of fever or rash.
Intermediate	· Being within 6 feet for a total of 3 hours or more (cumulative) of an unmasked patient with Mpox without respirator · Unprotected contact between an exposed individual's intact skin and the skin lesions or bodily fluids from a patient with Mpox, or soiled materials (e.g., linens, clothing) · Activities resulting in contact between an exposed individual's clothing and the patient with Mpox's skin lesions or bodily fluids, or their soiled materials (e.g., during turning, bathing, or assisting with transfer) while not wearing a gown	· No need to exclude from work if asymptomatic · Active surveillance for symptoms, which includes measurement of temperature at least twice daily for 21 days following the exposure. · Prior to reporting for work each day, the healthcare worker should be interviewed regarding evidence of fever or rash
Low	· Entry into the contaminated room or patient care area of a patient with Mpox wearing PPE	· No need to exclude from work if asymptomatic · Self-reporting if developed any symptoms

10. Monitoring Exposed Healthcare workers:

Any healthcare worker who has cared for a Mpox patient should be alert to the development of symptoms that could suggest Mpox infection, especially within the 21 day period after the last date of care, and should notify infection control and occupational health, to be guided about a medical evaluation.
Symptoms of concern include:

- ✓ Fever ≥ (38°C)
- ✓ Headache
- ✓ Myalgia/fatigue
- ✓ Lymphadenopathy
- ✓ Unexplained skin rash

11. When to use work restrictions in HCP

If symptoms develop, HCP should be managed as described below. If Mpox infection is ruled out, they may still have work restrictions recommended if their diagnosis is one where restriction from work is recommended (e.g., varicella). During the 21-day monitoring period; if a rash occurs, HCP should be excluded from work until the results of testing is negative.

If other symptoms are present, but there is no rash, HCP should:

- Be excluded from work for 5 days after the development of any new symptom, even if this 5-day period extends beyond the original 21-day monitoring period.
- If 5 days have passed without the development of any new symptom and a thorough skin examination reveals no skin changes, HCP could return to work with permission from their occupational health program.

As a precaution, HCP with exposures to Mpox should not donate blood, cells, tissue, breast milk, or semen while they are being monitored for symptoms. HCP with confirmed Mpox infection should be excluded from work until all lesions have crusted, those crusts have separated, and a fresh layer of healthy skin has formed underneath. Ultimately, the decision on when to return to work will be made with their occupational health program, and potentially with input from public health authorities.

12. Visitors

Visitors to patients with Mpox infection should be limited to those essential for the patient's care and wellbeing (e.g., parents of a child).

Decisions about who might visit, including whether the visitor stays or sleeps in the room with the patient, typically take into consideration the patient's age, the patient's ability to advocate for themselves, ability of the visitor to adhere to infection prevention and control recommendations, whether the visitor already had higher risk exposure to the patient, and other aspects. In general, visitors with contagious diseases should not be visiting patients in healthcare settings to minimise the risk of transmission to others.

13. Duration of Isolation Procedures

For patients with Mpox, isolation precautions in healthcare facilities/ home settings should be continued until all lesions have resolved and a fresh layer of skin has formed. Decisions regarding discontinuation of isolation precautions should be made in consultation with the infection control/infectious disease doctor.

Reference

1. WHO, Considerations related to clinical management and infection prevention and control in health care settings, https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON385

2. WHO Laboratory testing for the monkeypox virus: Interim guidance. May 2022

3. CPHL Handbook 2023

4. UK Health Security Agency. Mpox: diagnostic testing https://www.gov.uk/guidance/monkeypox-diagnostic-testing#information-for-laboratories-handling-samples-potentially-

5. CDC, Infection Prevention and Control of Monkey pox in Healthcare Settings, https://www.cdc.gov/monkeypox/hcp/infection-control/healthcare-settings.html