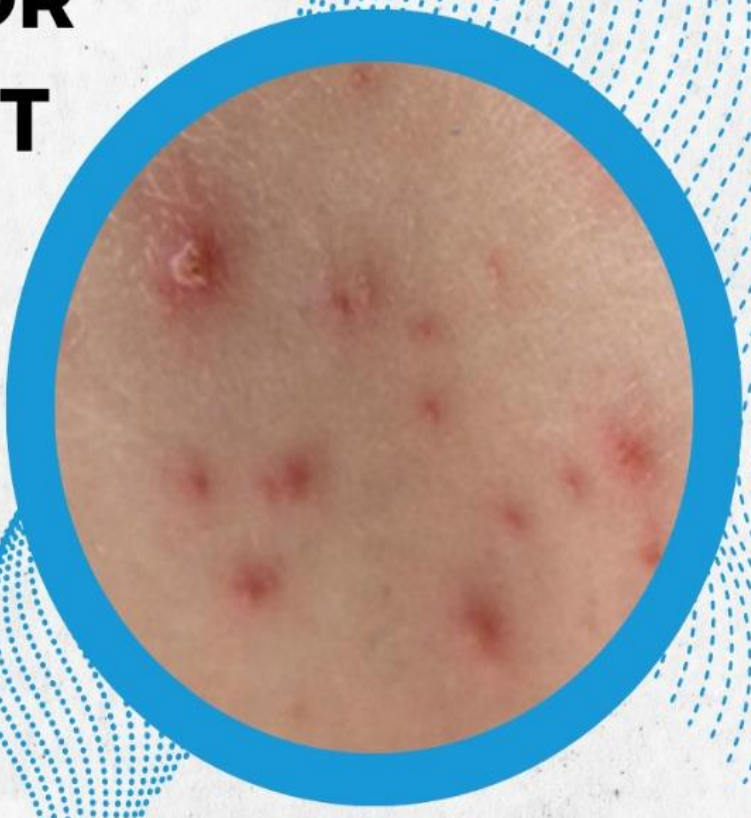
NATIONAL GUIDELINE FOR MANAGEMENT OF MPOX



2nd Edition
September 2024

DEPARTMENT OF PUBLIC HEALTH
MINISTRY OF HEALTH

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for
Management of Mpox

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Acknowledgements

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This Guideline was endorsed by the MoH's Technical Advisory Group (TAG) for Mpox during the 4th TAG meeting held on 26 September 2024.

1. Background

Mpox, formerly known as monkeypox is a viral illness and a zoonotic disease caused by the monkeypox virus, a species of the genus Orthopoxvirus. The genus *Orthopoxvirus* has 12 species which include variola virus (cause of smallpox), vaccinia virus (used in the smallpox vaccine), cowpox virus and other species that cause infection in animals. Mpox was first reported in laboratory monkeys in 1958 and subsequently, it was first detected in humans in 1970 in the Democratic Republic of the Congo (DRC).

In 2022, the WHO recommended updating its name to "Mpox" to reduce stigma and association with monkeys, as the disease can also infect rodents and humans. Mpox virus variants are referred to as clades. There are two different types of clades (variants), clade I and clade II. Clade 1 has been circulating in the DRC for years while clade 2 was responsible for the global outbreak of 2022 which was declared a public health emergency of international concern (PHEIC) in July 2022. It was subsequently declared over in May 2023 after a sustained decline in global cases. Clade 1b virus in the DRC last year was caused “mainly through sexual networks. This clade is reportedly deadlier and more easily transmitted from person to person.

2. Global Epidemiological Situation

Over 123 countries have reported Mpox cases between January 2022 and August 2024. As of 31 August 2024, a total of 106, 310 laboratory-confirmed cases including 234 deaths have been reported to WHO. For July 2024, the number of monthly reported new cases has increased by 11.3%, compared to the previous month. The majority of cases reported in the past month were notified from the African Region (54.3%) and the Region of the Americas (23.1%).

In recent weeks, there has been an unprecedented increase in the number of Mpox cases and outbreaks in the WHO African Region. As of August 2024, the epidemic curves suggest that the outbreak continues at a low level of transmission in the WHO Region of the Americas, European Region, the Western Pacific, and the South-East Asian Region (Figure1).

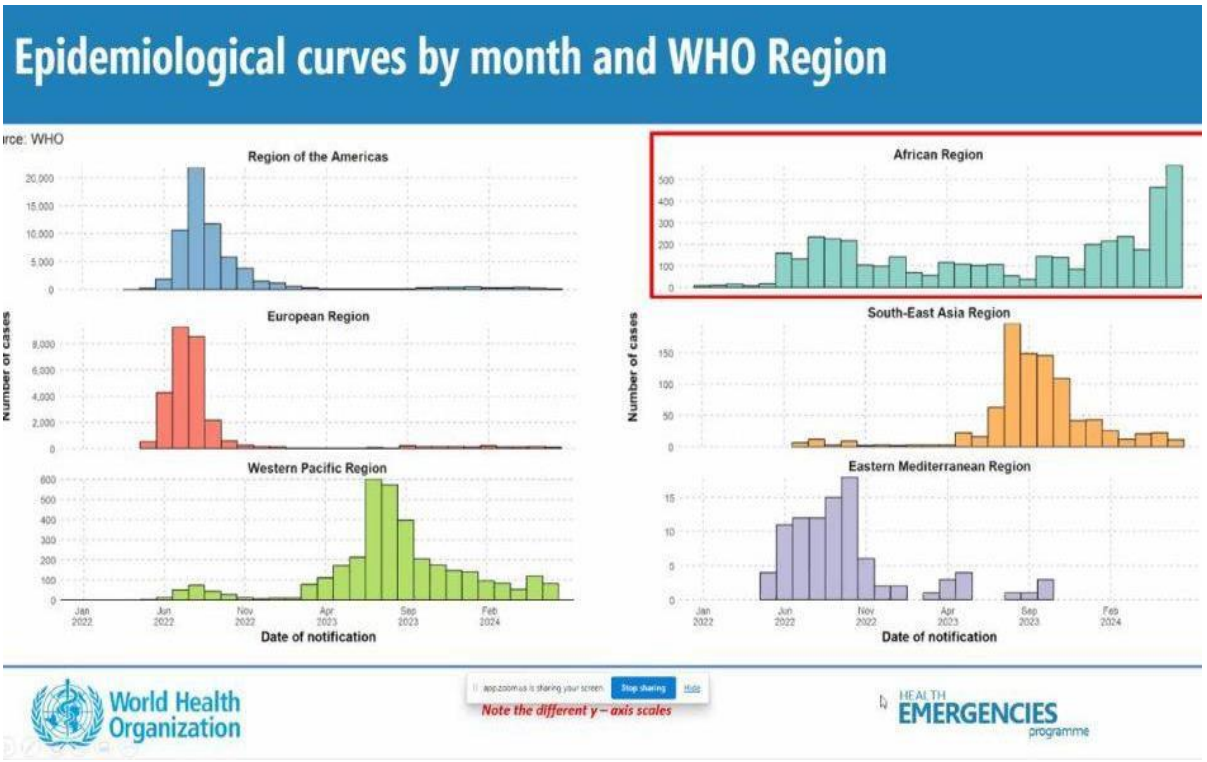


Figure 1. Epidemiological curves by month and WHO region. Source: 1st extraordinary meeting of the Standing Committee on Health Emergency Prevention, Preparedness and Response (SCHEPPR SS1).

Mpox has been reported in the DRC for over a decade, and the number of cases reported each year has steadily increased during that time. As of August 2024, there are more than 15,600 reported cases and 537 deaths in the DRC (WHO). Experts believe the true number of cases to be higher as a large proportion of clinically compatible cases have not been tested. Burundi, Kenya, Rwanda, and Uganda have each reported their first cases of Mpox this year. Cases have been linked to eastern parts of the DRC, and the presence of clade Ib Mpox has been confirmed.

3. Declaration of Mpox as PHEIC

In the first week of August 2024, the Africa CDC reported that Mpox cases (both clades) have now been detected in at least 13 African countries. Compared with the same period last year, the agency said cases are up 160 % and deaths have increased by 19%. So far, more than 96% of cases have been reported in DRC Congo. Owing to an upsurge of Mpox in the DRC and a growing number of countries in Africa, WHO's DG Dr Tedros Adhanom Ghebreyesus declared Mpox as a public health emergency of international concern (PHEIC) under the International Health Regulations (IHR) 2005 on August 14, 2024.

This declaration, the second in just two years related to Mpox, underscores the severe nature of the current situation and the urgent need for coordinated international action.

4. Epidemiological Situation in the Region

In the WHO South-East Asia Region, a total of 942 laboratory-confirmed Mpox cases, including 11 deaths, have been reported since 14 July 2022 (Figure 5). The cases are reported in India, Indonesia, Nepal, Sri Lanka and Thailand. All deaths were reported from Thailand. It is believed that the prominent strain of Mpox virus in these countries is Clade 2, which is less severe compared to the Clade 1 strain found in Central Africa. As of September 23, 2024, both India[1] and Thailand[2] have each reported a confirmed case of Mpox Clade 1b.

Bhutan is considered non-endemic for Mpox but there is a risk of transmission due to importation through travelers as the outbreak of Mpox spreads across countries. As of September 27, 2024, Bhutan has not reported any cases of Mpox. However, we must remain vigilant and prepared given the increasing and rapid geographical spread of Mpox cases in non-endemic countries.

5. Key Epidemiological Features

Mpox is considered endemic to countries in Central and West Africa. Most reported cases have been in the DRC. Since 2016, confirmed cases have also been reported in Sierra Leone, Liberia, the Central African Republic, the Republic of the Congo, and Nigeria, which has experienced the largest recent outbreak. A recent increase in incidence is thought to be due to the cessation of smallpox vaccination in 1980. People who have received smallpox vaccine, even >25 years prior, are at reduced risk of monkey-pox. Cases of Mpox in Africa are also increasing because people are encroaching into the habitats of animals that carry the virus.

5.1. Causative Agent: Mpox virus (MPXV) is an enveloped double-stranded DNA virus that belongs to the Orthopoxvirus genus of the Poxviridae family. There are two distinct genetic clades of the MPXV - the Central African (Congo Basin) clade and the West African clade (Figure 2). The Congo Basin clade has historically caused more severe disease and was thought to be more transmissible. The geographical division between the two clades has so far been in Cameroon - the only country where both virus clades have been found. Poxviruses are pleomorphic, generally brick-shaped viruses.

[1] https://www.reuters.com/world/india/india-reports-first-case-mpox-clade-1-strain-ani-says-2024-09-23/
[2] https://www.bbc.com/news/articles/czrgpg127zgo

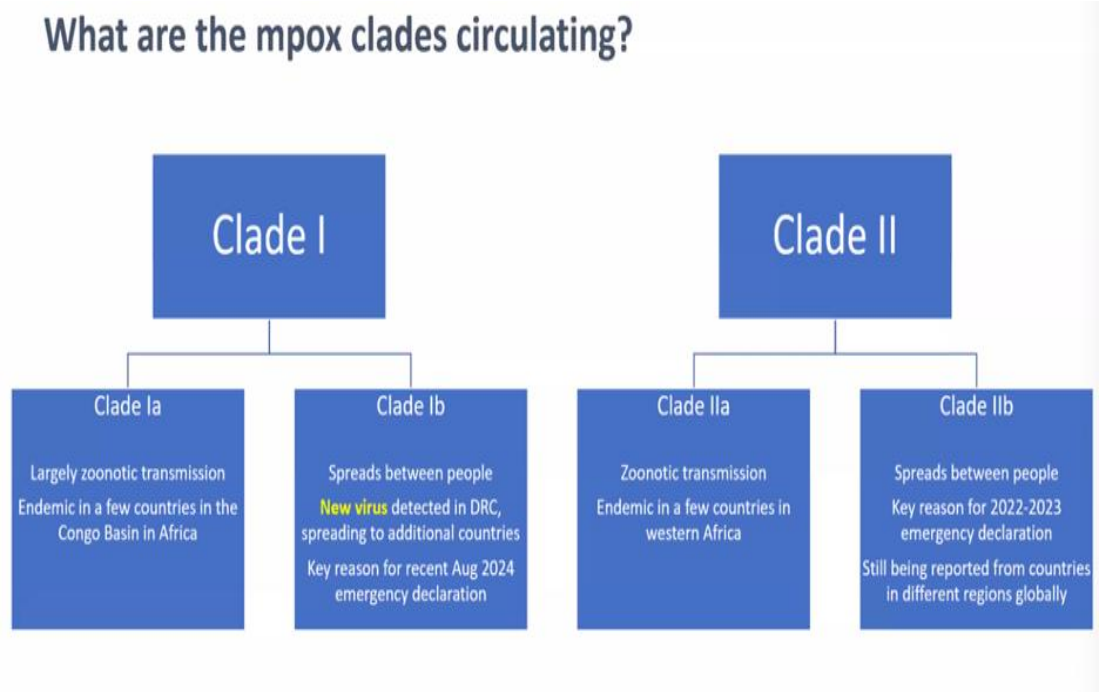


Figure 2. Mpox and its classifications of clades

5.2. Host: The natural reservoir of the Mpox virus is not yet well established. However, certain rodents (including rope squirrels, tree squirrels, Gambian pouched rats, and dormice) and non-human primates are known to be naturally susceptible to monkeypox virus.

5.3. Incubation period: The incubation period (interval from infection to onset of symptoms) of monkeypox can range from 1 to 21 days (WHO).

5.4. Period of communicability: A person with Mpox can spread it to others from the time symptoms start until the rash has fully healed and a fresh layer of skin has formed.

5.5. Mode of transmission

Mpox is transmitted to humans through close contact with a person with Mpox, an infected animal (in historically endemic areas only), or with material contaminated with the virus.

It can be transmitted:

a) **From person to person**

Human-to-human transmission of Mpox can occur through direct contact with infectious lesions of the skin or mucous membranes or body fluids from those lesions. This includes contact which is:

- **Face-to-face** (talking or breathing while close to someone with Mpox)
- **Skin-to-skin** (touching or vaginal/anal sex)
- **Mouth-to-mouth** (kissing)
- **Mouth-to-skin contact** (kissing or oral sex)
- **Respiratory droplets** (talking or breathing close to one another)

The virus may enter the body through broken skin, mucosal surfaces (e.g. mouth, throat, eyes, genital, rectal), or via the respiratory tract (e.g. nose, mouth, throat) either by direct contact with respiratory secretions or through the air when close to someone with Mpox.

b) **From infected animals**: 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.

c) **From contaminated materials**: such as sheets, towels, clothes or needles
d) **During pregnancy or birth**: The virus can cross the placenta causing intrauterine exposure of the fetus. It can result in stillbirth and congenital infections of the infant.

6. Transmissibility and severity

- The overall secondary attack rate following contact with a known human source is 3%, and attack rates up to 50% have been reported in people living with a Mpox-infected person.
- Transmission in hospital settings has also been documented.
- Self-limiting disease but can be severe in children, pregnant women and immune-suppressed person
- In African countries, case fatality rate ranges from 4 to 22%.

7. National Outbreak Staging of Mpox Preparedness & Response

The National Outbreak Staging for Mpox is a systematic framework designed to guide preparedness and response efforts in the event of potential Mpox outbreaks. This staged approach enables rapid and effective responses based on the epidemiological situation in the country, ensuring that MoH can implement timely interventions.

The outbreak staging is divided into four levels (Figure 3):

- **Green** (No confirmed cases):
  Mpox outbreak is limited to a few countries, with no confirmed cases in Bhutan. The focus is on maintaining vigilance through surveillance and preparedness measures.
- **Yellow** (Outbreak in neighbouring countries):
  No confirmed cases in Bhutan, but Mpox is reported in neighbouring countries. Active surveillance is intensified at POEs, and health facilities are on heightened alert for suspected cases.
- **Orange** (Isolated confirmed cases):
  One or more confirmed Mpox cases are reported in Bhutan but without evidence of secondary transmission. Response measures such as case isolation, contact tracing, quarantine and risk communication are activated.
- **Red** (Community transmission):
  There is evidence of local outbreak with community transmission in Bhutan. Full-scale outbreak response is activated, including resource mobilization, healthcare surge capacity, and intensified containment measures.

This staging system helps ensure that appropriate public health interventions are deployed at each stage, minimizing the impact of Mpox on public health and ensuring the safety and wellbeing of the population. Detailed plan in each staging is given in Annexure 1.

Phases / Parameters	Green	Yellow	Orange	Red
Mpox situation	No confirmed cases in Bhutan and Mpox outbreak is limited to a few countries (subject to risk assessment)	No confirmed cases in Bhutan but Mpox outbreaks is reported in the neighbouring countries (subject to risk assessment)	One or more isolated confirmed cases in Bhutan without secondary transmission.	Local outbreaks with community transmission in the country.
Impact on daily lives and the economy	No disruptions at all	No disruption	Minimal disruption (isolation, quarantine, discouraging mass gathering in the affected area)	Moderate disruptions (may consider closure of affected schools or institutions, discourage mass gathering) May consider closure of borders (as per TAG/Task Force recommendation)

Figure 3. National Outbreak Staging of Mpox Preparedness & Response

8. Case definitions for surveillance[3]

Any suspected/probable or confirmed case of Mpox should be reported immediately through the NEWARS system to RCDC and DOPH by the health facility. The following case definitions are provided for surveillance purposes. These case definitions will be updated and revised based on the evolving disease situation and outbreak staging.

8.1. Suspected case:

A person of any age with a travel history to affected ***(active-outbreak)*** *countries within the last 21 days who presents with unexplained rash* ***and/or*** *fever* ***with or without*** *any of the following signs and symptoms:*

- *Headache*
- *Lymphadenopathy (swollen lymph nodes)*
- *Myalgia (muscle pain/body aches)*
- *Back pain*
- *Asthenia (profound weakness)*

AND for which the following common causes of acute rash do not explain the above clinical picture: *varicella zoster, herpes zoster, measles, herpes simplex, bacterial skin infections, disseminated gonococcal infection, primary or secondary syphilis, chancroid, lymphogranuloma venereum, granuloma inguinale, molluscum contagiosum, allergic reaction* (e.g., to plants); and any other locally relevant common causes of papular or vesicular rash.

8.2. Confirmed case: A person meeting the definition of a suspected case and is laboratory confirmed for Mpox virus (MPXV) by detection of unique sequences of viral DNA either by real-time polymerase chain reaction (PCR) and/or sequencing.

[3] Subjected to change depending on evolving situation of Mpox in the country

9. Close Contacts

Close contact is defined as having direct contact with a confirmed Mpox case, starting from the onset of symptoms until the lesion scabs over. This includes physical contact with the patient's skin, clothing, or bodily fluids, or being **within one meter** of the patient during activities that generate droplets, such as medical procedures or handling contaminated materials. Close contact can also involve exposure to droplets from respiratory secretions, particularly if protective measures like masks are not used[4].

The following table will further help in defining the close contacts of Mpox.

Table 1. Close contacts of Mpox case and their definition (Adapted from the European CDC, 2022)

Type of contact	***Description***	***Definition***
Close Contact	Sexual partner	• Persons having any type of sexual contact with Mpox case from the onset of their rash (and/or prodrome symptoms)
	Household contact	• Person(s) living in the same household as the Mpox, or similar settings (eg. camping, overnight sleeping, etc) • Person(s) sharing clothing, bedding, utensils, etc with the diagnosed case • Caregivers of the Mpox case, from the onset to their rash (and/or prodrome symptoms)
	Health professionals	• Health personnel who came into contact with the Mpox case (lesions or prolonged face-to-face contact >3 hours and <2m distance) without appropriate PPE • Health personnel who suffered a sharps injury or were exposed to Mpox case body fluids or aerosol-generating procedures procedure without PPE • Laboratory staff suffering an occupational accident with virus-containing samples (splash, sharps injury, aerosol exposure, etc)
	Other prolonged physical or high-risk contact	• To be assessed on a case-by-case basis, but may include, among others, sitting adjacent to a confined case during prolonged travel (e.g. when physical contact with the case or with fomites may have occurred), sharing utensils or other equipment, or sharps injury linked to an Mpox

10. Clinical Features

Mpox causes signs and symptoms which usually begin within a week but can start 1–21 days after exposure. It is usually a self-limited disease with symptoms lasting from 2 to 4 weeks. While most people fully recover within several weeks, some people can become very sick.

Babies, young children, pregnant women and immunosuppressed people, including people with

[4] Referred from Department of Disease Control, MoPH, Thailand

untreated HIV and advanced HIV disease, are at higher risk of developing severe disease.

10.1. Signs and Symptoms

- Acute onset of fever (>38.0C)
- Headache
- Myalgia, back pain
- Asthenia
- Lymphadenopathy: Typically occurs with fever onset (Periauricular, axillary, cervical or inguinal - may be unilateral or bilateral)
- Rash

Typically, the prodromal phase lasts 1-5 days, when the patient may experience fever, headache, back pain, myalgias and lymphadenopathy. This is followed by the second phase which typically occurs after the fever subsides, with the appearance of skin and/or mucosal rash (Figure 4). The rash usually begins as a macule and progresses through specific sequential stages—papules, vesicles, pustules, and scabs. The lesion is usually deep-seated, well-circumscribed, in the same stage unlike varicella and often develops umbilication. Lesions are centrifugal and denser on the face, palms and soles. As the rash heals, the lesions dry up, crust over and fall off. They are often described as painful until the healing phase when they become itchy (in the crust stage). Some people may have one or a few skin lesions and others have hundreds or more. These can appear anywhere on the body including palms and soles, face, mouth, throat, groin and genitalia. This rash may last for 2 - 4 weeks. It may heal with scarring and pigmentary changes.

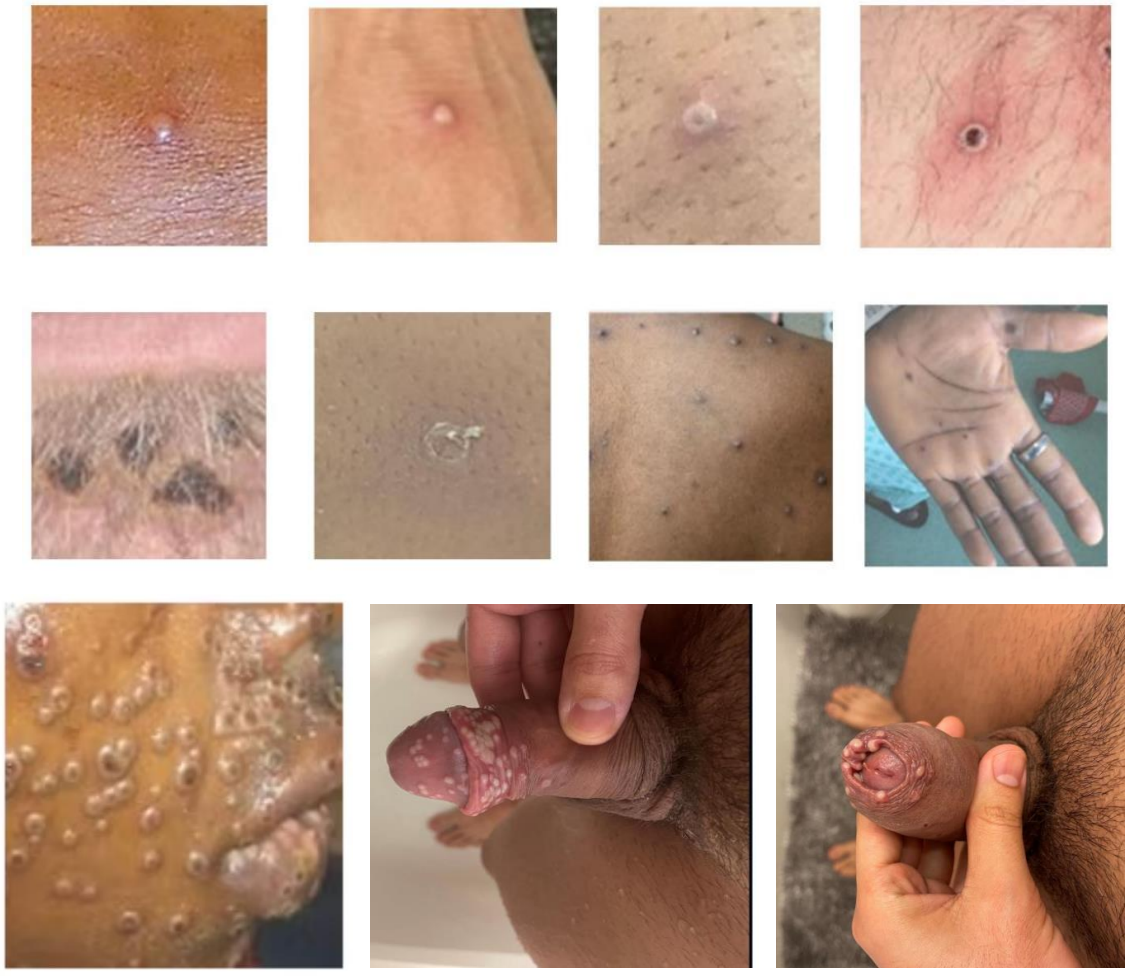


Figure 4: Images of skin lesions in Mpox.

10.2. Differential Diagnosis: Varicella (Chickenpox), disseminated herpes zoster, disseminated herpes simplex, measles, chancroid, secondary syphilis, hand-foot mouth disease, infectious mononucleosis, molluscum contagiosum.

11.Laboratory Diagnosis

11.1 Indications for testing

Appropriate laboratory samples should be collected from suspected Mpox patients and shipped to RCDC or the nearest PCR testing laboratory for real-time polymerase chain reaction (PCR) testing and confirmation (Refer to the **Interim Guidance for Mpox sample collection, storage, and shipment**). Any individual meeting the case definition outlined in Chapter 8 of this guideline should be considered for testing. The decision to test should be based on both clinical and epidemiological factors, linked to an assessment of the likelihood of infection. Due to the range of conditions that cause skin rashes and because clinical presentation may more often be atypical, it can be challenging to differentiate Mpox solely based on the clinical presentation, particularly for cases with an atypical presentation. It is therefore important to consider other potential causes of discrete skin lesions or a disseminated rash (E.g. infection of herpes simplex virus, varicella-zoster virus, molluscum contagiosum virus, enterovirus, measles, scabies, Treponema pallidum (syphilis), bacterial skin infections, medication allergies, parapoxviruses (causing ORF and related conditions) and chancroid.

11.2 Preferred Specimen

Skin lesion material is the recommended specimen type for the confirmation of Mpox virus. This includes swabs of lesion surface, exudates, or lesion crusts collected as per the following:

- Two (2) swabs from characteristic lesions from different locations in the body placed in a single container
- Roof (if recovered) should be placed in a separate container
- If sampled, scabs/crusts should be placed in a separate container

In addition to a lesion specimen, the collection of an oropharyngeal swab is encouraged especially for the people meeting the suspected case definition but with an absence of skin or mucosal lesions. However, data on the accuracy of this specimen type for diagnosis is limited for Mpox, therefore a negative throat swab specimen should be interpreted with caution.

11.3 Packaging and shipment of clinical specimens.

Specimens should be refrigerated or frozen within an hour of collection and transported to the RCDC or the nearest PCR testing laboratory as soon as possible. All specimens being transported should have appropriate triple packaging (tightly sealed vacutainer, leakproof packaging of the vacutainer, an external packaging layer protecting the second layer from physical damage during transport), labelling and documentation.

11.4 Laboratory testing methods

MPXV testing should be conducted in appropriately equipped laboratories by personnel trained in relevant technical and biosafety procedures. Confirmation of MPXV infection is based on nucleic acid amplification testing (NAAT) using real-time PCR. PCR-confirmed specimens will be further shipped to WHO-designated reference laboratories for genomic sequencing, as genetic sequence data (GSD) can provide crucial insights into the virus's origins, epidemiology, and characteristics.

12.Clinical Management and Infection Prevention Control (IPC)

12.1.Screening

When a person of any age presenting with fever and or acute rash presents to a healthcare centre, they must be screened to assess if they meet the definition for a suspected case. Screening should be conducted by maintaining a distance of at least 1 meter from the patient and using a "no-touch" approach.

If they meet the case definition, the patient should be provided with a face mask and taken to a holding room for further assessment. Thus, medical masks and alcohol-based hand rub (ABHR) should be made available for patients in the screening and holding areas. The healthcare worker involved in assessing this patient must wear *appropriate PPE* and perform good hand hygiene.

A detailed clinical assessment/triage is done to identify signs and symptoms of severe or complicated disease and those at higher risk for severe disease (Figure 5). Simultaneously, samples should be obtained for RT-PCR confirmation and other routine tests (CBC, RFT, LFT, Albumin) to assess the severity of the disease.

- During the initial stage of local outbreaks when Mpox numbers are few, all confirmed cases will be managed at hospital-based isolation facility.
- Only during the Red Stage, the decision to isolate a patient must be made on a case-by-case basis. The chart below shall only serve as a guide in making decisions on patient isolation.
    - If a person does not meet any of the criteria of severe disease or high-risk group, individual will be advised to isolate themselves at home by the health professionals. They need to meet the criteria specified in the checklist for IPC conditions for home care (Figure 6). Ideally, patients isolated at home must be ambulatory, must be able to feed, bathe and dress themselves, have good food and water intake and require minimal to no assistance from a caregiver. It is preferable that the person facilitating the self-care of the patient at home is not from a high-risk group.
    - If a patient admitted to the health facility shows improvement on daily assessment and no longer meets the criteria for hospital admission, the treating clinician may decide to transition the patient to home isolation.

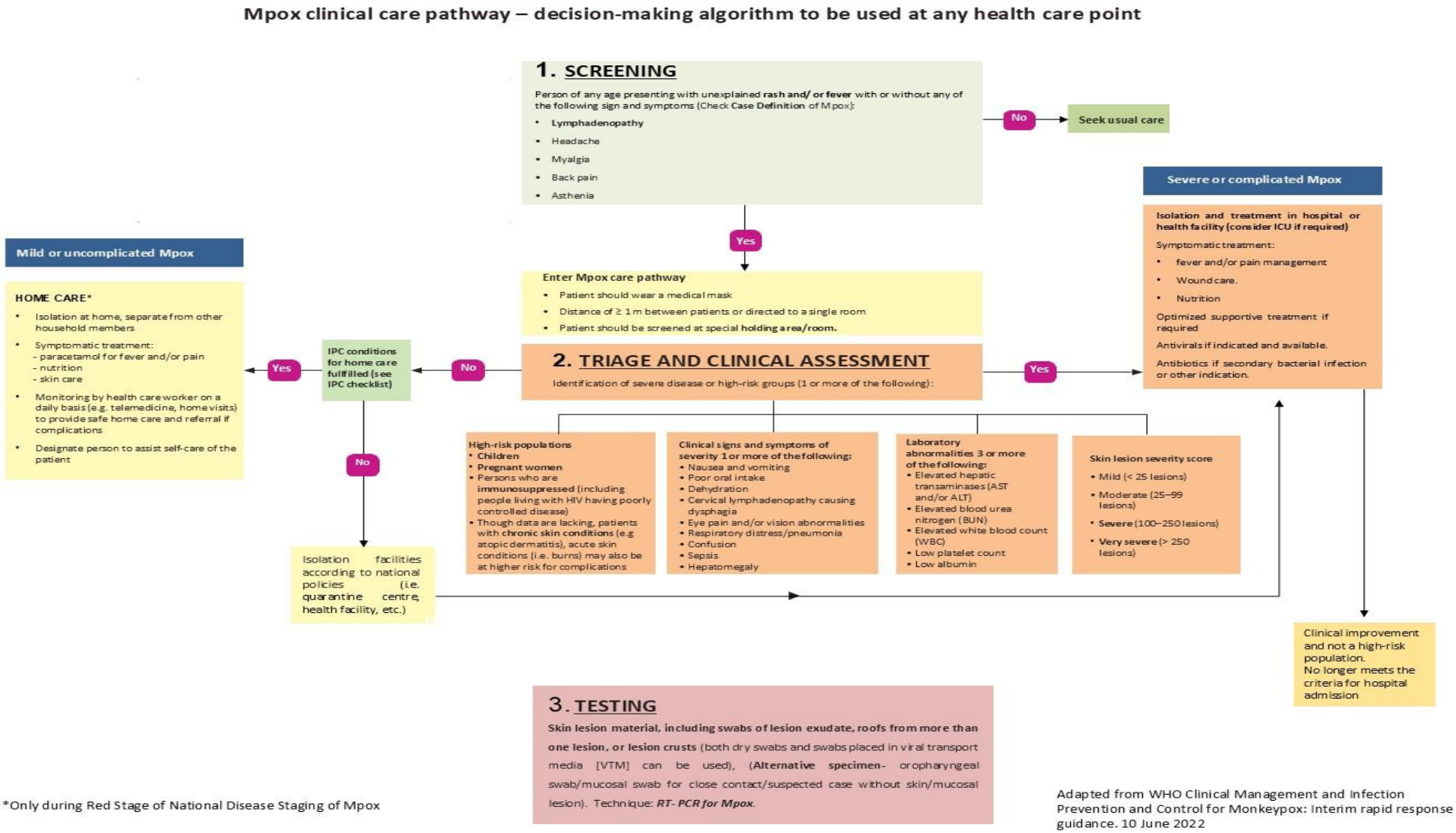
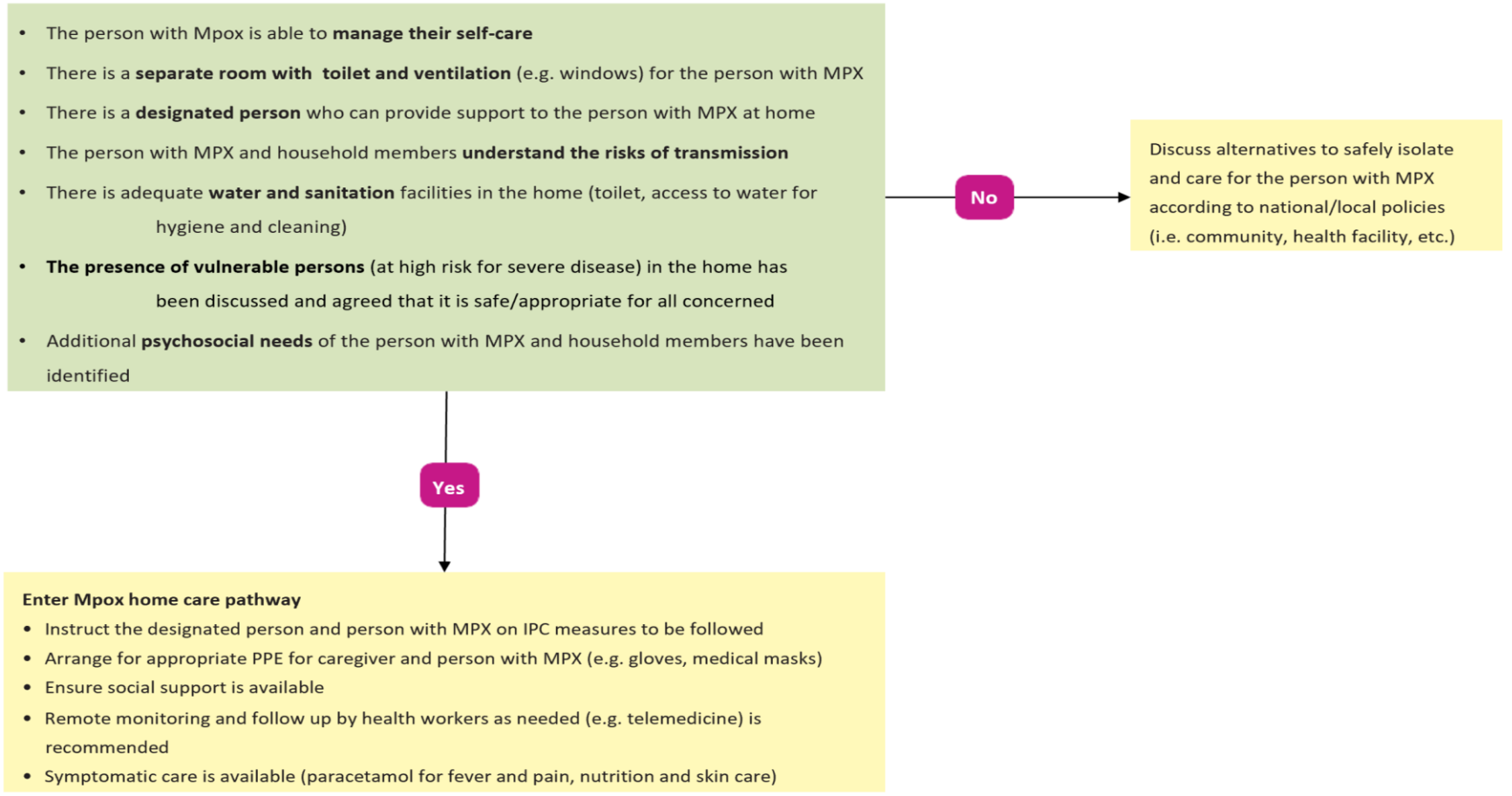


Figure 5: Mpox clinical care pathway- decision-making algorithm to be used at all health care centers.

Checklist for IPC conditions for home care in the management of persons with non-severe or uncomplicated Mpox to be implemented at first point of contact, either at health access point or remotely via telephone or telemedicine



*Adapted from WHO Clinical Management and Infection Prevention and Control for Monkeypox: Interim rapid response guidance. 10 June 2022

Figure 6: Checklist for IPC conditions for home care in the management of a person with uncomplicated Mpox

12.2. PPE For health care workers

The following are the recommended PPE to be used by healthcare workers:

- Gown (long sleeves)
- Gloves
- Respirator (N95)
- Eye protection (goggles or face shield)
- Plastic shoe cover and gumboot for supporting staff

12.3.Patient Isolation

11.3.1 When isolated at home:

- Isolate in a single-person room with a dedicated toilet and proper ventilation. The door should be kept closed.
- The patient should wear a medical mask and cover lesions with long sleeves, and pants when in the presence of others, such as during the visit by a healthcare care worker until the rash heals to minimize the risk of contact with others.
- Keep skin dry and uncovered when alone.
- Wash hands often with soap and water or hand sanitizer, especially before or after touching sores
- Designate one person (preferably someone in good health who is not in the high-risk group) to facilitate the self-care of the patient, such as preparing meals and providing water.
- If the designated person facilitating self-care needs to enter the patient's room, they should wear appropriate PPE (mask, gloves, and gown) and maintain a distance of at least 1 meter from the patient. They should avoid direct contact with the patient and ensure they clean their hands with soap and water or an alcohol-based hand sanitizer after any contact with the patient or the surrounding environment.
- Other household members should not enter the patient's room
- Do not share potentially contaminated items such as bed linens, clothing, towels and eating utensils.
- Try to avoid contaminating upholstered furniture and other porous materials that cannot be laundered by placing coversheets over these surfaces.
- Bedsheets and blankets should be carefully lifted and rolled. They should not be shaken in order to prevent the dispersion of infectious particles from the skin lesions.
- Only the patient should handle their clothes and linen. These should be washed separately from other household laundry.
- Routinely clean and disinfect commonly touched surfaces and items. If the patient has lesions on their hands, they should wear gloves while disinfecting surfaces and dispose of the gloves properly.
- Waste that is generated by the patient should be placed in strong bags and tied before disposal.
- Hand hygiene (use of an ABHR or washing with soap and water) should be practiced by the affected individuals after touching rashes, clothing, linens, or environmental surfaces that may have come in contact with rash materials.
- Avoid contact with pets
- **De-isolation:** Isolation should be continued until all lesions have crusted, those crusts have fallen off and a fresh layer of healthy skin has formed underneath (usually it takes two to four weeks for the lesion to heal completely). Repeat viral PCR swabs for de-isolation is not needed

11.3.2 When isolated at a health facility:

- Isolate the patient in a single-person room with a dedicated toilet/cohort depending upon the facility's isolation set-up. The door should be kept closed.
- Keep dedicated medical equipment for the patient's monitoring and testing purposes.
- Clean and disinfect routine touched surfaces and items. Cleaners should wear appropriate PPE and items must be discarded appropriately.
- Avoid contaminating upholstered furniture and other porous materials that cannot be laundered by placing cover sheets over these surfaces.
- The patient should wear a well-fitted surgical mask.
- Skin lesions should be covered as much as possible (e.g. long sleeves, long pants) to minimize the risk of contact with others.
- Keep skin dry and uncovered when alone.
- Hand hygiene (use of an ABHR or washing with soap and water) should be practised by the patient after touching rash materials, clothing, linens or environmental surfaces that may have come in contact with rash materials.
- Limit the movement of the patient outside the designated room to only medically essential purposes, following necessary precautionary measures.
- Visitors /bystanders should be restricted; however, the parents of an affected child should be considered.
- **De-isolation**: Isolation should be continued until all lesions have crusted, those crusts have fallen off and a fresh layer of healthy skin has formed underneath (Usually it takes two to four weeks for the lesion to heal completely). Repeat viral PCR swabs for de-isolation is not needed!
- **Linen Management:** Used linens will be disinfected with a 0.5% bleach solution in a designated bathroom within the ward, and then transported to the laundry unit for final processing.
- **Waste Management:** All waste generated within the isolation unit will be classified as infectious. It will be packed in a biohazard bag and transported for incineration.
- **Environment cleaning:** A 0.5% bleach solution should be used for cleaning and disinfecting surfaces. High-touch surfaces should be cleaned frequently.

12.4.Clinical management- Wound care

- Counsel the patient not to touch or scratch
- Lesions – gentle washing, keep lesions clean and dry
- Protect and hydrate the area with moist dressing like Vaseline gauze
- Rash should not be covered
- Monitor for secondary bacterial infections
- Complications of skin lesions (exfoliation or deeper soft tissue infections such as abscess, pyomyositis, necrotizing infection)
    - Incision and drainage
    - Wound care consultation
    - Surgical consultation

12.5.Clinical Management - Pain Management

- Pain from rash/lesions, swollen lymph nodes, and generalized muscle aches:
  Treatment: ibuprofen/paracetamol, tramadol, morphine
- Pruritis: Anti-histamines
- Oral lesions

- Rinse mouth with salt water at least 4 times a day
- Consider oral antiseptic
- Local anesthetic (viscous lidocaine)

- Genital/anorectal lesions
  - Warm saline sitz baths (warm baths made of water and baking soda or Epson salt)
  - Topical lidocaine
  - Stool softeners should be considered for patients with proctitis

12.6. Clinical management of severe cases

High-risk individuals: Many individuals infected with Mpox virus have a mild, self-limiting disease in the absence of specific therapy. However, the prognosis for Mpox depends on multiple factors such as previous vaccination status, initial health status, concurrent illnesses, and comorbidities among others. Following are persons who should be considered for treatment following consultation with experts:

- Persons with severe disease (e.g., hemorrhagic disease, confluent lesions, sepsis, encephalitis, or other conditions requiring hospitalization)
- Persons who may be at high risk of severe disease:
  - Persons with immunocompromised state (e.g., human immunodeficiency virus/acquired immune deficiency syndrome infection, leukemia, lymphoma, generalized malignancy, solid organ transplantation, therapy with alkylating agents, antimetabolites, radiation, tumor necrosis factor inhibitors, high-dose corticosteroids, being a recipient with hematopoietic stem cell transplant <24 months post-transplant or ≥24 months but with graft-versus-host disease or disease relapse, or having autoimmune disease with immunodeficiency as a clinical component).
  - Pediatric populations, particularly patients younger than 8 years of age.
  - Pregnant woman
  - Persons with one or more complications (e.g., secondary bacterial skin infection; gastroenteritis with severe nausea/vomiting, diarrhoea, or dehydration; bronchopneumonia; concurrent disease or other comorbidities).
  - Persons with Mpox virus aberrant infections that include its accidental implantation in
  - eyes, mouth, or other anatomical areas where monkey-pox virus infection might constitute a special hazard (e.g., the genitals or anus).

Complications:

- Secondary infections
- Pneumonia, sepsis, encephalitis
- Corneal involvement (may lead to loss of vision)
- Retropharyngeal abscess
- Vomiting/diarrhea
- Severe dehydration
- Electrolyte abnormalities
- Sepsis/septic shock
- Encephalitis

12.7.Additional treatment

- Currently, there is no specific treatment approved for Mpox viral infections. However, antivirals developed for use in patients with smallpox may prove beneficial.
- The following medical countermeasures are options for the treatment of monkeypox (CDC):
  - Tecovirimat (TPOXX) is FDA-approved solely for the treatment of smallpox. Although animal studies suggest that TPOXX might potentially be effective against the virus that causes mpox, research is ongoing to understand its efficacy and safety in treating mpox in humans. Currently, TPOXX is considered an experimental (investigational) drug and is still under evaluation in clinical trials for mpox. It is available only through the Study of Tecovirimat for Mpox (STOMP) clinical trial or the CDC's expanded access (compassionate use) program. Based on an initial analysis of data from a randomized, placebo-controlled trial, Tecovirimat did not reduce the duration of mpox lesions among children and adults with clade I mpox in the Democratic Republic of the Congo (DRC), however other trials are still ongoing.

  - **Tecovirimat Dosing**

Tecovirimat (Route)	**Adult dose**	**Pediatric dose**
Oral	600mg PO - every 12 hours x 14 days.	13–25 kg: 200 mg every 12 hours, 25–40 kg: 400 mg every 12 hours > 40 kg: 600 mg every 12 hours
Intravenous* (Must be administered over 6 hours)	- 3 to 35 kg: 6 mg/kg every 12 hours, - 35 kg to 120 kg: 200 mg every 12 hours, - > 120 kg: 300 mg every 12 hours . **(Must be administered over 6 hours)**	- 3 kg to 35 kg: 6 mg/kg every 12 hours, - 35 kg to 120 kg: 200 mg every 12 hours, - > 120 kg: 300 mg every 12 hours . **(Must be administered over 6 hours)**

12.8. Mental Health Psychosocial Response

WHO recommends assessment and prompt identification of anxiety and depressive symptoms amongst patients. Upon identification, they recommend initiating basic psychological support strategies and interventions such as cognitive behavioural therapy, relaxation techniques and sleep hygiene techniques. It is important to specifically ask about thoughts of self-harm, particularly when one is in isolation, away from family and friends. Remote mental health via telephone (telemedicine) should be considered when in-person access to health services is disrupted. If anxiety or depressive symptoms persist beyond recovery from Mpox, an underlying anxiety or depressive disorder should be suspected, and appropriate referrals must be made to a mental health professional.

Patients may experience psychological distress from the scars and disfigurement even after recovery from Mpox. Thus, psychological support services must be also made available for recovered patients. The PEMA will lead the mental health and psychosocial response services. The following are some of the actions proposed by The Pema:

National Level:

a. Helpline (1010- mental health and 1098 - violence)
b. Formation of National Mental Health Response Team
   - Psychiatrist, Clinical Counsellors, Protection Officer, Chief CECD, Chief RS (The PEMA) - Secretariat

Dzongkhag Level:

- CMO, Clinical Counsellor, School Counsellors, Outreach Workers, CSO (Volunteers/case managers), GCFP

Response Mechanism:

- For response services, SOPS will be developed for different mental health and psychosocial issues by the National Mental Health Response Team
- Train the Dzongkhag Team and frontliners on the implementation and response services
- The National Mental Health Response Team will provide monitoring and supervision to the Dzongkhag Team
- Data/information and documentation to be done by the secretariat
- Media and communication on self-care

Services:

- Counseling Services (online)
- Psychiatric Management
- Protection Services
- Referrals and linkages

List of proposed SOPs:

1. Screening of mental health issues
2. Telephonic Counseling
3. Psychiatric Management for Mental Disorders
4. Protection Services
5. Management of Suicidal Behaviors
6. Management of AUDs and SUDs
7. Referrals and linkages for cases

12.9.Vaccination

- Vaccines are limited and only available in a few countries WHO doesn't recommend mass vaccination at present.
- However, WHO recommends vaccine as a pre-exposure prophylaxis for people at high-risk of getting mpox, especially during an outbreak. Groups that may be at high risk of mpox include:
  - ❖ Health and care workers at risk of exposure
  - ❖ People in the same household or close community as someone who has mpox, including children
  - ❖ People who have multiple sex partners, including men who have sex with men
  - ❖ Sex workers of any gender and their clients.
- The vaccine can also be administered after a person has been in contact with someone who has mpox (post-exposure prophylaxis). In these cases, the vaccine should be given less than 4 days after contact with someone who has mpox. The vaccine can be given for up to 14 days if the person has not developed symptoms.

13. Surveillance

13.1. Mpox in NEWARS

Mpox was recently added as one of the notifiable diseases in the National Early Warning Alert Response Surveillance (NEWARS). The suspected Mpox cases compatible with clinical case definition should be notified immediately in web-based "IMMEDIATELY NOTIFIABLE REPORTING" platform in NEWARS.

13.2.Surveillance, case investigation and contact tracing

- All clinicians including specialists, medical officers, nurses and health assistants should identify cases of suspected Mpox as per the case definition (section 8) and report immediately through NEWARS.
- Use standard case definitions by all the District Health Surveillance Units and report any suspected case immediately through NEWARS.
- Even a single isolated case of Mpox should be considered as an outbreak. A detailed investigation by the local Rapid Response Teams should be initiated.
- The samples should be collected and shipped as per the guidelines to the RCDC.
- Initiate contact tracing and testing of symptomatic contacts after the detection of the probable/ confirmed case.
- Initiate targeted surveillance for probable cases or clusters.
- Initiate community-based surveillance through support of local government and community leaders.

13.3. Contact identification

Cases can be prompted to identify contacts across household, workplace, school/ nursery, sexual contacts, healthcare, houses of worship, transportation, sports, social gatherings, and any other recalled interactions (Refer close contact definition in section 9).

13.4.Contact monitoring

- Contacts should be monitored at least daily for the onset of signs/symptoms for a period of 21 days (as per case definition above) from the last contact with a patient or their contaminated materials during the infectious period.
- In case of occurrence of fever clinical/ lab evaluation is warranted.
- Asymptomatic contacts should not donate blood, cells, tissue, organs or semen while they are under surveillance.
- Pre-school children may be excluded from daycare, nursery, or other group settings.
- Health workers who have unprotected exposure to patients with monkeypox or possibly contaminated materials need to be excluded from work duty and should undergo active surveillance for symptoms for 21 days.

14. Risk Communication and Community Engagement

The MoH shall proactively communicate disease and outbreak information related to Mpox and potential public health implications to the general public in a timely and transparent manner. The effort will be also put in to address the stigma and discrimination among men having sex with men (MSM) populations, as they are also considered to be a risk-group population. The existing Media & Risk Communication team shall continue to work as a nodal

point to disseminate timely and factual information to the public until the dedicated team has been formed. At this stage, the following key public health messages have been developed and disseminated to the public in various communication channels including social media.

i. Detection and care: If people develop a rash, accompanied by fever or a feeling of discomfort or illness, they should contact their healthcare provider. If someone is suspected or confirmed as having Mpox they should isolate until the scabs have fallen off and abstain from sex, including oral sex. During this period, patients can get supportive treatment to ease monkeypox symptoms.

Anyone caring for a person sick with Mpox should use appropriate personal protective measures, including wearing a mask, and cleaning objects and surfaces that have been touched.

If Mpox is suspected, case investigation should consist of a clinical examination of the patient with appropriate PPE, questioning the patient about possible sources of infection, and safe collection and dispatch of specimens for MPXV laboratory examination.

ii. Reporting: Any rash-like illness during travel or upon return from Mpox endemic places should be immediately reported to a health professional, including information about all recent travels, sexual history and smallpox immunization history.
Clinicians should report suspected, and confirmed cases immediately to the public health authorities of the Ministry of Health. Backward contact tracing should be initiated to identify the source and forward contact tracing should be initiated to reduce onward transmission.

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Annexure 1: National Outbreak Staging for Mpox Preparedness & Response Plan

Phases / Parameters	Green	Yellow	Orange	Red
Mpox situation	No confirmed cases in Bhutan and Mpox outbreak is limited to a few countries (subject to risk assessment)	No confirmed cases in Bhutan but Mpox outbreaks is reported in the neighbouring countries (subject to risk assessment)	One or more isolated confirmed cases in Bhutan without secondary transmission.	Local outbreaks with community transmission in the country.
Impact on daily lives and the economy	No disruptions at all	No disruption	Minimal disruption (isolation, quarantine, discouraging mass gathering in the affected area)	Moderate disruptions (may consider closure of affected schools or institutions, discourage mass gathering) May consider closure of borders (as per TAG/Task Force recommendation)
Surveillance and laboratory testing	- Enhance surveillance systems and monitoring to detect imported cases in Health centres and PoEs -Train healthcare providers on Mpox clinical features and reporting. -Train laboratory and POE official on sample collection - Identify holding area/quarantine facility for suspected cases	- Monitor and intensify surveillance at points of entry (e.g., airports, ground). - Conduct health screenings for travellers from affected countries. - Test suspected cases at Points of Entry (POEs) and health facilities -Procure RT-PCR reagents for mpox - Maintain close coordination	- Conduct thorough contact tracing for confirmed cases. - Implement active case finding in high-risk populations. - Test suspected cases meeting the case definition with travel history to countries with active outbreaks at POEs and health facilities - Strict home quarantine for close contacts	- Implement widespread community-based surveillance where active cases are being reported. - Conduct mass screening in high-risk populations. - Strengthen laboratory capacity for rapid testing - Strict home quarantine for close contacts - Procure RT-PCR reagents for mpox

	- Close contacts to be home quarantined - Conduct regular risk assessments of neighbouring and affected countries - Procure RT-PCR reagents - Closely coordinate with the WHO for situational updates and technical guidance	with the WHO for situational updates and technical guidance	- Enhance laboratory capacity for Mpox testing, especially at Points of Entry (POEs) - Procure RT-PCR reagents for mpox - Maintain close coordination with the WHO for situational updates and technical guidance	-Closely coordinate with the WHO for situational updates and technical guidance
Clinical management and Infection Prevention Control (IPC)	- Develop protocols for Mpox case management and isolation. - Ensure availability of necessary medical supplies and equipment - Train health workers on case definition and diagnostic protocols. -Strengthen IPC including sensitisation of the IPC focals - Explore accessibility to antivirals through the WHO - Closely coordinate with WHO and adapt the latest recommended guidelines	- Prepare hospital isolation facilities and staff. - Capacity building of health workers (blended approach) - Explore accessibility of antivirals - Closely coordinate with WHO and update clinical guidelines as per the latest recommendations - Develop SOP for self-care and prevention from Mpox	- Provide timely care for confirmed cases and their contacts. - Ensure adequate isolation and infection control measures -Closely work with WHO and update clinical guidelines as per the evolving situation -Ensure continuity of essential health services to the public	- Scale up hospital capacity for Mpox patients. - Ensure adequate supply of medical supplies and equipment. - Provide supportive care for severe cases. - Promote home isolation for less serious cases if the isolation ward has reached its maximum capacity - Closely work with WHO and implement interventions -Ensure continuity of essential health services to the public

Risk communication and social measures	- Raise awareness about Mpox through various multi-media channels, - Promote preventive measures, such as hand hygiene and safe sexual practices - Issue travel advisories	- Increase public awareness about the risk of Mpox - Continue to promote preventive measures - Provide updated travel advisory- avoid travelling to affected countries unless it is necessary	- Communicate the risk of Mpox to the public and healthcare providers. - Provide clear guidance on preventive measures and treatment options. - Address misinformation and rumours related to Mpox - Promote vaccination for high-risk groups (e.g., healthcare workers, men who have sex with men-MSM) - Promote/advice to be socially responsible - Provide situational updates to the public	- Implement public health measures, such as social distancing and mass gathering restrictions. - Promote vaccination campaigns for the general population. - Address public anxiety and concerns - Promote/advice to be socially responsible - Provide situational updates to the public
Coordination and Collaboration	- TAG meeting- once a week and as and when required - Collaborate with WHO to align preparedness response strategies - Collaborate with Armed forces to discuss and come up with a way forward regarding UN peacekeeping missions stationed and for those returning from affected countries	- TAG meeting- twice a week and as and when required - Notify Health Emergency Management Committee (HEMC) - Strengthen collaboration with WHO to align preparedness response strategies - Cross-border notification on the mpox cases using the IHR network	- Notify National Disaster Management Authority (NDMA)/ National Task Force - Activate Health Emergency Management Committee (HEMC) - Strengthen collaboration with the WHO to align preparedness & response strategies - Engage village health workers, community leaders and local authorities in contact tracing and risk communication. - Coordinate with neighbouring countries to	- Activate National Disaster Management Authority (NDMA)/ National Task Force -Take the Whole-of-society approach! - Engage community leaders and local authorities in contact tracing and risk communication. - Communicate with WHO, donors, and development partners to secure technical and financial assistance. - Enhance coordination with neighbouring countries to prevent cross-border transmission

			prevent cross-border transmission	
Logistics and Finance	MoH to manage	Garner support from MoF and national authorities for: - Identifying quarantine facilities - Capacity building - Procurement of PPE, IPC items - Other necessary logistics (travel and food for response teams)	-Coordinate with MoF and other national authorities for resource allocation -Consider requesting WHO South-East Asia Regional Health Emergency Fund (SEARHEF)	-Coordinate with MoF and other national authorities for resource allocation -Request for WHO South-East Asia Regional Health Emergency Fund (SEARHEF) support
Vaccination	Explore vaccine support	Explore vaccine support and market	Vaccinate High-risk populations (if able to procure)	Vaccinate High-risk Populations and contacts
Mental health support	Notify the Pema Center for preparedness to provide mental health and psychosocial support	Pema Center to designate a team to provide mental health and psychosocial support	- Activate hotlines to provide mental health supports - Provide psychological support to individuals affected by Mpox - Address stigma and discrimination associated with the disease.	- Provide psychological support to individuals affected by Mpox and their families. - Address stigma and discrimination associated with the disease. - Ensure access to social services for those impacted by the outbreak.