GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

National Guidelines for Clinical Management of Mpox Disease

2nd Edition, December 2024

Disease Control Division
Directorate General of Health Services
Ministry of Health & Family Welfare

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DEVELOPED BY:
Disease Control Division
Directorate General of Health Services
Ministry of Health & Family Welfare

TECHNICAL SUPPORT
World Health Organization

ACKNOWLEDGEMENT
The Disease Control Division of Directorate General of Health Services is gratefully acknowledging the contribution of Paediatricians, Obstetrics and Gynaecologist, Medicine, Neurology, Nephrology, and Epidemiologists (Professors/Associate Professors/Assistant Professors) working in different Medical Colleges and Institute of Bangladesh and Program Personnel who participated in the consultative meetings and workshops, and the Ministry of Health and Family Welfare of Government of the People's Republic of Bangladesh and WHO Bangladesh in preparation and finalization of this document.

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Composition and Illustration by WHO Health Emergencies Programme, Bangladesh

MESSAGE

I would like to express my great appreciation to IHR, Migration Health and Emerging Re-Emerging Disease Control Program CDC DGHS for developing this important National Mpox Management Guideline for all level of Health workers in collaboration with Word Health Organization (WHO).

The emergence of the clade 1b variant of mpox and its global health threat, prompted the Director General of World Health Organization to declare it a public health emergency of International Concern (PHEIC) on 14 August 2024. Clade 1b is characterized by enhanced transmissibility, particularly through human-to-human contact, including sexual transmission. This variant has spread rapidly from its epicentre in the Democratic Republic of Congo to neighbouring African countries and beyond, with confirmed cases in Europe, Asia as well as some neighbouring countries of Bangladesh. At present no mpox case is detected in Bangladesh. However, it is a priority of the Government of the Peoples Republic of Bangladesh to Prevent the importation of cases and ensure proper management of mpox cases if detected in Bangladesh. In the right way, Bangladesh Health Services response has focused on enhancing surveillance, Health screening at points of Entry (PoE), improving diagnostics, and safe handling of Mpox cases.

This comprehensive guide on mpox and its implications for public health, highlights the updated, evidence-based approaches to combatting mpox, emphasizing its evolution from a regionally endemic disease to a global challenge. By framing mpox in the context of its biological background, transmission dynamics, and the health response required, this National mpox management guideline offers a clear roadmap for addressing this public health Emergency.

I would like to congratulate CDC, DGHS for this management guideline, which is an excellent job, covering essential aspects such as epidemiology, diagnosis, case management, and prevention activities. I hope that this guideline will be useful to improve the management of mpox.

I wish this initiative every success.

Prof. Dr Md. Abu Jafor
Director General, Directorate General of Health Services

MESSAGE

On behalf of the World Health Organization (WHO), it is an honour for me to provide this foreword to the National Guidelines for Clinical Management of Mpox Disease in Bangladesh. This document marks a crucial step in equipping healthcare providers with the essential knowledge and tools to effectively manage and respond to mpox, tailored to the unique socio-demographic and healthcare context of Bangladesh.

The development of these guidelines builds on the globally recognized WHO Clinical Management and Infection Prevention and Control for Monkeypox - Interim Rapid Response Guidance published on 10 June 2022. The National Guidelines for Clinical Management of Mpox Disease has been thoughtfully adapted to address the specific needs, challenges, and resources of Bangladesh. This customized approach ensures that healthcare professionals across all levels, from community clinics to tertiary care centres, have access to evidence-based protocols that align with global best practices within the realities of our local healthcare system.

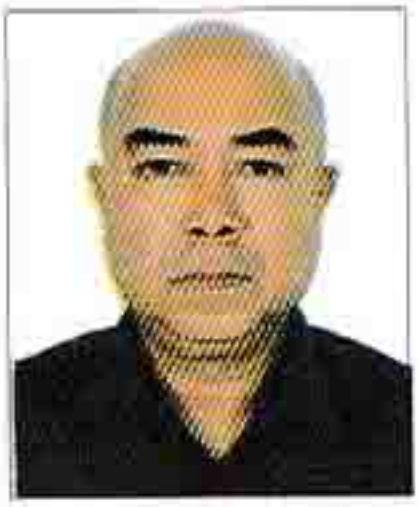
Mpox has emerged as a significant public health challenge globally, with its widespread impact highlighting the critical importance of timely diagnosis, effective treatment, and robust infection prevention and control measures. These guidelines provide a comprehensive resource to support the national healthcare workforce in delivering high-quality clinical care while minimizing the risk of disease transmission.

I commend the Ministry of Health and Family Welfare, public health experts, clinicians, and all stakeholders who have contributed their expertise and dedication to adapting these guidelines. Their collaborative efforts demonstrate a shared commitment to enhancing health security and safeguarding the health and well-being of all people in Bangladesh.

WHO remains committed to supporting Bangladesh in strengthening its national capacity for the prevention, preparedness, and response to public health emergencies. We hope that these guidelines will empower healthcare providers and decision-makers to deliver a coordinated and effective response to Mpox, enhance resilience within the health system, and contribute to the broader goal of strengthening health security and achieving Universal Health Coverage.

Dr Ahmed Jamsheed Mohamed
WHO Representative a.i.
World Health Organization, Country Office for Bangladesh

MESSAGE



It is with great pride that we introduce the National Guidelines for Clinical Management of Mpox Disease, Bangladesh. This essential document has been meticulously adapted from the WHO global guidelines to meet the unique epidemiological, healthcare, and societal contexts of Bangladesh.

The emergence of Mpox as a global public health challenge necessitates a proactive and localized approach to disease management. These guidelines aim to empower healthcare professionals across the country with standardized, evidence-based protocols for the diagnosis, treatment, and prevention of Mpox disease. By doing so, we strengthen our ability to respond to this emerging health threat and protect the health and well-being of our citizens.

The development of this document is a testament to the collaborative efforts of national and international experts, including the invaluable support of the World Health Organization. Their expertise has ensured that these guidelines are not only scientifically robust but also practical and applicable at all levels of healthcare in Bangladesh.

I extend my gratitude to all contributors for their dedication and commitment to enhancing our national health security. Let us collectively utilize these guidelines to ensure high-quality clinical care and effective disease management, ultimately contributing to a healthier and more resilient Bangladesh.

Together, we can meet the challenges of Mpox disease with determination and unity.

Dr Enamul Habib
Additional Secretary &
Programme, Director, National IHR (2005) Capacity
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PREFACE

An upsurge of mpox (formerly known as monkeypox) in the Democratic Republic of the Congo and its spread to neighbouring countries has been declared by the Director General of World Health Organization (WHO), a public health emergency of international concern (PHEIC) on 14 August 2024. The emergence of a new variant, clade 1b, and its spread in neighbouring countries is a big concern for Bangladesh. In order to cope this situation IHR, Migration Health and Emerging-Re Emerging Disease control programme of CDC, DGHS felt necessary to revise and update the National Clinical Management guideline for Mpox in collaboration with WHO for managing and proper handling of Mpox cases.

Mpox is caused by the monkeypox virus, part of the Orthopoxvirus genus, closely related to the smallpox-causing variola virus. It spread mainly through close contact with someone who has Mpox, causing a painful rash, enlarged lymph nodes, and fever leaving scars on skin. This guide provides healthcare providers, public health officials, and researchers with a detailed roadmap. It begins with Mpox epidemiology, covering the virus's host, modes of transmission, and period of communicability and identification of suspected, probable, and confirmed cases based on clinical signs and diagnostic tests. In addition, the guideline focused on the effective case management, patient isolation, supportive care, antiviral treatments, protocols for severe cases, pregnant women, and vulnerable populations. Prevention strategies including vaccination, risk communication, surveillance, and contact tracing is also described properly. Detailed instructions for managing deceased individuals will help prevent further transmission.

A core group of public Health experts, Epidemiologist and eminent clinicians were given the task to revise and update the Mpox clinical management guideline under direct financial and technical support from WHO. The printed version of the guideline will be used for sensitization and continuous orientation of the rest of the service providers. I hope, physician/paramedics in general will found this guideline helpful for managing Mpox and safe handling of Mpox cases.

I express my satisfaction for being to publish this important guideline and express sincere gratefulness to all who were involved in revising and printing the Guideline.

Professor Dr Md. Halimur Rashid
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ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ALT	alanine aminotransferase
ARDS	Acute Respiratory Distress Syndrome
ART	Antiretroviral therapy
ASAP	As soon as possible
AST	Aspartate aminotransferase
BITID	Bangladesh Institute of Tropical and Infectious Diseases
BUN	Blood Urea Nitrogen
CDC	Communicable Disease Control
CIF	Case Investigation Form
DGHS	Directorate General of Health Services
DNA	Deoxyribonucleic Acid
FDA	Food and Drug Administration
FSW	Female sex worker
HIV	Human Immunodeficiency Virus
IDH	Infectious Disease Hospital
IgM	Immunoglobulin
IPC	Infection Prevention and Control
IPH	Institute of Public Health
IEDCR	Institute of Epidemiology Disease Control and Research
MIS	Management Information System
MSM	Men sex with men
MPXV	Mpox virus
MoHFW	Ministry of Health & Family Welfare
NPML	National Polio and Measles Laboratory
NILMRC	National Institute for Laboratory Medicine and Referral Centre
OPD	Outpatient Department
OPXV	Orthodox virus
PCR	Polymerase Chain Reaction
PHEIC	Public Health Emergency of International Concern
PoE	Points of Entry
PPE	Personal Protective Equipment
PTSD	Post traumatic stress disorder
RCCE	Risk communication and Community engagement
SOP	Standard Operating Procedure
STI/STD	Sexually Transmitted Infection/Sexually transmitted Diseases
VIGIV	Vaccinia Immune Globulin Intravenous
VTM	Viral Transport Medium
WHO	World Health Organization

EXECUTIVE SUMMARY

The 2022 global emergence of mpox (formerly monkeypox) underscored the need for updated, evidence-based guidelines on its understanding, diagnosis, treatment, and prevention. Though known in Central and West Africa for decades, the outbreak spread beyond endemic zones, posing significant challenges to healthcare systems and public health authorities worldwide.

Mpox is caused by the monkeypox virus, part of the Orthopoxvirus genus, closely related to the smallpox-causing variola virus. Although generally milder than smallpox, Mpox can cause substantial morbidity and, in rare cases, mortality. Transmission occurs through direct contact with infected animals or humans, as well as through respiratory droplets and bodily fluids. Comprehensive understanding of transmission and identification of at-risk populations are critical to controlling the disease.

This guide provides healthcare providers, public health officials, and researchers with a detailed roadmap. It begins with mpox epidemiology, covering the virus's host, modes of transmission, and period of communicability. These foundations guide case definitions for identifying suspected, probable, and confirmed cases based on clinical signs and diagnostic tests.

Mpox symptoms range from mild to severe, necessitating differentiation from similar diseases for accurate diagnosis and management. The guide explores common and atypical features, complications like secondary infections, and risks for immunocompromised individuals. It outlines laboratory protocols, including specimen collection and diagnostic interpretation.

Effective case management is emphasized, focusing on patient isolation, supportive care, and antiviral treatments. Protocols for severe cases, pregnant women, and vulnerable populations are highlighted. Prevention strategies include vaccination, risk communication, surveillance, and contact tracing. Detailed instructions for managing deceased individuals help prevent further transmission.

The document aims to equip healthcare professionals with tools for effective mpox management while ensuring coordinated and transparent public health responses. As new variants emerge, vigilance, adaptability, and collaboration are essential to controlling outbreaks and preventing future health crises.

By understanding mpox's complexities and applying best practices, global health systems can mitigate its impact and protect vulnerable populations. This guide supports efforts to address mpox as a pressing local and global health priority.

Mpox, formerly known as monkeypox, is a viral zoonotic disease caused by the monkeypox virus, which belongs to the Orthopoxvirus genus of the Poxviridae family. While traditionally confined to certain regions of Africa, outbreaks of mpox have occurred in multiple countries across the globe, including in non-endemic areas, in recent years. The global spread of mpox has raised concerns about its potential impact on public health, particularly in countries with limited preparedness for emerging infectious diseases.

Bangladesh, like many other nations, has the responsibility to safeguard its population against the threat of infectious diseases. The Ministry of Health and Family Welfare (MOHFW) has recognized the need for a comprehensive, evidence-based approach to manage mpox in the context of Bangladesh. This National Guideline has been developed to assist healthcare providers, public health officials, and policymakers in understanding and responding to mpox, should it be detected in the country.

The aim of these guidelines is to provide a standard protocol for the clinical management of mpox, including the prevention, diagnosis, treatment, and control measures. They are intended to ensure that healthcare workers are adequately trained and equipped to manage cases of mpox safely and effectively. This document also outlines the roles and responsibilities of various stakeholders in controlling the spread of the disease and providing the necessary care for affected individuals.

These guidelines are intended to be dynamic, updated as new scientific evidence and global practices emerge. It is essential for all healthcare workers and public health professionals to stay informed and vigilant, particularly with the rapid development of global disease surveillance and response strategies.

The guidelines are structured into several key sections:

Chapter 1: Introduction

- This section will likely provide a broad overview of the topic, including the background, significance, and aims of the document.

Chapter 2: Epidemiology

- Agent: The pathogen responsible for the disease.
- Host: The organism(s) susceptible to the infection.
- Incubation period: The time between exposure to the pathogen and the onset of symptoms.
- Period of communicability: The time frame during which the disease can be transmitted to others.
- Mode of transmission: How the disease is spread (e.g., direct contact, respiratory droplets).

Chapter 3: Case Definitions

- Suspected case: Criteria for identifying someone who may have the disease based on symptoms and exposure.
- Probable case: A case that is likely to be mpox, based on clinical presentation and possible exposure.
- Confirmed case: A case confirmed through laboratory tests or other definitive diagnostics.
- Discarded case: A case that has been ruled out after testing or further investigation.
- Epidemiologic link criteria: Conditions under which a person can be linked epidemiologically to another case.
- Chapter 4: Clinical Manifestation
- Symptoms and signs: The clinical presentation of mpox, including common and atypical symptoms.
- Differential diagnosis: How to distinguish mpox from other similar diseases with overlapping symptoms.
- Complications: Potential severe outcomes or secondary infections resulting from mpox.

Chapter 5: Laboratory Diagnosis

- Whom to test: Criteria for deciding who should be tested for mpox.
- Specimen Collection: Instructions for how to collect specimens for diagnostic testing.
- Diagnostic modalities: Different laboratory tests and techniques used to confirm mpox.
- Interpretation of test results: How to analyse and understand the results from diagnostic tests.

Chapter 6: Mpox Case Management

- Patient Isolation: Protocols for isolating infected patients to prevent the spread of the disease.
- General care: Supportive care and general management for patients with mpox.
- Antiviral drugs: Information on medications used to treat or manage mpox.
- Management of special situations: How to manage cases that present unique challenges, such as severe illness or co-infections.

Chapter 7: Prevention

- Vaccines: Information about available vaccines for preventing mpox.
- Risk communication and preventive measures: How to inform the public and at-risk populations about mpox and prevent its spread.
- Surveillance: Systems for monitoring the spread of mpox within populations.

- Reporting: Guidelines for reporting cases to public health authorities.
- Contact tracing: The process of identifying and managing people who have been in contact with infected individuals.
- Management of deceased persons: Protocols for handling deceased individuals to prevent the spread of mpox.

This structure covers the full spectrum of managing a disease outbreak, from understanding the epidemiology of mpox to preventing further transmission. Each section is clearly defined, with specific focus areas that align with the core principles of public health response and clinical management. Let me know if you'd like more detail on any particular section!

CHAPTER ONE: INTRODUCTION

1.1 Background

Mpox is the viral zoonotic disease with symptoms similar to smallpox, although with less clinical severity. This disease is caused by the mpox virus (MPXV), historically found in forested areas of East, Central and West Africa, where humans and animals have been infected. Mpox virus was first discovered in 1958 in colonies of monkeys kept for research in Denmark. The first human case of mpox was reported from Democratic Republic of the Congo (DRC) in 1970.

Transmission dynamics are not fully elucidated in countries such as the Democratic Republic of the Congo, where the virus has been increasingly circulating in recent years, Nigeria, where cases continue to occur or Sudan, where clade I mpox virus was newly reported in 2022. Recent observations suggest that mpox virus in these settings is widely transmitted through human-to-human contact, including sexual and non-sexual contact. While mpox has long been considered a zoonotic disease, confirmation of different modes of animal-to-human transmission remains elusive, which continues to limit the ability to design effective interventions. In such settings, human-to-human transmission is rising and posing a new threat to neighbouring countries.

The sudden appearance of mpox in many countries simultaneously, where this disease was not previously reported or where in recent years there have only been cases linked to travel, was unexpected. Transmission, initially amplified by travel and gatherings in several countries, has been sustained mainly through sexual contact among MSM, bisexual men and others who have sex with gender diverse persons and sex workers. These key populations represent those at highest risk of exposure globally, while in African settings where mpox is endemic, children continue to be at risk as well as adults. Mpox Virus primarily occurs in Central and West Africa. In 2003, the first mpox outbreak outside of Africa was reported in the United States of America which was linked to contact with infected pet prairie dogs. These pets had been housed with Gambian pouched rats and dormice that had been imported into the country from Ghana.

1.2 Distribution of Cases

According to the World Health Organization (WHO), in the present series of outbreaks being reported, this is the first time that chains of transmission are reported in Europe without known epidemiological links to West or Central Africa. Mpox has been reported as endemic in several other central and western African countries such as: Cameroon, Central African Republic, Cote d'Ivoire, Democratic Republic of the Congo, Gabon, Ghana, Liberia, Nigeria, Republic of the Congo, and Sierra Leone. This has been also reported in certain non-endemic countries, like the USA, Brazil, Spain, France, Colombia, Mexico, UK, Germany, Peru, China, Canada, Chile, Australia, Netherlands, Argentina, Portugal, Italy, Thailand and Netherlands, Portugal, Spain, Sweden, Australia, Canada, Austria, Canary Islands, Israel and Switzerland and many other countries from all the six WHO regions.

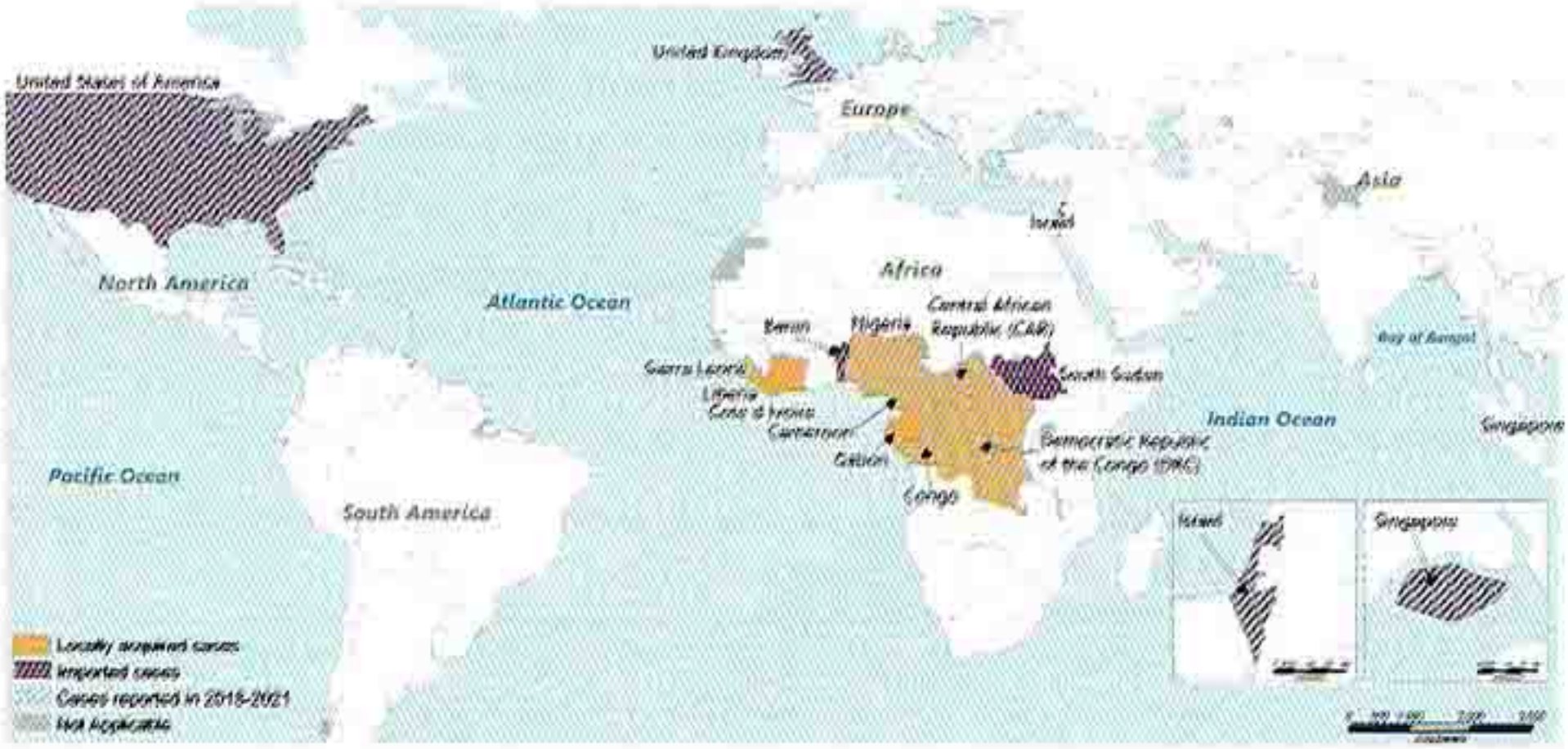


Figure 1.1: Countries reporting confirmed human cases of mpox (1970-2021)

Following the eradication of smallpox in 1980 and vaccination ceased, mpox virus emerged as the most significant Orthopox virus in humans. Waning immunity may be a factor in the emergence of mpox.

Since Jan 2022, and as of November 2024, 117 310 laboratory confirmed cases of mpox have been reported by WHO from 127 Member States across all WHO regions that are not endemic for mpox virus (figure 1.2).

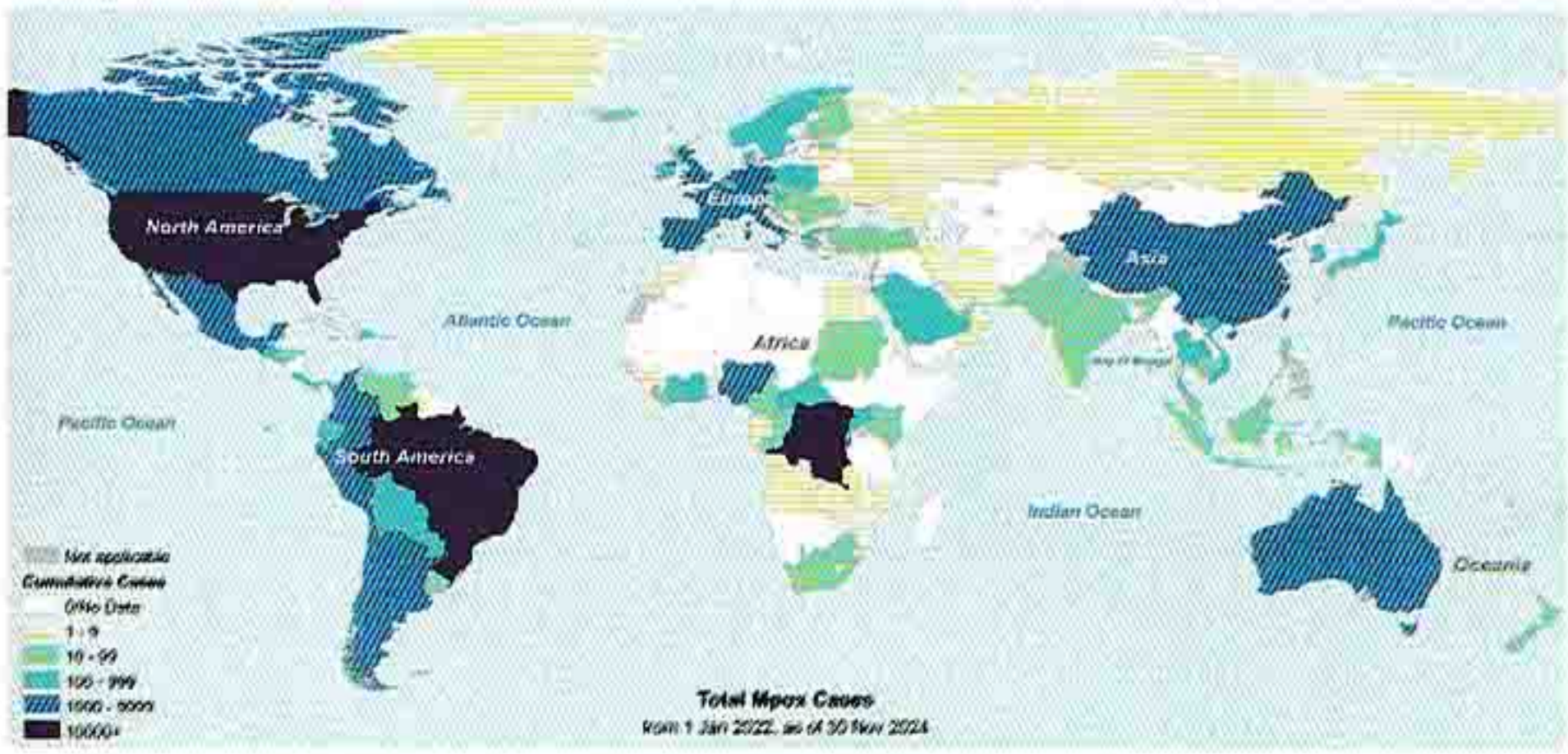


Figure 1.2: Distribution of mpox cases between January 2022 and August 2024
Source: WHO: 2022-24 Mpox (Monkeypox) Outbreak: Global Trends.

As of August 2024, the number of monthly reported new cases has increased by 15.6%, compared to the previous month. The majority of cases reported in the past month were notified from the African Region (62.3%) and the European Region (13.7%).

The 10 most affected countries globally since 1 January 2022 till 30 November 2024 are: United States of America (n = 34 349), Brazil (n = 13 236), Democratic Republic of the Congo (n = 10 492), Spain (n = 8 443), France (n = 4 371), Colombia (n = 4 280), Mexico (n = 4 192), The United Kingdom (n = 4 146), Germany (n = 4 040) and Peru (n = 3 949). Together, these countries account for 77.8% of the cases reported globally.

In the most recent month of reporting, 42 countries have reported cases, 20, of which reported an increase in monthly case counts.

Clade I is endemic in Central Africa. The Clade Ib emerged in 2023 is now causing the global outbreak. This occurs mainly in sex workers, among men who have sex with men (MSM) and in women exposed heterosexually.

Clade II is endemic in West Africa and caused the global outbreak beginning in 2022. In the context of the global outbreak due to clade IIb mpox, patients are presenting with more mucosal lesions, and often these are localized in the genital or perineal/perianal area as well as in the mouth and on the eyes. Lymphadenopathy remains a common feature, usually appearing early in the course of illness. Also contact among cases have clarified that mpox caused by clade IIb mpox virus is readily transmissible through sexual activity. The mpox virus that has been circulating in newly affected countries during the global outbreak belongs to clade IIb. Most of the cases belonged to lineage B of clade IIb; sporadic cases of lineage A and C have also been reported. This is the largest mpox outbreak due to clade II mpox virus ever recorded, and although most cases were among adult men, women and children have also been affected. In addition, newly emerging outbreaks due to clade I mpox virus are being detected in areas where mpox had not previously been documented, such as in various provinces of the Democratic Republic of the Congo and in Sudan. Most individuals with mpox in newly affected countries have not experienced severe disease, but immunosuppressive and high-risk group people may experience severe disease, or complications.

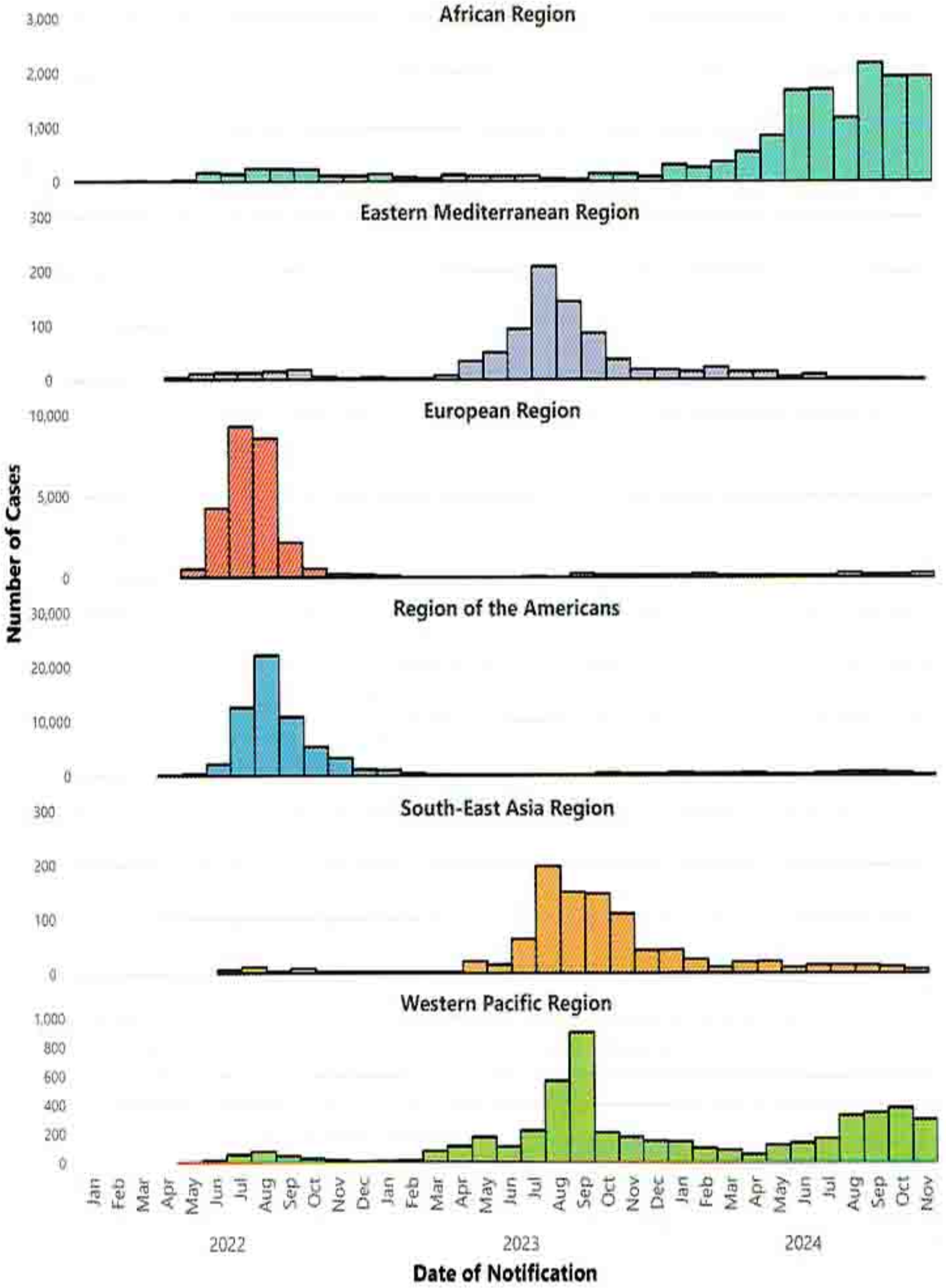


Figure 1.3: Mpox cases by WHO Regions (JAN 2022 - NOV 2024)
Source: WHO: 2022-24 Mpox (Monkeypox) Outbreak: Global Trends

During the ongoing 2022-2024 outbreak, which affects many countries experiencing mpox for the first time, the clinical manifestations of the disease presented a wide spectrum. Cases ranged from asymptomatic or pauci-symptomatic infections to presentations with few lesions (sometimes just one) in localized body areas, including mucosa and genitalia, as well as confluent lesions or full-body rashes and, in some cases, severe multi-organ disease and death. Case management often includes symptomatic pain management and the discomfort presented by genital lesions aggravated the clinical spectrum. The highest burden has been observed among gay, bisexual and other men who have sex with men, particularly those in dense sexual networks, with severe cases occurring mostly among those with uncontrolled HIV infection. Among the 60 pregnant women and for which data were available in the global surveillance system, none died or reported miscarriage as of June 2024. Some of the affected countries have had access to antiviral treatment, through their national regulatory authorities, through study protocols or through the compassionate use reserve managed by WHO.

While the outbreak in newly affected countries did include women and children, it did not lead to sustained transmission within these groups. The secondary attack rate is below 10% for non-sexual contacts, but significantly higher for sexual contacts. Estimating the exact rate for sexual transmission has been challenging due to the anonymous nature of many sexual partnerships, stigma and discrimination, or reluctance of some individuals to disclose complete information about their sexual contacts.

The outbreak in these countries was eventually brought under control through the involvement of affected communities, behavioural changes (such as reducing the number of sexual partners), isolation of cases, early diagnosis, and preventive vaccination, where available. Despite these efforts, cases and outbreaks continue to be reported in many countries, indicating that undetected community transmission is still occurring. In South Africa, for instance, mpox cases were detected in May 2024 for the first time since August 2022, but none of the cases was linked with international travel. This ongoing transmission poses a continuing challenge to the control and elimination of human-to-human mpox virus transmission. While cases among gay, bisexual, and other men who have sex with men are likely to continue occurring, current data suggest that transmission is unlikely to spread extensively beyond this particular risk group.

There are no reported cases of mpox virus in Bangladesh till date as on August 2024. However, Bangladesh needs to be prepared in view of the increasing reports of cases in non-endemic countries in accordance with the response and preparedness for recent mpox public health emergency situation.

1.3 Epidemiology

1.3.1 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 Mpox virus – Clade I (subclade Ia and Ib) i.e. the Central African (Congo Basin) clade and Clade II (subclade IIa and IIb) i.e. the West African clade. The Clade I has historically caused more severe disease with higher case fatality rate 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.

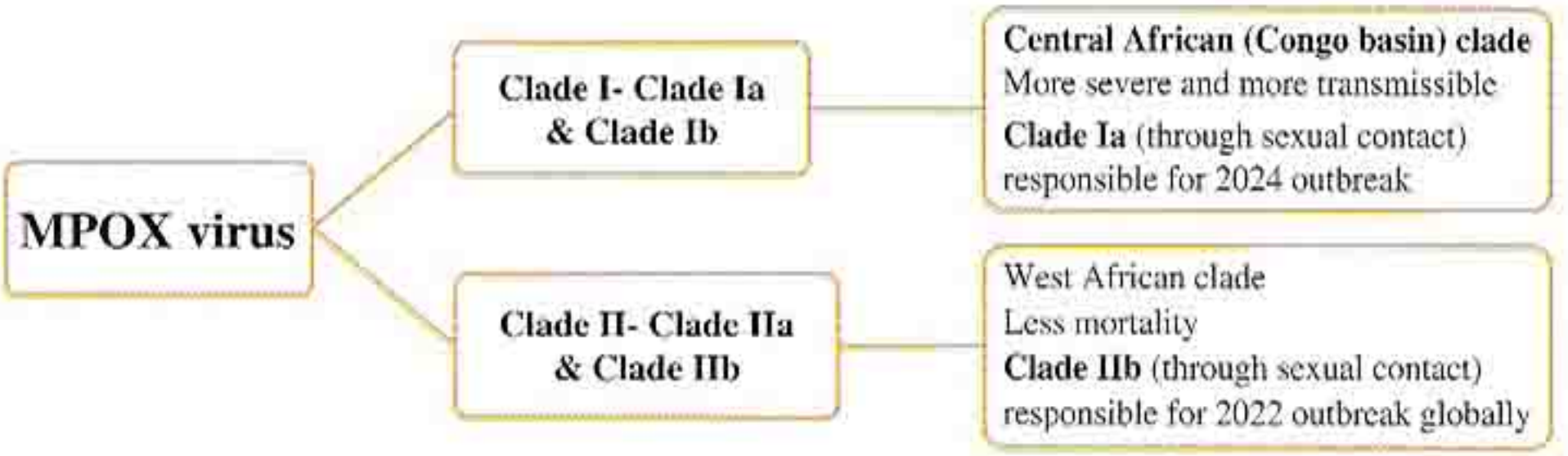


Figure 1.4: Classification of Mpox Clades

Distinct Mpox virus clades and subclades are impacting diverse populations in different geographical regions, each exhibiting varied transmission dynamics. While most countries affected by Clade II Mpox virus outbreaks among men who have sex with men have brought their respective outbreaks under control, following peak incidence globally from July – August 2022. A significant decline in incidence has been seen following a peak in incidence in late 2022. Two regions, the Western Pacific and the South-east Asian regions, experienced the peak of their Mpox outbreaks in around mid-2023 and continue to report sporadic cases and outbreaks.

1.3.2 Host

Natural reservoir is yet unknown. However, certain rodents (including rope squirrels, tree squirrels, Gambian pouched rats, dormice) and non-human primates are known to be naturally susceptible to Mpox virus.

1.3.3 Incubation Period

The incubation period (interval from infection to onset of symptoms) of Mpox is usually from 6 to 13 days but can range from 5 to 21 days. (September 2024) (Ref: SEARO Guideline)

1.3.4 Period of communicability:

1-2 days before the rash to until all the scabs fall off/gets subsided (2-4 weeks) and a fresh layer of skin has formed underneath.

1.3.5 Mode of Transmission:

Mpox can be transmitted through close contact with someone who is infectious. Close contacts are kissing, touching, oral and vaginal or anal sex with infectious persons.

Most reported cases so far have been presented among men who have sex with men (MSM).

Human-to-human transmission:

- Direct contact with infected lesions or body fluids or respiratory secretion of infected person
- Contact with recently contaminated fomites or objects
- Contact with contaminated clothing or linens of an infected person.
- Transmission via droplet respiratory particles usually requires prolonged face-to-face contact

Animal-to-human transmission:

May occur by bite or scratch of infected animals like small mammals including rodents (rats, squirrels, antelopes) and non-human primates (monkeys, apes) or through bush meat preparation.

Chapter Two: CASE DEFINITIONS

2.1 Suspected case

A person who is a contact of a probable or confirmed Mpox case in the 21 days before the onset of signs or symptoms, and who presents with any of the following:

acute onset of fever (>38.5°C),

- headache,
- myalgia (muscle pain/body aches),
- back pain,
- profound weakness, or
- fatigue.

OR

A person presenting with an unexplained acute skin rash, mucosal lesions, or lymphadenopathy (swollen lymph nodes). The skin rash may include single or multiple lesions in the ano-genital region or elsewhere on the body. Mucosal lesions may include single or multiple oral, conjunctival, urethral, penile, vaginal, or ano-rectal lesions. Ano-rectal lesions can also manifest as ano-rectal inflammation (proctitis), pain and/or bleeding.

AND

The following common causes of acute rash or skin lesions do not fully explain the clinical picture:

varicella zoster, herpes zoster, measles, herpes simplex, bacterial skin infections, disseminated gonococcus infection, primary or secondary syphilis, chancroid, lymphogranuloma venereum, granuloma inguinale, molluscum contagiosum, allergic reaction (e.g., to plants), any other locally relevant common causes of papular or vesicular rash.

N.B. It is not necessary to obtain negative laboratory results for listed common causes of rash illnesses to classify a case as suspected. Further, if suspicion of Mpox or MPXV infection is high due to either history and/or clinical presentation or possible exposure to a case, the identification of an alternate pathogen which causes rash illness should not preclude testing for MPXV, as co-infections have been identified.

- Filling in Case Investigation Form (CIF) for all Suspected case is mandatory

2.2 Probable case:

A person presenting with an unexplained acute skin rash, mucosal lesions or lymphadenopathy (swollen lymph nodes). The skin rash may include single or multiple lesions in the ano-genital region or elsewhere on the body. Mucosal lesions may include single or multiple oral, conjunctival, urethral, penile, vaginal, or ano-rectal lesions. Ano-rectal lesions can also manifest as ano-rectal inflammation (proctitis), pain and/or bleeding.

AND

One or more of the following:

- has an epidemiological link to a probable or confirmed case of Mpox in the 21 days before symptom onset
- has had multiple and/or casual sexual partners in the 21 days before symptom onset
- has a positive test result for orthopoxviral infection (e.g., OPXV-specific PCR without MPXV-specific PCR or sequencing)

- Filling in Case Investigation Form (CIF) for all Probable case is mandatory

2.3 Confirmed case

A person with clinical/suspected/probable MPXV infection to be confirmed by detection of Mpox Nucleic acid/DNA by RT-PCR /or sequencing.

- Filling in Case Investigation Form (CIF) for all Confirmed case is mandatory

2.4 Discarded case

A suspected or probable case for which laboratory testing of lesion fluid, skin specimens or crusts by PCR and/or sequencing is negative for MPXVc.

Conversely, a retrospectively detected probable case for which lesion testing can no longer be adequately performed (i.e., after the crusts fall off) and no other specimen is found PCR-positive, would remain classified as a probable case. A suspected or probable case should not be discarded based on a negative result from an oropharyngeal, anal or rectal swab or from a blood test alone.

These case definitions were developed with a view to balance the importance of detecting cases and interrupting chains of transmission, while avoiding an overly sensitive definition that would overburden public health, diagnostic and treatment resources.

2.5 Epidemiologic link criteria

Within 21 days of illness onset:

- Reports having contact with a person or people with a similar appearing rash or who received a diagnosis of confirmed or probable Mpox Or
- Had close or intimate in-person contact with individuals in a social network experiencing Mpox infection, this includes men who have sex with men (MSM)

who meet partners through an online website, digital application ("app"), or social event (e.g., a bar or party) Or

- Traveling to a country with confirmed cases of Mpox or where Mpox virus is endemic Or
- Had contact with a dead or live wild animal or exotic pet that is an African endemic species or used a product derived from such animals (e.g., game meat, creams, lotions, powders, etc.)

2.6 Reporting of Cases

An initial Case Reporting Form (CRF) which is attached in Annexure-1 will be completed in Hospital/health post during initial diagnosis. It is mandatory to report a Mpox case (Suspected, Probable or Confirmed) to (i) IHR NFP (Director Disease Control of DGHS) for acknowledgement and (ii) IEDCR for further case investigation using a detailed CIF (for surveillance purpose, follow the mpox surveillance guideline for detailed case investigation).

Designated hospitals/caregiver institution should maintain a case line list. Variables for the line list are: ReportingInstitution, SlNo, DateOfDiagnosis (YYYY-MM-DD), CaseClassification (Confirmed/Probable/Suspected/Unknown), AgeInYear, AgeInMonth, Sex (Female/Male/Other), HealthWorker (Y/N), DateOnset (YYYY-MM-DD), Symptoms (Y/N/Unknown), Hospitalisation (Y/N/Unknown), Complications (Y/N/Unknown), Outcome (Alive/Dead/Unknown), DateofSpecimenCollection (YYYY-MM-DD), SpecimenType/s, NumberOfContacts, Comments.

Chapter Three: CLINICAL MANIFESTATION

3.1 Symptoms and Signs

- The Invasion/Prodromal period (lasts between 0–5 days).
- The skin eruption usually begins within 1–3 days of appearance of fever.

The infection can be divided into two periods:

A. Prodromal/Invasion period (lasts between 0–5 days) characterized by

- Acute onset of fever (>38.50c)
- Headache
- Myalgia
- Lymphadenopathy*
- Back pain
- Profound weakness, or fatigue
- Mucosal lesions (oral, conjunctival, urethral, penile, vaginal, or anorectal lesions)

*Lymphadenopathy: A distinctive feature of Mpox which differentiates it from other illnesses with similar clinical features (e.g. Chickenpox, Hand-Foot-Mouth disease, Measles). This usually appears with fever, 1–2 days before or rarely with the onset of rash. Lymph nodes may enlarge in submandibular, cervical, axillary or inguinal region and may be bilateral or unilateral.

B. Skin involvement (rash)

a. It begins within 1-3 days of fever.

b. The rash presents in sequential stages – macules, papules, vesicles, pustules, umbilication before crusting over and desquamating over a period of 2 to 3 weeks. Classic lesion is vesiculopustular (Table 4.1).

c. Lesions are deep-seated, well-circumscribed and often develop umbilication (Figure 4.1).

d. These are often painful until the healing phase when they become itchy (in the crust stage).

- Most commonly affected areas are Face, palms and soles, tongue (Figure 4.2) oral mucosa (Figure 4.3), genitalia.
- Conjunctiva and cornea might be involved (Figure 4.5).
- Generally skin rashes are more apparent on the limbs and face than on the trunk. A notable predilection for palm and soles is characteristic of monkey pox.
- Notably the genitalia can be involved and can be a diagnostic dilemma in STD population
- The lesion heals with hypo- and hyperpigmented atrophic scars (figure 4.4), patchy alopecia, hypertrophic skin scarring and

contracture/deformity of facial muscles following healing of ulcerated facial lesions

e. The skin manifestation depends on smallpox vaccination status, age, nutritional status, associated HIV status. Mpox chiefly occurs in communities where there is often a high background prevalence of malnutrition, parasitic infections, and other significant heath-compromising conditions, any of which could impact the prognosis of a patient with Mpox.

f. Mpox is usually a self-limited disease with the symptoms lasting from 2 to 4 weeks. Severe cases occur more commonly among children and are related to the extent of virus exposure, patient health status and nature of complications. The extent to which asymptomatic infection occurs is unknown. The case fatality ratio of monkeypox has historically ranged from 0.1 to 11% (source: WHO) in the general population and has been higher among young children. Case fatality rate of clade I is 3.6% and clade II is 0.2% in general.

Table 3.1: Stages of rashes

Stages	Duration	Characteristics
Enanthem	First lesion	First lesions appear on tongue (figure 4B) and mouth, Ano-rectal mucosa
Macules	1-2 days	Macules (flat) first appear on face then subsequently spreads to arms, legs, palms, and soles (centrifugal distribution)
Papules	1-2 days	By 3rd day lesions typically progress from macule to papules (raised).
Vesicles	1-2 days	Lesions then typically become vesicles (raised and clear fluid filled).
Pustules	5-7 days	- Lesions then become pustular, sharply raised, usually round, filled with opaque fluid, firm and deep seated (figure 4.1). - Then lesions develop a depression in the centre (umbilication). - The pustules will remain for approximately 5-7 days before beginning to crust.
Scabs	7-14 days	- By the end of the 2nd week, pustules dry up, crust and scabbed over. - Scabs remain for a week before falling off

Special feature in current outbreak (2024):

For both clade I and clade II Monkeypox virus infection:

- Lesions often occur in the genital and anorectal areas or in the mouth.
- Rash is not always disseminated across many sites on the body.
- Rash may be confined to only a few lesions or only a single lesion.
- Rash does not always appear on palms and soles.
- Rectal symptoms (e.g., purulent or bloody stools, rectal pain, or rectal bleeding) have been frequently reported in the current outbreak.

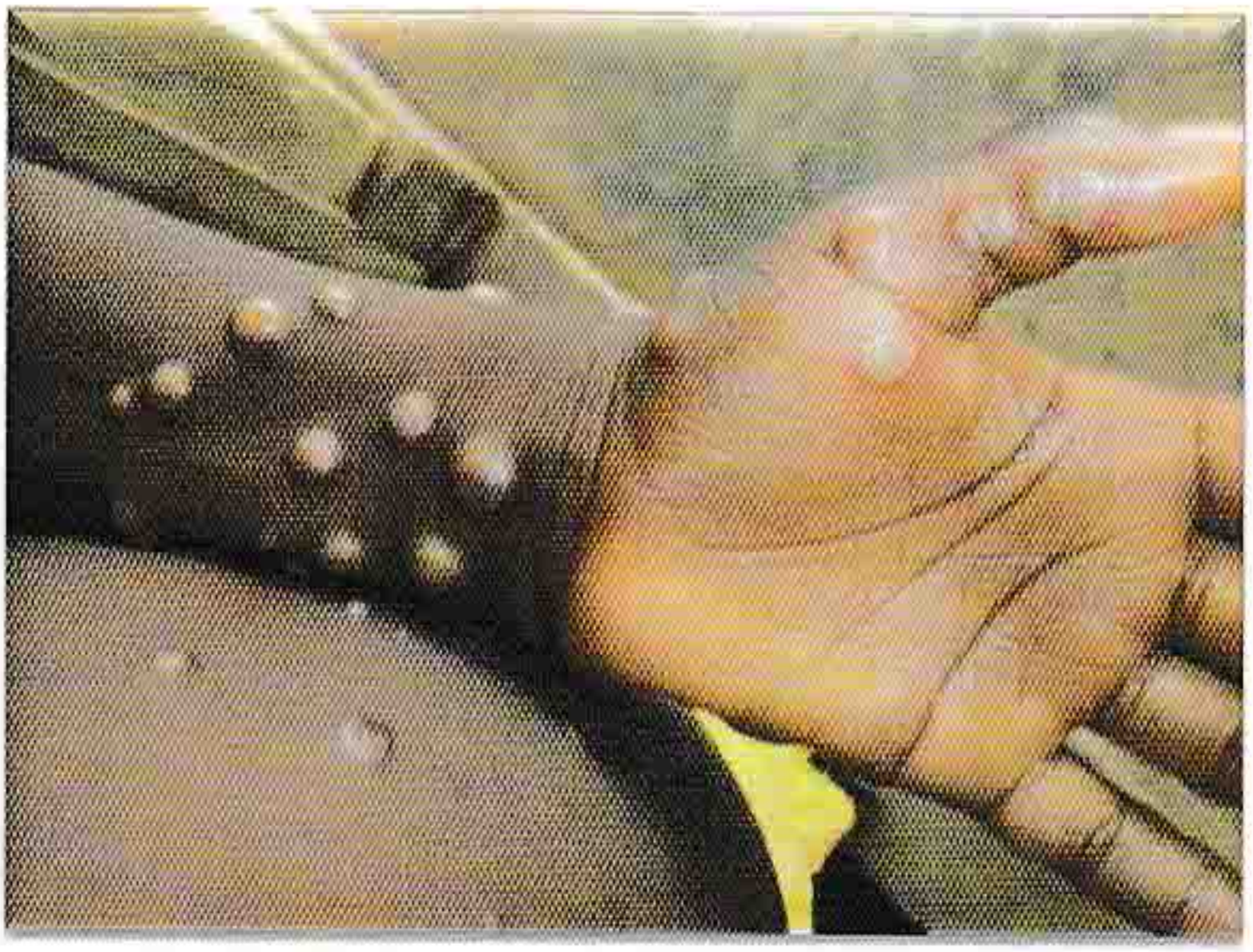


Figure 3.1: Deep seated, well circumscribed pustules, umbilicated

(Source: WHO 2023)

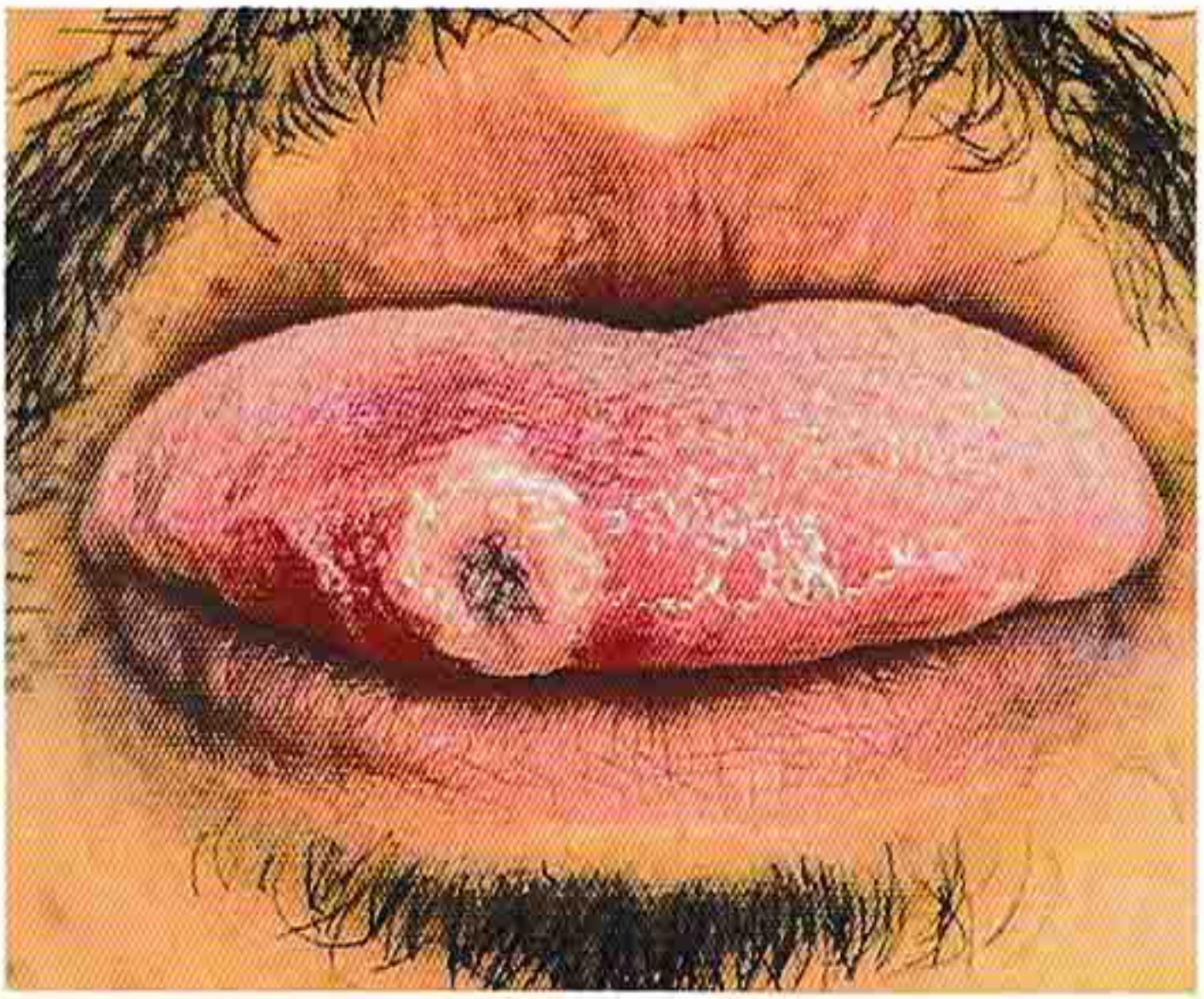


Figure 3.2: Tongue involvement (Source: WHO 2023)

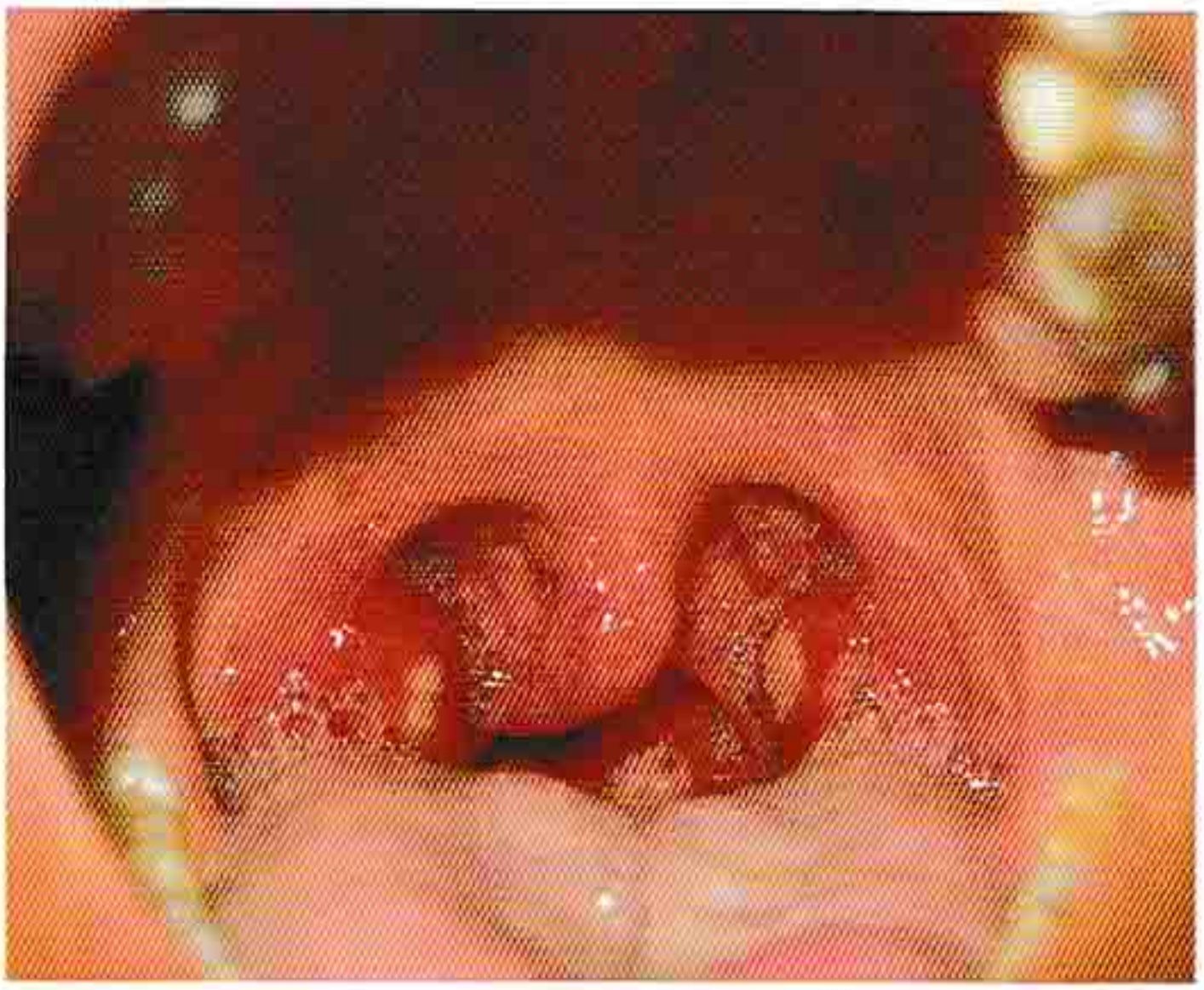


Figure 3.3: Mucosal lesion (Source: WHO 2023)

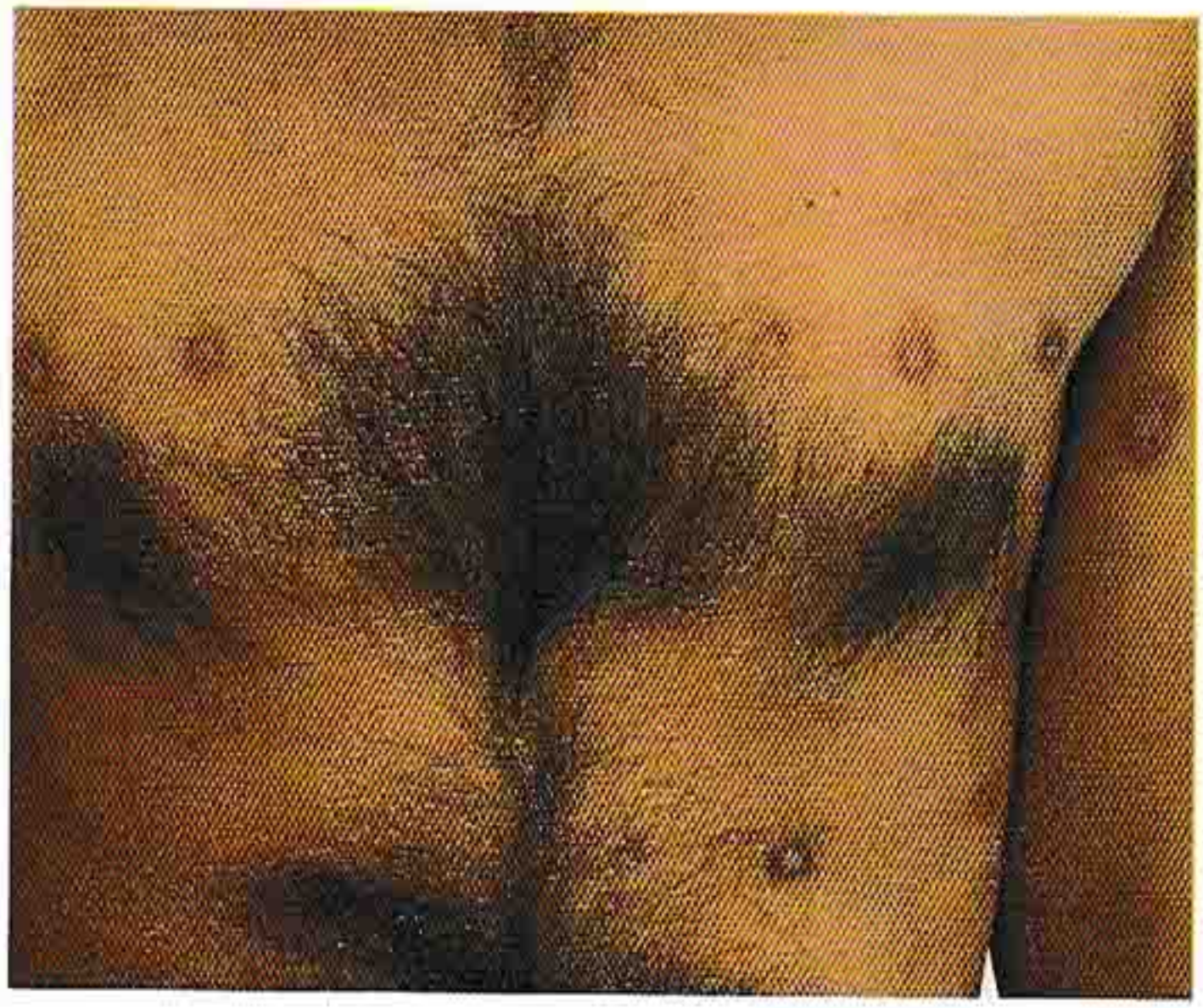


Figure 3.4: Multiple scars with hypo- and hyper-pigmentation (Source: WHO 2023)

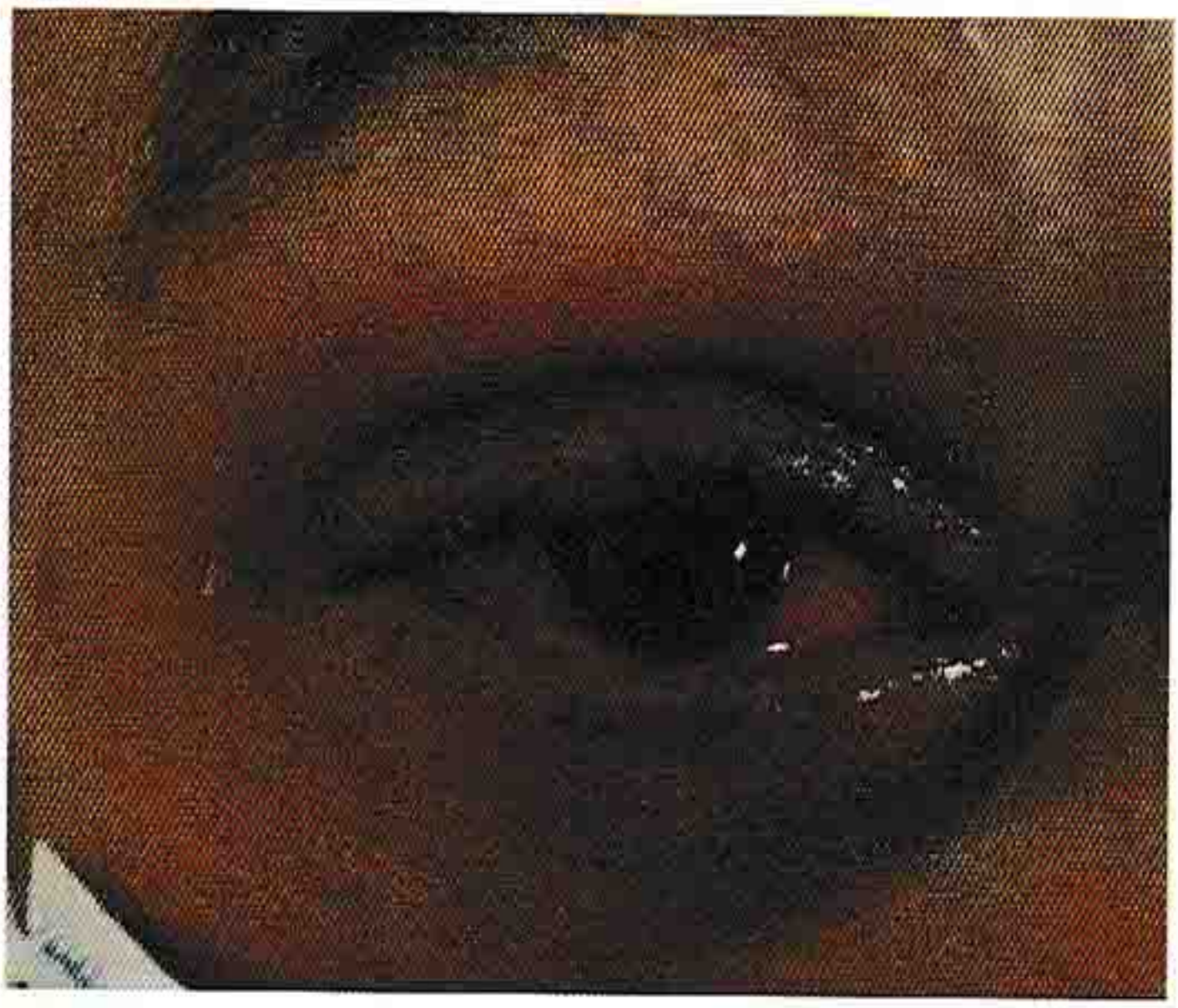


Figure 3.5: Ocular involvement (Source: WHO 2023)

3.2 Differential Diagnosis

Common:

- Varicella (Chicken pox)
- Hand foot mouth disease
- Disseminated herpes zoster
- Measles
- Infectious mononucleosis

Less common:

- Bacterial skin infection
- Scabies
- Disseminated herpes simplex
- Chancroid
- Disseminated Gonococcal infection
- Secondary syphilis
- Granuloma inguinale
- Lymphogranuloma venereun
- Molluscum contagiosum.
- Rickettsia pox
- Medication associated allergies

Table 3.2: Risk factors and clinical findings described as being associated with severe disease and poor outcomes (Source: WHO 2023)

Patient groups at higher risk of severe disease or complications	- Children, pregnant women, persons who are immunosuppressed such as persons living with HIV having poorly controlled disease. - Though data are lacking, patients with chronic skin conditions (e.g. atopic dermatitis), acute skin conditions (i.e. burns) may also be at higher risk for complications, such as bacterial infection.
Clinical signs and symptoms of complications	- Nausea and vomiting, painful cervical lymphadenopathy causing dysphagia, poor oral intake, eye pain, vision abnormalities, hepatomegaly, sepsis, dehydration, respiratory distress/pneumonia, and/or confusion.
Laboratory abnormalities	- Elevated hepatic transaminases (AST and/or ALT), low blood urea nitrogen (BUN), low albumin, elevated white blood count (WBC), or low platelet count.

Skin lesion severity score	- Mild (< 25 skin lesions) - Moderate (25–99 skin lesions) - Severe (100–250 skin lesions) - Very severe (> 250 skin lesions).

Table 3.3: Difference between the clinical features of monkeypox, chickenpox and measles

Symptoms	Monkeypox	Chickenpox	Measles
Fever	Fever > 38 °C Rash after 1-3 days	Fever up to 39 °C Rash after 0-2 days	Fever up to 40.5 °C, Rash after 2-4 days
Rash appearance	Macules, papules, vesicles, pustules present at the same stage on any area	Macules, papules, vesicles, present in several stages	Non-vesicular rash in different stages
Rash development	Slow, 3-4 weeks	Rapid, appear in crops over several days	Rapid, 5-7 days
Rash distribution	Starts on head; denser on face and limbs; appears on palms and soles	Starts on head; denser on body; absent on palms and soles	Starts on head and spreads; may reach hands and feet
Classic features	Lymphadenopathy	Itchy rash	Koplik spots
Death	Clade I: 3.6% Clade II: 0.2%	Rare	Varies widely

3.3 Complications

- Secondary bacterial infections, Necrotizing soft tissue infection
- Bronchopneumonia, pneumonia, ARDS
- Sepsis and septic shock
- Encephalitis
- Corneal involvement (may lead to loss of vision) (figure 3.5)
- Myocarditis
- Proctitis
- Balanitis

Chapter Four: LABORATORY DIAGNOSIS

4.1 Whom to test

- Any individual meeting the case definition for a suspected/probable or clinically compatible case of Mpox
- Suspected cases at high-risk for severe infection such as immunocompromised individuals, should be prioritized for testing.
- suspected case with HIV and other STIs infection (as indicated particularly for cases that may be linked to sexual transmission).
- Health care worker having compatible clinical lesions and history of services to Mpox cases(suspected/probable/confirmed) within last 21 day
- Suspected case with prior Mpox infection/vaccination (Prior infection with Mpox or vaccination does not guarantee full protection from future infection).

Note: Any individual meeting the definition for a suspected case should be offered PCR testing for Mpox. The decision to test should be based on clinical and epidemiological factors/ link to assessing the likelihood of infection. In the absence of skin or mucosal lesions, PCR can be done on an oropharyngeal, anal or rectal swab. However, the interpretation of results from oropharyngeal, anal and rectal swabs requires caution: while a positive result is indicative of Mpox, a negative result is not enough to exclude MPXV infection. PCR testing of blood is not recommended for surveillance and diagnosis, as MPXV viremia is likely to occur early in the course of infection and has a short duration, thus false negative test results are to be expected.

Due to the range of conditions that cause skin and mucosal rashes, it can be challenging to differentiate Mpox solely based on the skin and mucosal clinical presentation, particularly in the early stages of rash, for cases with an atypical presentation, or for cases linked to sexual transmission which may not match classic descriptions of Mpox rash. When clinical suspicion for Mpox is high due to history, clinical presentation and/or atypical response to syndromic management of sexually transmitted infections, the identification of an alternate pathogen that causes rash illness should not preclude testing for MPXV, as co-infections have been identified.

Given the epidemiological characteristics observed in Mpox outbreaks, criteria such as having had contact with a person with Mpox, being a health worker, being a man who has sex with men, being a sex worker or otherwise reporting having multiple sex partners in the previous three weeks, can all be suggestive of the need to test for MPXV.

Where children or adolescents may be at risk, particularly but not exclusively in areas where Mpox is endemic and continues to occur, the differential diagnosis for rash and fever illness should include Mpox and investigation should be initiated.

If there is any animal-to-human transmission, epidemiological criteria to test for MPXV include known or presumed contact with wild animals (dead or alive) and/or contact with sick animals in the 21 days before the onset of symptoms.

Serological tests for OPXV antibodies can be appropriately used in an outbreak investigation or research setting but their results are to be interpreted with caution, since they cannot distinguish between immunity due to Mpox or another orthopoxvirus-related infection or immunity generated by prior smallpox or Mpox vaccination.

4.2 Specimen collection

4.2.1 Personal safety and laboratory biosafety and security

- Follow standard operating procedures (SOPs) for personal safety and laboratory biosafety and security.
- Sample collectors to be trained to ensure to use SOPs, PPEs, hand sanitizer, sample collection kits, disinfectant, biohazard bags
- Lab personnel should be trained and skilled on biosafety, biosecurity and Good microbiological technique
- All specimens collected for laboratory investigations should be regarded as potentially infectious and contained with proper safety and security
- Laboratory personnel preferably should be vaccinated

4.2.2 Specimen to be collected:

Specimens: Swabs from skin lesion, mucosal lesion, oropharynx/nasopharynx, anal canal or rectum

- Recommended specimen: skin and or mucosal lesion material, including swabs of lesion surface and/or exudate, or lesion crusts.

Vigorously swab the lesion, transport dry in capped tubes.

Specimens from two/more lesions should be collected in one single tube, preferably from different locations on the body.

- Lesions, crusts and vesicular fluids should be collected in separate tubes.
- Alternative specimens, such as oropharyngeal swabs to be collected in the absence of skin or mucosal lesions. These are less sensitive for diagnosis than material from skin lesions. For this reason, a negative result should be interpreted with caution.
- Blood specimens are generally not useful for diagnosis of acute illness unless this is taken to exclude other infections.

Table 4.1: Clinical samples to be collected from the cases as per the criteria mentioned below

<table>
<tr><th colspan="3">Traveller from outbreak /endemic region or Community Transmission</th></tr>
<tr><td>Asymptomatic</td><td colspan="2">- Observe for the development of any signs and symptoms for 21 days' post exposure.
- If signs and symptoms develop, collect specimens* according to clinical phases shown below:</td></tr>
<tr><td rowspan="2">Symptomatic</td><td>Rash phase**</td><td>Recovery phase</td></tr>
<tr><td>Lesion
- Roof- with scalpel or plastic scrapper collected in plain tube
- Fluid with intradermal syringe
- Base scrapings with sterile polyester swab collected in plain tube
- Crust in plain tube
- NPS/OPS in dry plain tube [without any bacterial medium or VTM]
- Urine in sterile urine container (3-5ml)</td><td>- Blood collected in Serum Separation Glass Tube (4-5 ml)</td></tr>
<tr><td>Investigation***: Nucleic Acid Amplification Testing e.g. PCR for Mpox DNA.</td><td>Investigation: IgM Antibody testing</td></tr>
</table>

* The specimens from lesion should be collected from multiple sites, where feasible biopsy is an option.
PCR from blood sample is inconclusive due to short period of viremia.
Lesion samples must be stored in a dry, sterile tube (no viral transport media) and kept cold.

** If multiple swab sample from different site is collected from the same patient, all swab sticks should be placed in same tube if not any other instructions given.

*** Follow WHO latest Guideline on laboratory procedure

4.2.3 Sample storage & transportation

- Label specimen with unique ID number, Age, sex, place of collection, date of collection, specimen name
- Package with three packaging layers as of SOPs
- Refrigerate (2–8°C) or freeze (-20°C or -80°C) specimens within an hour after collection. Store refrigerated specimens for up to 3 days and frozen specimens for up to 60 days or longer period.

- Send refrigerated specimens within 3 days of collection; ship frozen specimens within 60 days of collection to NPML-IPH lab / IEDCR as soon as possible after collection.

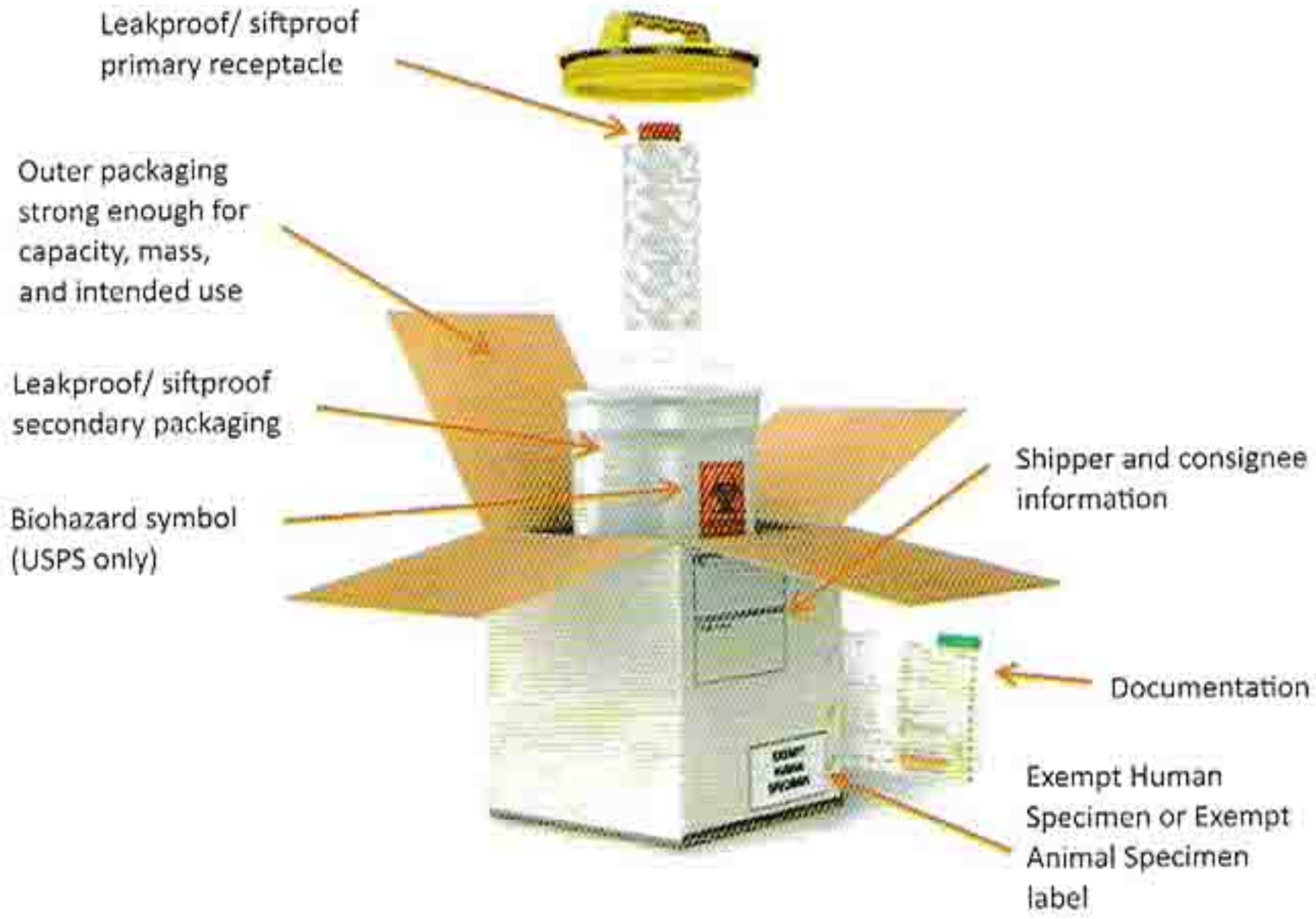


Figure 4.1: Exempt human specimen or exempt animal specimen packaging (Source: CDC 2024)

4.3 Diagnostic Modalities for Mpox on the suspected clinical specimens

a) PCR for Mpox (Mpox specific conventional PCR or real time PCR for Mpox DNA)

b) Sequencing for clade detection

4.4 Interpretation of test results

- Confirmation of MPXV infection should consider clinical and epidemiological information. Positive detection using an MPXV PCR and/or sequencing, indicates confirmation of MPXV infection.
- A number of factors could contribute to false-negative results, such as poor quality of specimen, inappropriate handling or shipping, or technical reasons inherent to the test, such as DNA extraction failure or operator error. In the case of persistently high clinical suspicion and lack of an alternative diagnosis, repeat testing should be considered.

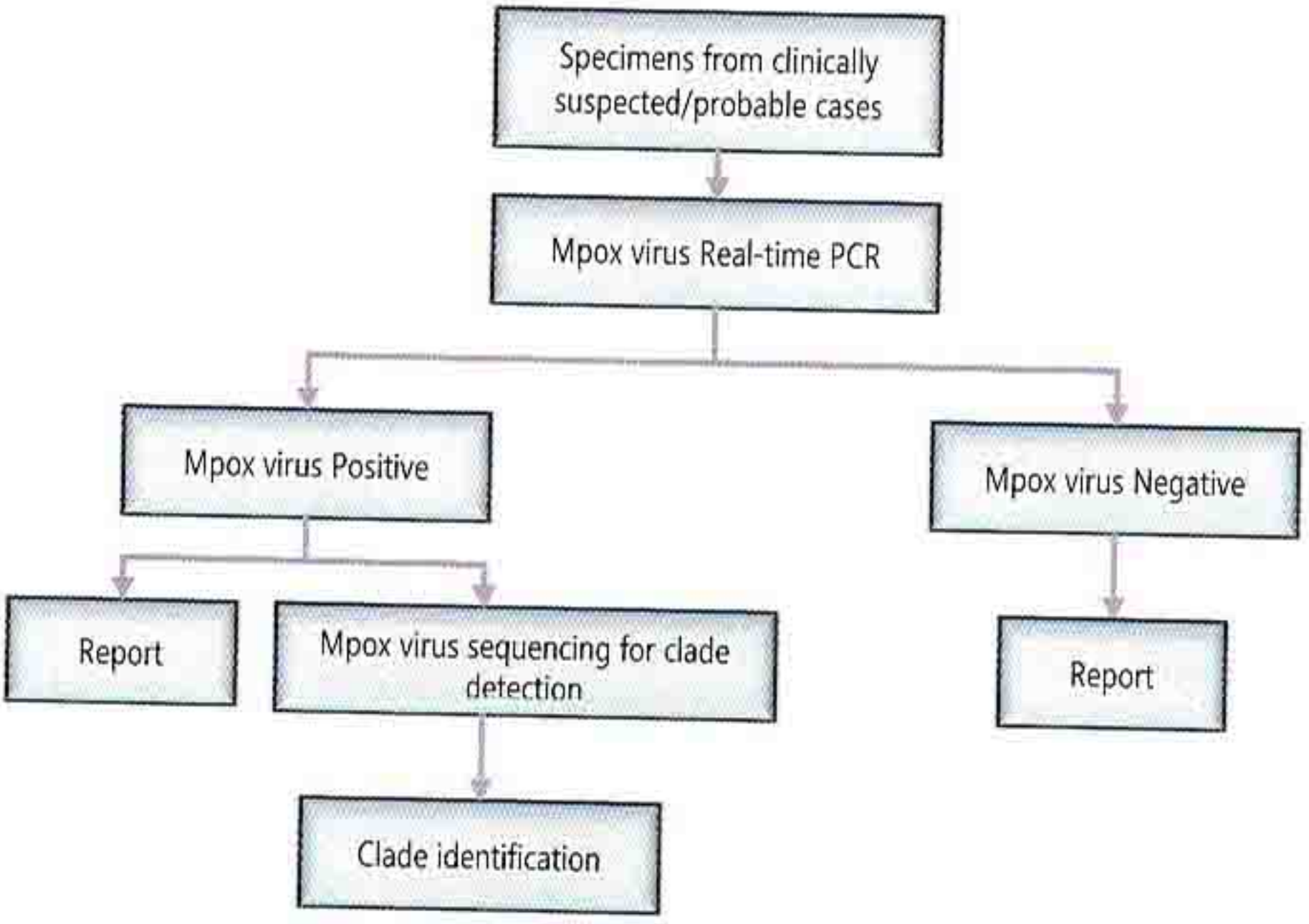


Figure 4.2: Algorithm of diagnosis for Mpox disease

Chapter Five: MPOX CASE MANAGEMENT

Figure 5.1: Principles of Case Management

5.1 Patient Isolation

- Patients with suspected or confirmed Mpox with mild or uncomplicated disease can be isolated at hospital (preferably) or at home in a separate room with dedicated bathroom for the whole duration of infectious period provided with adequate Infection Prevention & Control conditions.
- Patient and care giver to wear a medical/triple layer mask.
- Skin lesions should be covered to the best extent possible (e.g. long sleeves, long pants, light bandage) to minimize risk of contact with others.
- Isolation should be continued until all scabs have completely fallen off, lesions have resolved and a fresh layer of skin has formed (usually 21 days), may be longer for the immunocompromised persons.

5.2 General Supportive care of Mpox

Table 5.1: General and supportive management of Mpox

Component of management	Symptoms/ Signs	Management
Protection of compromised skin and mucous membranes	Skin rash	• Clean with simple antiseptic • Mupirocin/Fusidic acid • Cover with light dressing if extensive lesion present • Do not touch/ scratch the lesions • In case of secondary infection relevant systematic antibiotics may be considered

Component of management	Symptoms/ Signs	Management
	Genital ulcers	• Sitz bath: Fill the bathtub/bowl with about 3 to 4 inches of warm water. Soak in the tub for up to 20 minutes, making sure your private area is covered with water, and adding more water as needed to keep it warm. Don't add shower gel, bubble bath, or any type of soap. Don't scrub or rub the area (figure 6).
	Oral ulcers	• Warm saline gargles/oral topical anti-inflammatory gel
	Conjunctivitis	• Consult Ophthalmologist
Rehydration therapy and nutritional support	Dehydration	• Encourage ORS or oral fluids • Intravenous fluids if indicated • Encourage nutritious and adequate diet • Dehydration can occur in association with poor appetite, nausea, vomiting and diarrhoea
Symptom alleviation	Fever	• Tepid sponging • Paracetamol as required
	Itching/ Pruritus	• Topical Calamine lotion • Antihistamines
	Nausea and Vomiting	• Anti-emetics
	Headache/ Malaise	• Paracetamol and adequate hydration

5.3 Antiviral drugs

5.3.1 Considerations for treatment with antiviral drugs:

- Persons with severe & very severe disease (e.g., haemorrhagic disease, skin involvement >25%, confluent lesions, sepsis, encephalitis, or other conditions requiring hospitalization, conjunctivitis, anorectal disease, associated pre-existing extensive skin disease e.g. psoriasis, eczema, and etc.)
- Persons who may be at high risk of severe disease:

- Immunocompromised patients: HIV/AIDS, high dose steroid therapy, chemotherapy, other immunosuppressive therapy
- Paediatric populations, particularly patients younger than 8 years of age
- Pregnant or lactating 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 co-morbidities)
- Persons with mpox virus aberrant infections that include its accidental implantation in eyes, mouth, or other anatomical areas where monkeypox virus infection might constitute a special hazard (e.g., the genitals or anus)

5.3.2 Tecovirimat

Tecovirimat (also known as TPOXX or ST-246) is a novel anti-envelope antiviral drug that was used for the treatment of human smallpox, that may use in adults and paediatric mpox patients weighing at least 3 kg. It has both oral and intravenous formulation.

- Safe in pregnancy and lactation
- Side-effects of Tecovirimat: headache, nausea, abdominal pain and vomiting.
- Recommendations about Intravenous Tecovirimat:
  - Use if patients are unable to take orally, or cannot take fatty meal
  - Contraindicated in advanced renal failure (Creatinine clearance rate <30ml/min)
  - Switch to oral when patient can take orally to complete 14-day treatment, give the oral Tecovirimat at the next scheduled dosing

5.3.3 Cidofovir

Cidofovir can be considered as additional or alternative treatment to Tecovirimat for treating MPXV infections in certain situations, such as:

- Severe ocular infections
- Patient with life-threatening manifestations of Mpox (e.g. severe immunocompromised state such as advanced stage of HIV/AIDS CD4 cell count < 200cells/micro litre)
- Patient with clinically significant disease progression while receiving Tecovirimat or who have recrudescence
- Patient resistant to tecovirimat (new Mpox lesions have developed despite more than 2 weeks of Tecovirimat treatment)
- People allergic to or otherwise unable to receive Tecovirimat

Decisions on whether and when to apply these additional or alternative therapeutics must be made by the Specialist. Cidofovir is not recommended in Pregnant and lactating mother.

5.3.4 Vaccinia Immune Globulin Intravenous (VIGIV)

- VIGIV is licensed by FDA (company name) for the treatment of complications due to vaccinia vaccination. However, it is not approved for the treatment of Mpox
- VIGIV can be considered for prophylactic use in an exposed person with severe immunodeficiency where smallpox or Mpox vaccination following exposure to Mpox infection is contraindicated.
- Patients who receive VIGIV typically are concomitantly receiving both tecovirimat and cidofovir.

Table 5.2: Route, Dose and Duration of antivirals authorized for Mpox

Dose		Tecovirimat	Cidofovir
Adults	**Oral dose**	600 mg every 12 hours	Not available
	Intravenous dose	<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	5 mg/kg IV once weekly Must be given with oral probenecid: 2 grams 3 hours prior to each dose and 1 gram at 2 and 8 hours after completion of the infusion Must be given with at least 1 L of 0.9% normal saline over a 1–2 hour period before each infusion
	Duration	14 days	Once weekly × 2 weeks, then once every other week
Paediatrics	**Oral dose**	13–25 kg: 200 mg every 12 hours	Not available

Dose		Tecovirimat	Cidofovir
		25–40 kg: 400 mg every 12 hours > 40 kg: 600 mg every 12 hours	
	Intravenous dose	3–35 kg: 6 mg/kg every 12 hours 35–120 kg: 200 mg every 12 hours > 120 kg: 300 mg every 12 hours *Must be given over 6 hours	5 mg/kg IV once weekly Must be given with oral probenecid: 2 grams 3 hours prior to each dose and 1 gram at 2 and 8 hours after completion of the infusion Must be given with at least 1 L of 0.9% normal saline over a 1–2 hour period prior to each infusion.
	Duration	14 days	Once weekly × 2 weeks, then once every other week
Dosage forms and strength		Capsule: 200mg IV: 200 mg/20ml	IV: supplied as single-use vials 75 mg/ml for IV infusion

5.4 Management in special situation

5.4.1 Mental health care of patients with Mpox

- Prompt identification and assessment for anxiety and depressive symptoms, post-traumatic stress disorder (PTSD) related to Mpox.
- The Mpox outbreak can lead to significant mental and psychosocial effects, including:
  - Fear of the disease or death, loss of sense of meaning of life, or loss of faith
  - Physical and social isolation from family or community
  - Stigma associated with diagnosis and returning to the community
  - Scarring and disability (e g blindness) associated with the disease

- Patients with Mpox should receive compassionate, respectful, people-centred care consistently. Ensure appropriate and adequate protection of household members, visitors and health workers.
- Sleep hygiene advice (including avoiding the use of psychostimulants such as caffeine, nicotine or alcohol), and stress management (including relaxation techniques and mindfulness practices) are effective in reducing sleep problems.
- A psychologist, social worker, or nurse psychosocial provider fluent in the local language will be involved from the onset of the disease to counsel the patient is ideal. If not possible, then nurses in the hospitals should be trained and supervised to provide basic psychological support using standardized protocols.
- Remove possible means of self-harm, talk about thoughts or acts of self-harm and suicide such as sense of isolation, loss of a loved one, job, or financial loss and hopelessness, follow up with the person.
- If a person's anxiety or depressive symptoms persist even after recovery from Mpox, then a mental health professional should be consulted.

5.4.2 Caring for pregnant women and lactating mother

- Mild or uncomplicated Mpox infection in pregnant women may not require acute care in hospital but close monitoring of disease progression in a health facility is preferred.
- Severe or complicated disease should be admitted to a hospital.
- Counselling should be done about healthy diet, mobility and exercise, intake of micronutrients, adequate fluid & maintain proper antenatal & postnatal check-ups.
- IPC measures should be strictly maintained during labour, childbirth and during the woman's and newborn's postnatal stay in the hospital.
- Induction of labour and caesarean section should only be undertaken when medically justified.
- Delayed umbilical cord clamping (not earlier than 1 minute after birth) is recommended. There is no evidence that delaying cord clamping increases the possibility of viral transmission from the mother to the newborn.
- Placenta, amniotic or foetal tissue fluid must be disposed of following specific IPC protocols
- Counsel on safe sexual practices
- Pregnant women who have recovered from Mpox should be enabled and encouraged to receive routine antenatal, postpartum, or abortion care, as appropriate.
- Woman-centred, respectful, skilled care is suggested and provided to all women in a manner that maintains their dignity, privacy and confidentiality.

- Limited research suggests that Mpox infection during pregnancy may lead to vertical transmission as well as adverse outcome of pregnancy (such as spontaneous abortion and stillbirths).

5.4.3 Caring for infants and young children

- Newborn infants of mothers with Mpox should be monitored closely for evidence of potential congenital or perinatal exposure of infection. Mothers and infants or young children can also be exposed through close contact.
- It is currently unknown whether the Mpox virus or antibodies are present in the breastmilk of lactating mother.
- Weighing the risk/benefit ratio, decision will be taken for separation of mother and infant.
- General protective IPC measures should be taken by mothers with Mpox when handling and feeding their infants (e g. washing hands [Handwash steps in Annexure-1] before and after each feeding, wearing a mask, covering any lesions on the feeding area which have direct contact with the infant, feed from the non-affected breast and discard the milk from the affected breast etc).
- If the infant is less than 6 months and is separated from their Mpox infected mother, donor human milk or appropriate safe breastmilk substitutes can be given to the infant.
- For infants 6–23 months of age who cannot access donor human milk or appropriate breastmilk substitutes, animal pasteurised milk is appropriate along with complementary foods.
- If there is a history of exposure to Mpox & with no symptoms suggestive of infection, then mother, infant or young child should not be separated. They should continue breastfeeding while signs and symptoms of Mpox should be closely monitored.
- Children exposed to Mpox should be fully vaccinated for age according to the routine national immunization schedule and should have their vaccinations up to date, when possible.
- Children should not sleep in the same room or bed or drink/eat from the same utensils as an individual with Mpox infection.
- Children are at greater risk than adults for severe disease such as encephalitis and sepsis as well as death. Young children with Mpox may be considered for care in hospital to monitor closely. Young children should not be isolated alone. There should be one person (parent or caregiver), who is healthy and not at high risk provided with appropriate IPC measures.
- An age-appropriate tetanus toxoid vaccine for infants and children with incomplete childhood vaccination, and for any person who has not completed the recommended tetanus vaccination schedule previously, should be administered.

5.4.4 Caring for sexually active population

- All patients should be advised to abstain from sex until all skin lesions from Mpox have crusted, scabs have fallen off and a fresh layer of skin has formed underneath.
- Barrier method (condoms) should be used consistently during sexual activity. But should be made aware that the use of condoms alone cannot offer protection against acquisition and transmission of disease.
- The use of condoms consistently during sexual activity (receptive and insertive oral/anal/vaginal) for 12 weeks after recovery from Mpox is suggested.
- Co-infection with other STIs should also be considered and managed accordingly (testing should be performed for HIV, syphilis, genital HSV, and screening for STIs).
- Coinfection of HIV with mpox: continue Antiretroviral treatment as before & start the ART ASAP in new patients.
- It should be noted that the antivirals for Mpox have important drug-drug interactions with some of the antivirals used to treat HIV.
- People living with HIV on ART with suppressed viral load are not considered to be immunosuppressed.

Chapter Six: PREVENTION

6.1 Vaccines

- Multiple studies suggest that the smallpox vaccine is at least 85% effective in preventing Mpox
- Vaccination against Smallpox are protective against Mpox when given before exposure to Mpox
- Experts believe that vaccination after a monkeypox exposure may help prevent the disease or make it less severe
- Not recommended for persons who already recovered from Mpox.
- Booster dose is not recommended.

6.1.1 Two live attenuated Vaccines (JYNNEOS and ACAM2000) were licensed by FDA as follows:

a) JYNNEOS (also known as IMVAMUNE, IMVANEX, MVA)

JYNNEOS (Live non-replicating modified Vaccinia Ankara) is indicated for prevention of smallpox and monkeypox disease in adults 18 years of age and older determined to be at high risk for smallpox or monkeypox infection.

Dose: 2 doses, 28 days apart. (0.5 ml if SC, 0.1 ml if ID)

- 1st dose should be given within 4 days of exposure (but can be given up to 14 days if the person is asymptomatic)
- Can be given in immunocompromised including HIV/AIDS patients
- Efficacy more than 80%.
- Use with caution in patients with hypersensitivity to gentamycin, ciprofloxacin, chicken and egg proteins.

b) ACAM2000

ACAM2000 is indicated for active immunization against smallpox at high-risk group and also may use during Mpox outbreak

- Replication competent Vaccinia vaccine
- Single dose (route name of needle)
- Contraindicated in immunocompromised host

6.1.2 Pre-Exposure Prophylaxis

- Not recommended for general population
- Indications are:
  - Health care professionals and Laboratory personnel at risk of occupational exposure to Mpox
  - Outbreak response team members at risk of occupational exposure to Mpox
  - High risk population

6.1.3 Post-Exposure Prophylaxis

- Contacts of confirmed or probable cases of Mpox, should be given within 4 days of exposure (but can be given up to 14 days if the person is asymptomatic)

6.2 Risk Communication and Preventive Measures

- Raising awareness of risk factors and educating people about the measures they can take to reduce exposure to the virus is the main prevention strategy for Mpox.
- There are number of measures that can be taken to prevent infection with Mpox virus:
- Avoid contact with any materials, such as bedding, that has been in contact with a sick person.
- Isolate cases.
- Practice good hand hygiene after contact with infected animals or humans. For example, washing your hands with soap and water or using an alcohol-based hand sanitizer.
- Use appropriate personal protective equipment (PPE) when caring for patients.

6.2.1 Reducing the risk of human-to-human transmission

- Surveillance and rapid identification of new cases is critical for outbreak containment. During human Mpox outbreaks, close contact with infected persons is the most significant risk factor for Mpox virus infection.
- Health workers and household members are at a greater risk of infection. Health workers caring for patients with suspected or confirmed monkeypox virus infection, or handling specimens from them, should implement standard infection control precautions.
- Samples taken from people and animals with suspected Mpox infection should be handled by trained staff working in suitably equipped laboratories.
- Patient specimens must be safely prepared for transport with triple packaging.

a) Infection Prevention and Control (IPC)

- A combination of standard, contact, and droplet precautions should be applied in all healthcare settings when a patient presents with fever and unexplained vesicular/pustular rash.
- Clinical triage includes early recognition and immediate placement of patient in separate area with separate bathroom and ventilation from other patients (source control).

- All individuals, including family members, visitors and HCWs should apply standard, contact and droplet precautions (e g. use medical mask, hand washing).

b) Patient isolation

- Patients should be isolated at hospital or home.
- By avoiding close contact with other people, infected persons can help to protect those around them.
- Precautions should be taken (e g. placing a medical mask over the patient's nose and mouth if tolerable to patient, covering any of the exposed skin lesions with a sheet or gown). Precaution steps shown in Annexure-3

c) IPC at home

- Patients of mild or uncomplicated Mpox infection should be managed at home following preventive measures:
- Patients should be isolated in a room or area separate from other family members. Healthy household members should limit contact with the patient.
- Those recovering from Mpox at home should protect others by staying in a separate room, ensuring good ventilation, using separate utensils, doing their own laundry, and cleaning shared spaces such as bathrooms after every use.
- Patients should not leave the home except for medical care.
- No visitors should be allowed.
- Patients, especially those who have respiratory symptoms (e.g., cough, shortness of breath, sore throat) should wear a medical mask. If this is not tolerable, all household members should wear medical mask in the presence of the patient at home.
- Disposable gloves should be worn for direct contact with lesions and disposed of after use.
- Skin lesions should be covered to the best extent possible (e.g., long sleeves, long pants, light bandage) to minimize risk of contact with others.
- Contain and dispose of contaminated waste (such as dressings and bandages) in the biomedical waste disposable bag. Do not dispose of waste in landfills or dumps.
- Proper hand washing with soap and water (or use of an alcohol-based hand rub) should be performed by the patient and other household members after touching lesion material, clothing, linens, eating utensils, or environmental surfaces that are contaminated by Mpox.
- Laundry (e.g., bedding, towels, clothing) may be washed with warm water and detergent;

- Care should be used when handling soiled laundry to avoid direct contact with contaminated material.
- Soiled laundry should not be shaken or otherwise handled in a manner that may disperse infectious particles.
- Dishes and other eating utensils should not be shared. Soiled dishes and eating utensils should be washed with warm water and dish washing soap.
- Pets and domestic animals should be excluded from the patient's environment.

d) Additional Precautions

- PPE (Disposable gown, gloves, N95 mask, Eye goggles) should be donned before entering the patient's room and used for all patient contact. All PPE should be disposed of prior to leaving the doffing area of isolation room. (PPE downing steps shown in Annexure-2)
- Hand hygiene (following standard steps) after all contact with an infected patient and/or their environment during patient care.
- Correct containment and disposal of contaminated waste (e.g., dressings) should be kept in yellow bag and sent for appropriate disposal in accordance with the Infection Prevention and Control Guidelines by CDC, DGHS.
- Handling soiled laundry (e.g., bedding, towels, personal clothing) carefully to avoid contact with infected material.
- Soiled laundry should never be shaken or handled in a manner that may disperse infectious particles.
- Care when handling used patient-care equipment in a manner that prevents contamination of skin and clothing. Ensure that used equipment has been cleaned and decontaminated appropriately according to standard operating procedure.
- Ensure standard IPC activities for cleaning and disinfecting environmental surfaces in the patient care environment in accordance with the Infection Prevention and Control Guidelines by CDC, DGHS.

e) Duration of Isolation

- Isolation precautions should be continued until all skin lesions have resolved and a fresh layer of skin has formed underneath.

6.2.2 Risk communication and community engagement

- The risk communication and community engagement (RCCE) for effective communication and engagement with communities and relevant stakeholders before, during and after public health emergencies.
- This includes providing public health advice through the multimodal channels that target audiences use on how the disease transmits, its symptoms,

complications, monitoring, preventive measures and what to do in case of suspect or confirmed infection. This should be combined with targeting community engagement to the population groups who are most at risk, working closely with health care providers, including STD clinics, and civil society organizations.

- For infodemic management risk communication should be informed by insights from social listening detecting public sentiment and should timely address possible rumours and misinformation.
- Health information and advice should be provided avoiding any form of stigmatization of certain groups such as men who have sex with men (MSM).
- The key measures that can be taken to prevent infection with Mpox virus:
- Isolate infected patients from others who could be at risk for infection.
- Avoid direct contact and indirect contact with any infected materials, such as bedding, linens, towels, eating utensils etc.
- Use masks and gloves when caring for both the patient and caregiver.
- Practice good hand hygiene after contact with infected persons. For example, washing your hands with soap and water or using an alcohol-based hand sanitizer.

6.2.3 Ambulance Transfer

- When a case has to be transported, the personnel accompanying the patient should wear PPE (long sleeved gown, N95 mask, gloves, and goggles). In the ambulance, if the driver's chamber is not separate, driver should also use PPE.
- Give prior information to the hospital of the admission/transfer of a potentially infectious person.
- Request patient to wear a mask (if tolerated) and counsel on respiratory hygiene and cough etiquette.
- Cover the skin lesions with long sleeved clothing/pant, a clean sheet, or disposable linen.
- The ambulance should be cleaned and disinfected with soap water/1% hypochlorite before using for the other patients.
- After wearing PPE, surfaces (stretcher, chair, door handles etc.) should be cleaned with a freshly prepared 1% hypochlorite solution or equivalent.
- Carefully place reusable blankets in a bag without shaking or fluffing them, then put into a laundry bag and send for laundering with a clear label. The person in the laundry should wear appropriate PPE before handling or autoclaves it before opening.
- All masks and any contaminated waste with crusts, secretions, serum or body fluids should be disposed of as infectious waste in yellow bag and sent for appropriate disposal.

6.3 Surveillance

6.3.1 Surveillance Strategies

The aims of the proposed surveillance strategy are to rapidly identify cases, contacts and clusters of Mpox infection as soon as possible in order to:

- isolate cases to prevent further transmission
- provide optimal clinical care
- identify and manage contacts
- protect frontline health workers
- effective control and preventive measures based on the identified routes of transmission.

6.3.2 Surveillance outline

- Use Standard Case Definitions.
- One case of Mpox is to be considered as an outbreak. A detailed investigation by the Rapid Response Teams needs to be initiated according to the national Guidelineline.
- Report any suspected case immediately to the CDC-DGHS, IPH and IEDCR.
- After proper isolation of the patient in Mpox designated hospitals
  Presently designated are:
  - Infectious Disease Hospitals (IHD), Dhaka;
  - Kurmitola General Hospital (KGH), Dhaka;
  - Bangladesh Institute of Tropical & Infectious Diseases (BITID), Chattogram;
  - Shahid Shamsuddin Hospital, Sylhet.
- Samples will be collected and sent to IPH, IEDCR and NILMRC to be tested.

6.3.3 The salient features include:

- Targeted surveillance for probable case or clusters.
- Initiate contact tracing and testing of the suspected case after the detection of the suspected/probable/confirmed case.

6.3.4 Core Surveillance Strategy

a) Hospital based Surveillance: - Health facility-based surveillance & testing – in Dermatology clinics, STD clinics, medicine, paediatrics, OPDs, etc.

b) Targeted Surveillance: This can be achieved by:

- Measles surveillance by EPI programme, DGHS
- Targeted intervention sites for MSM, FSW population by CDC & HIV AIDS programme.

6.4 Reporting

Reporting of cases to be done to CDC & MIS, DGHS (central control room), IPH and IEDCR.

6.5 Contact tracing

6.5.1 Definition of a contact

A contact is defined as a person who, in the period beginning with the onset of the source case's first symptoms, and ending when all scabs have fallen off, has had one or more of the following exposures with a suspected, probable or confirmed case of Mpox:

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

6.5.2 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.

6.5.3 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 day care, nursery, or other group settings.
- Health workers who have unprotected exposures to patients with Mpox or possibly contaminated materials do not need to be excluded from work duty if asymptomatic but should undergo active surveillance for symptoms for 21 days.

6.6 Management of deceased persons

- Handling of human remains (infected skin lesions, body fluids) of deceased persons with MPX should be contained with appropriate IPC measures (perform hand hygiene, wear PPE according to contact and droplet precautions.

- The body should be wrapped in a cloth and transferred to the mortuary ASAP.
- Ensure a safe and dignified burial according to cultural and religious traditions. Family and friends may view the body after it has been prepared for burial, in accordance with local customs
- They should not touch or kiss the body and should clean their hands with soap and water or alcohol-based hand sanitizer after the viewing.

Chapter Seven: INFECTION PREVENTION & CONTROL

Infection Prevention and Control measures are very important for the safety of patients and healthcare workers. To protect the healthcare workers from different infections and reduce the transmission of infections among general population, a strong IPC system is essential.

7.1 Ensuring Triage for early recognition and source control

Logistics required:

- Thermometer
- Masks for all cases
- Disposable towels
- Biohazard bags with colour-coded bin
- Personal protective equipment for health care staffs (Hand gloves, face masks and/or respirators, disposable gowns, googles, boots)
- Hand hygiene supplies (Soap-water or hand sanitizer).

Infrastructure:

- A well-ventilated separate triage room
    - Sitting arrangement (preferably at least 2-meter distance)
    - Dedicated wash basin with hand wash facilities
- Dedicated entrance from outdoor/emergency to triage room and separate exits
- Ticket counter

7.2 Application of Standard Precautions

Standard Precautions are the infection prevention practices that to applied for patient care and personal safety.

Elements for Standard Precaution

- Hand hygiene [soap-water/ alcohol based (70% alcohol) handrub]
- Respiratory hygiene and cough etiquette (cover cough-sneeze and use tissue paper)
- Personal protective equipment (PPE) use (Hand gloves, face mask and/or respirators, disposable gowns, goggles, boots)
- Safe injection practices, sharps management and injury prevention
    - Properly sterilized instruments use
- Safe handling, cleaning and disinfection of patient care equipment (including sample, patient care area) and disposal of medical waste.
- Decontaminate environmental surfaces (patient care area, work surfaces, table, room etc.) and safe handling and cleaning of soiled linen

- Waste management

7.2.1 Hand hygiene

Hand hygiene means cleaning your hands by using either soap-water or antiseptic hand rub (i.e. alcohol-based hand sanitizer including foam or gel)

Based on WHO-defined 5 critical moments, hand hygiene is required to reduce risk of pathogen transmission-

- Immediately before touching a patient
- Before clean/aseptic procedure (e.g. placing an indwelling device, opening venous access line, performing wound care)
- After contact with body fluids or (secretions, excretions, and wounds) or contaminated surface 4. After touching a patient
- After touching patient's surrounding environment (items or surfaces known or likely to be contaminated)

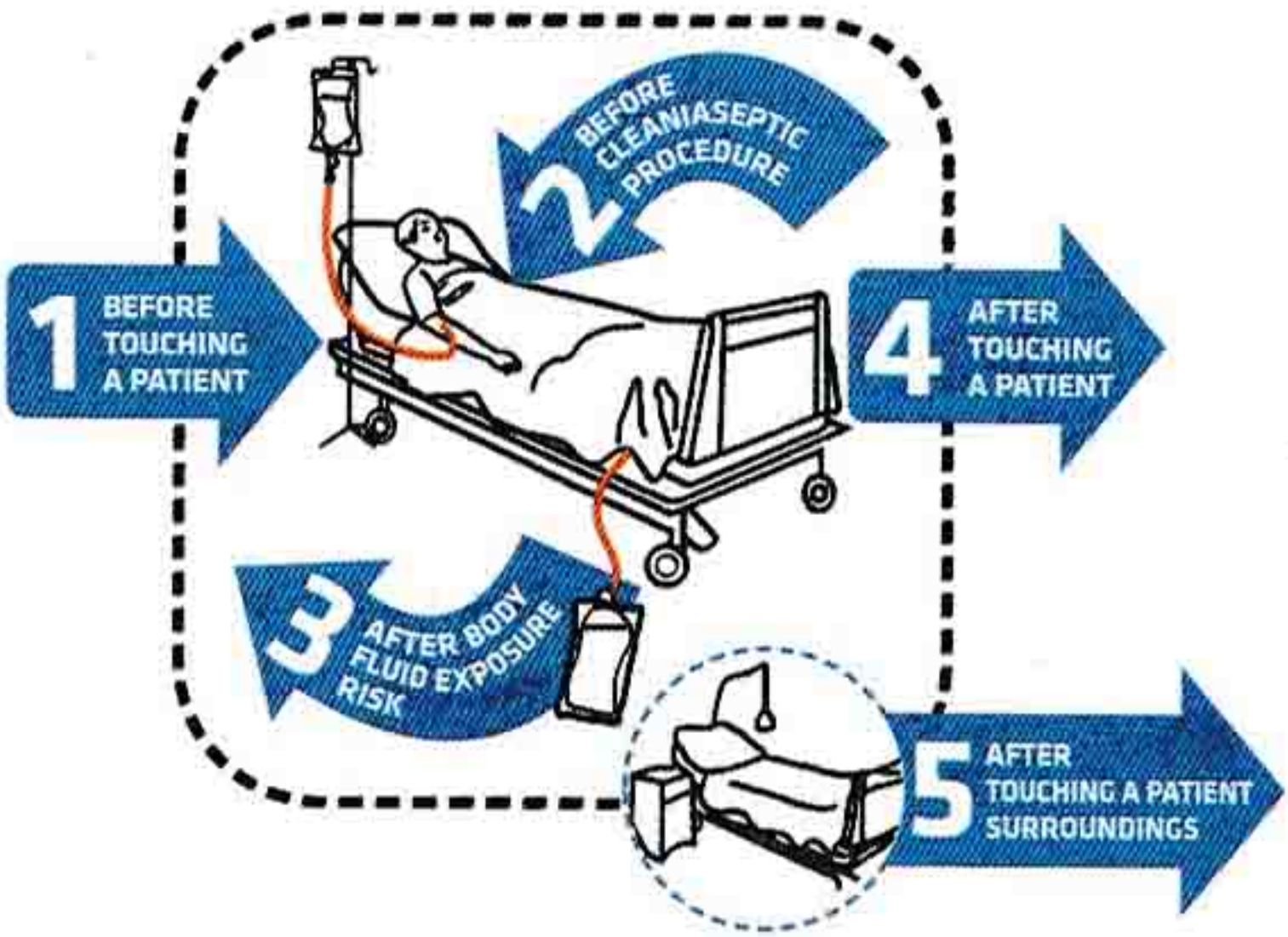
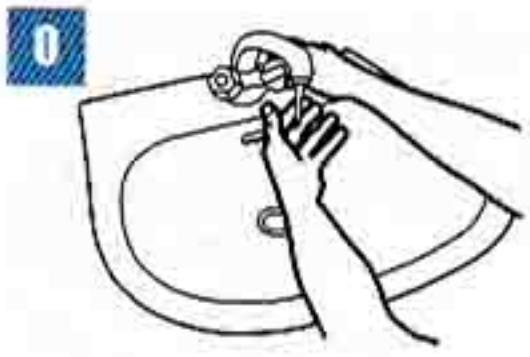


Figure 7.1: WHO recommended five-moments for hand hygiene

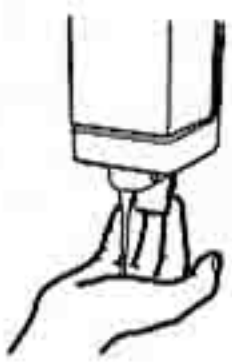
Materials used for hand hygiene

1. Soap and water
2. Alcohol-based hand sanitizer

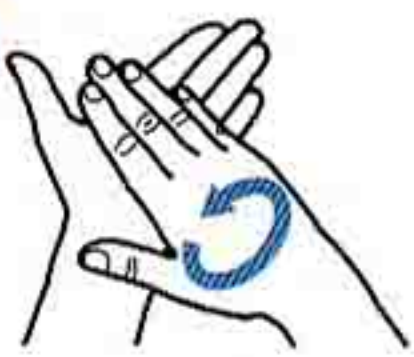
- Handwashing with soap- water for at-least 20-60 seconds.



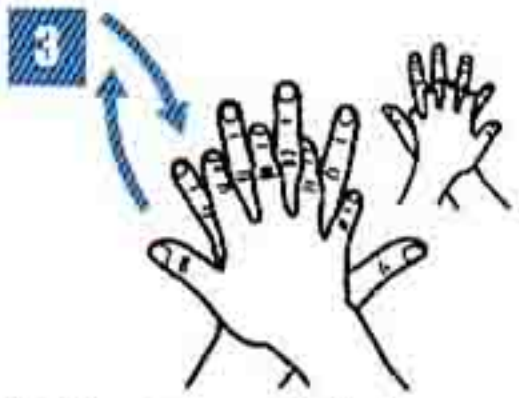
Wet hands with



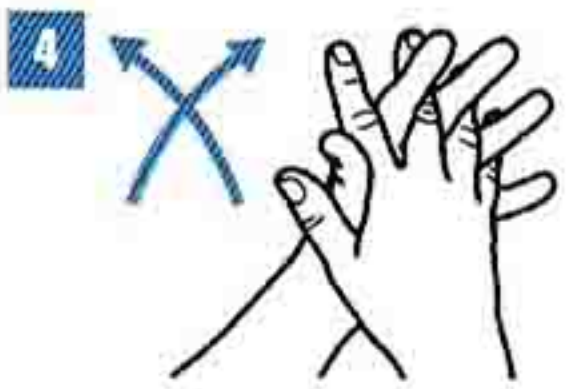
Apply enough soap to all hand



Rub hands palm to



Right palm over left dorsum with interlaced fingers and vice versa:

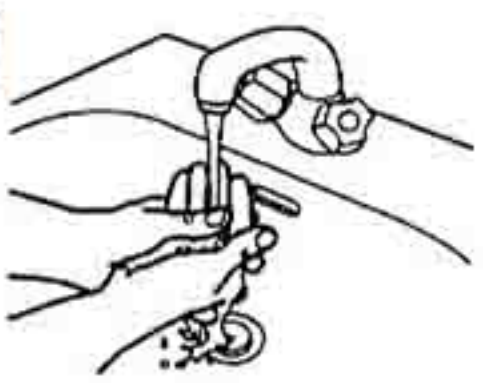


Palm to palm with fingers interlaced:

Backs of fingers to opposing palms with fingers interlocked:

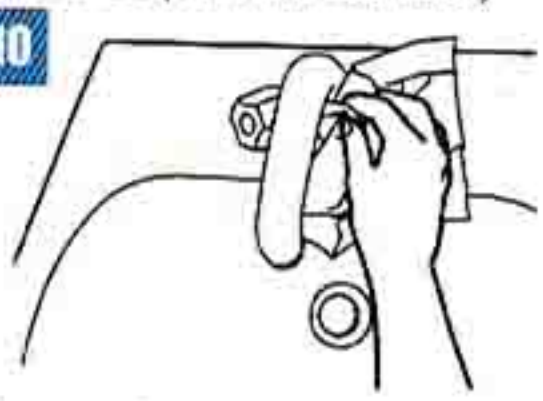
Rotational rubbing of left thumb clasped in right palm and vice versa:

Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;

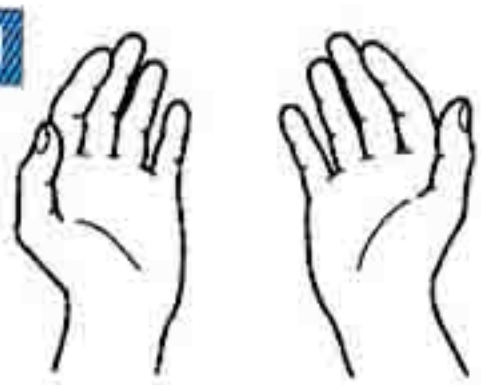


Rinse hands with water;

Dry hands thoroughly with a single use towel:



Use towel to turn off faucet;



Your hands are now safe.

Figure 7.2 The steps of hand washing with running water

- Rub hand with alcohol-based formulation

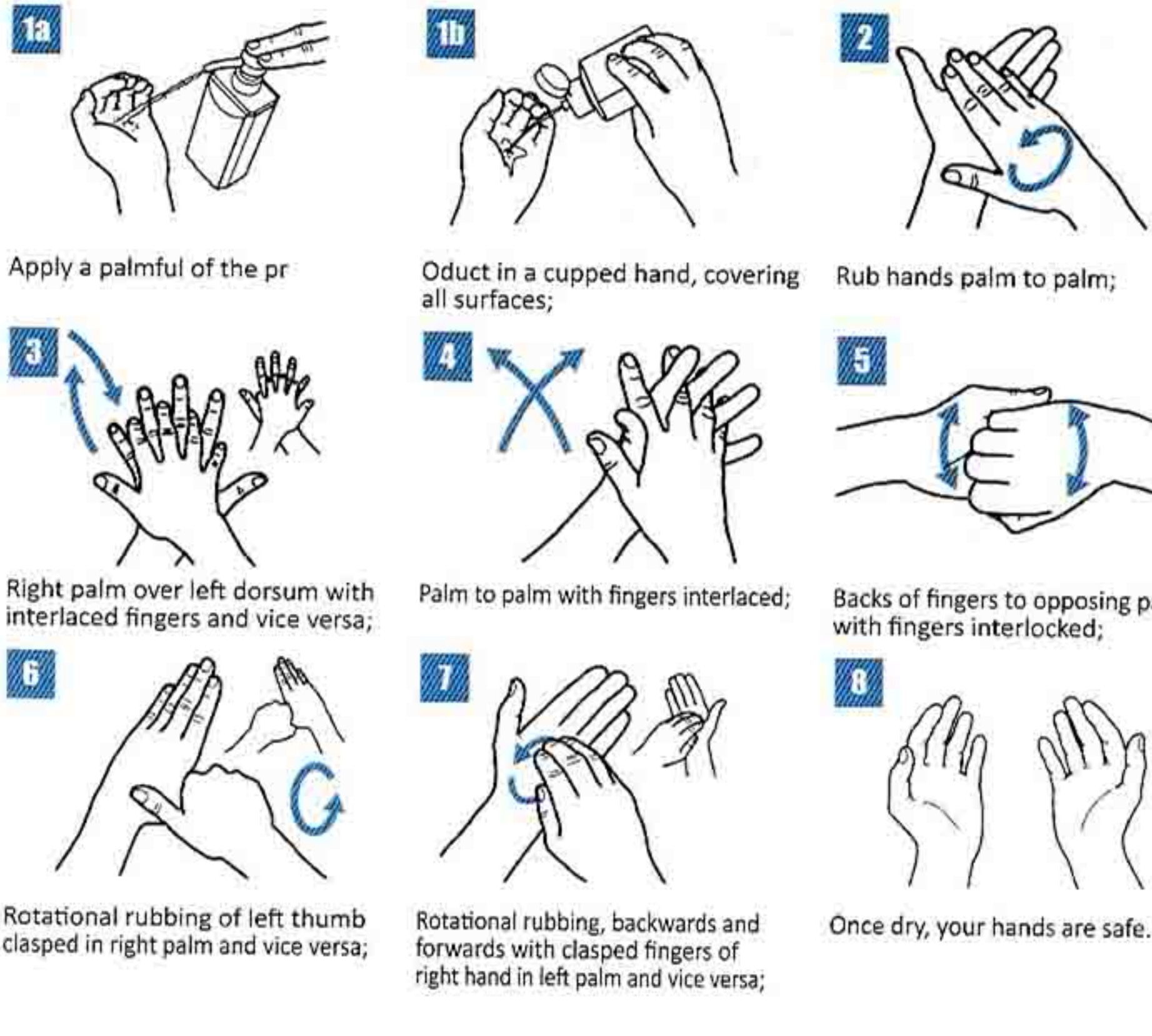
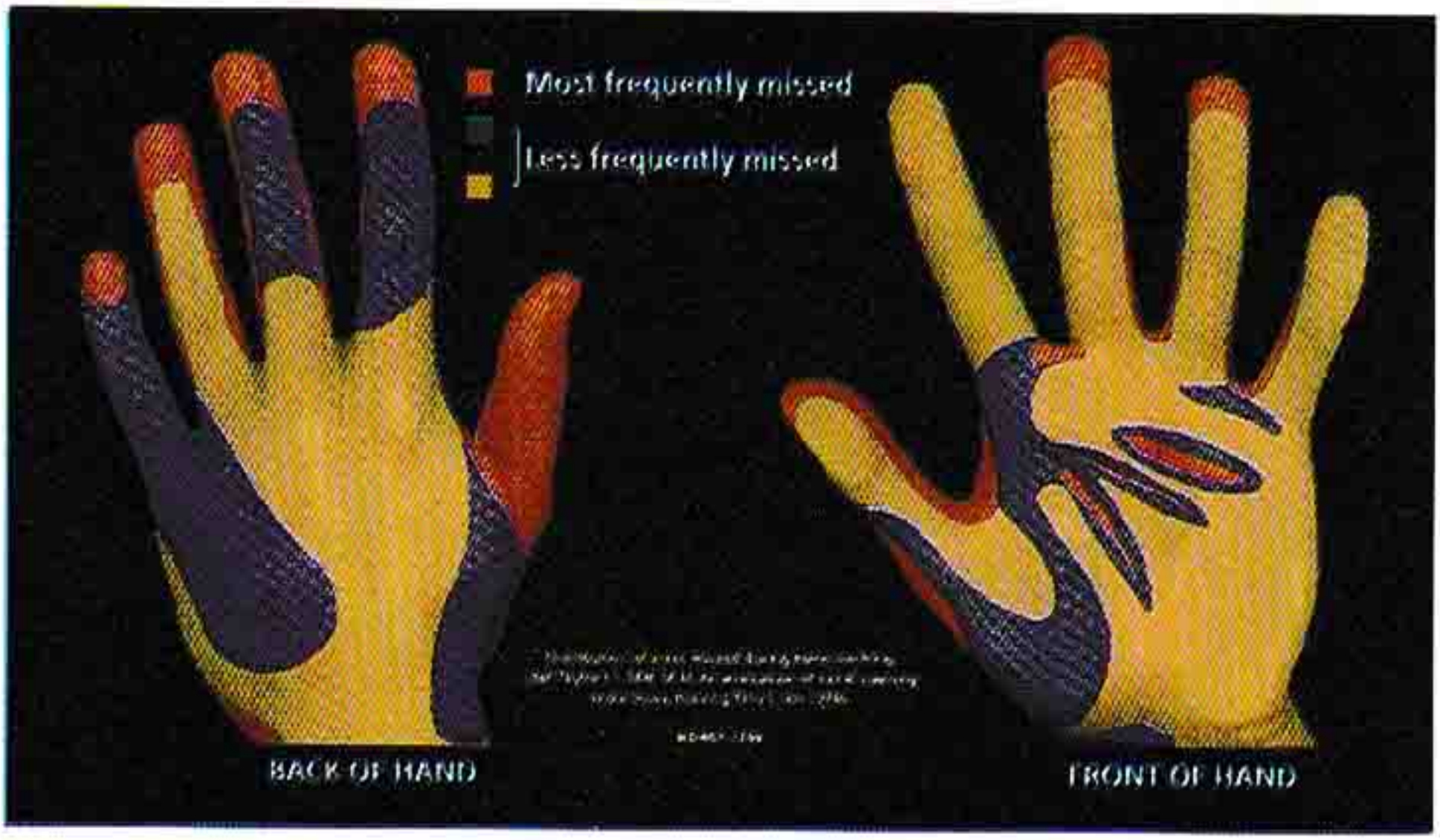


Figure 7.3: WHO recommended steps for hand rubbing with alcohol-based formulation



7.2.2 Respiratory hygiene and cough etiquette

These are infection prevention measures designed to limit the transmission of respiratory pathogens spread by droplet or airborne routes

Person with respiratory signs and symptoms are recommended to apply measures given below-

- Wear disposable surgical mask in public place specially when coughing/sneezing
- Dispose used tissues and masks in yellow waste bin
- Perform hand hygiene after contact with respiratory secretions
- In case of sudden episode, use upper arm during coughing and sneezing
- Turn your head away from people/patients or food while sneezing or coughing
- In healthcare facilities following precautions to be maintained-
- Place acute febrile respiratory symptomatic patients 1-2 meter away from others in common waiting areas
- Post visual alerts at the entrance to health-care facilities instructing persons with respiratory symptoms to practice hygiene/cough etiquette
- Make hand hygiene materials, disposable towels and masks available in common areas and areas used for the evaluation of patients with respiratory illnesses.

7.2.3 Personal Protective Equipment (PPE)

Personal protective equipment (PPE) refers to wearable equipment that is designed to protect healthcare personnel from exposure to or contact with infectious agents.

Types of PPE used in healthcare settings

- Gloves-protect hands
- Gowns/aprons-protect skin and/or clothing
- Masks-protect mouth/nose:
- Respirators-protect respiratory tract
- Goggles-protect eyes
- Face shield- protect face, mouth, nose and eyes
- Boots

Gloves

It impedes the contact of the skin of hand with contaminated surfaces

- Work from "clean to dirty"
- Protect yourself, patients and environment
- When to change?
- Change gloves between patient care and procedure of another patient
- Change between procedure in the same patients if infectious materials in different areas
- Change gloves whenever break
- Remove after use, before touching non-contaminated items and surfaces, and before going to another patient

- Dispose in the designated place

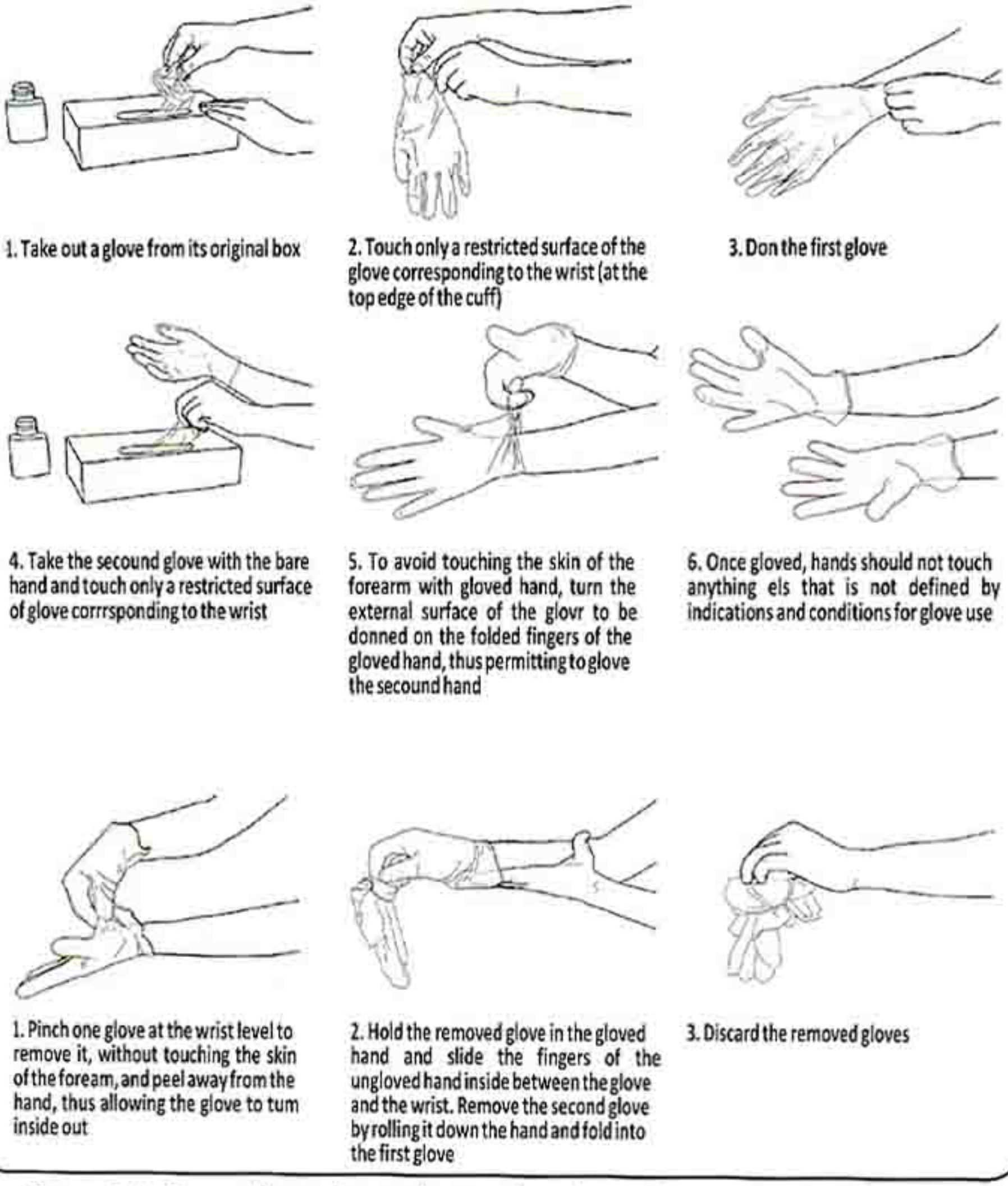


Figure 7.4: Steps of wearing and removing gloves (Source: WHO 2009)

7.2.4 Safe injection practices, sharps management and injury prevention

Needlestick and other sharps injuries are a serious hazard in any healthcare setting.

When needle stick injury potentially can occur?

- Sudden patient movement during the injection

- Recapping needles
- Transferring body fluids between containers
- Failing to dispose of used needles in puncture resistant sharp container
- Disposing of used needles and other sharp instruments
- in special situation such as in OT room, methods of PPE donning/doffing might not be followed

7.2.5 Dealing of spillage

Any spills must be attended using PPE (mask, gloves, protective coat/cloths) and decontaminating material. Spill kits should be kept ready at all hospital wards or labs.

Spill Kit:

- Bucket and plastic scoop or dustpan
- 0.5% Sodium Hypochlorite
- Biohazard Bag/waste bag Steps:
- Wear appropriate protective clothing (mask, gloves and apron).
- Ventilate the area, if possible.
- Apply paper kitchen towel/cotton/gauze over the spill
- Wearing heavy duty gloves soak the spill and dispose into yellow bin.
- Apply 0.5% Sodium Hypochlorite over the spill
- Keep it for 15 minutes
- Finally mop the area with detergent

7.2.6 Decontaminate Environmental surfaces

a. Environmental surface decontamination

Environmental cleaning or decontamination is to reduce the number of infectious agents that may be present on (frequently touched) surfaces and minimize the risk of transfer of microorganisms from one person/object to another, thereby reducing the risk of cross-infection.

Infectious agents can survive in the environment and on surfaces for many hours or even days. Decontamination removes pathogens from contaminated surfaces and items.

Two key principles of environmental hygiene are-

- Step 1 – Cleaning:
  - Clean BEFORE disinfection
  - Clean with moping /washing with water-detergent

- Step 2 – Disinfection

Disinfect items and surfaces that are:

- In contact with a patient's secretion, touch or mucosa
- Frequently touched by healthcare workers

b. Appropriate disinfectants for more details

Type of disinfectants/decontaminants are:

- Soap, detergent,
- 0.5% sodium hypochlorite solution, (Chlotech, chlorox)
- Bleaching solution
- 70% ethanol
- Lysol
- Phenolic compound (e.g. Finish)
- 2% Glutaraldehyde (Cidex)

Note: Use 0.5% Sodium Hypochlorite or Soap water or 70% Ethanol or UV as appropriate for decontamination of equipment, surface, table, beds, floors, toilets

c. Safe handling of linen

Use clean or sterile cloths (as appropriate)

- Change linen everyday
- Place soiled or used linen into a bag and take to laundry
- Decontaminate used linen by immersing them in soap water (or detergent powder) for 15 minutes
- Then wash the linens as per the laundry protocol

7.2.7 Waste Management

Waste management should be conducted in coordination with the infection control team. There should be a person or persons responsible for the organization and management of waste collection, handling, storage and disposal. Waste management practices recommended as a general guide are:

- Keep waste in biohazard bag/waste bag in wastes bins
- Close/secure waste bag when two third to be filled up
- Record of generated wastes in designated temporary storage areas before disposal
- Treat the wastes by chemical decontamination (0.5% sodium hypochlorite) or autoclave;

- Wash used linen (apron, hospital gown, sheets and cotton blankets) in hot water (70°C to 80°C) with detergent and after that can soak in 0.1%NaOCL for 30 min then wash with water
- Manage wastes by incineration (ideal), if not available, do burning o Burning waste in burial pits (>8 feet deep) in premises, behind the hospital building
- Set up a regular monitoring, reporting and appropriate capacity enhancement training plan on infection control as well as management of waste disposal.

Table 7.1: Waste management in hospital

Type of waste	Example	Color of container
Recyclable waste	Saline kits	Green
Clinical/lab waste without sharp objects	Materials used in lab /patient care	Yellow
Liquid waste	Vomiting, blood	Blue
General waste	Leftover meals, administrative rubbish, and paper, sweeping	Black
Clinical waste with sharp objects	Needles or scalpel blades, knives, broken glass material etc.	Red

Figure 7.5: Waste management in hospital (Source: DGHS 2020)

Reference

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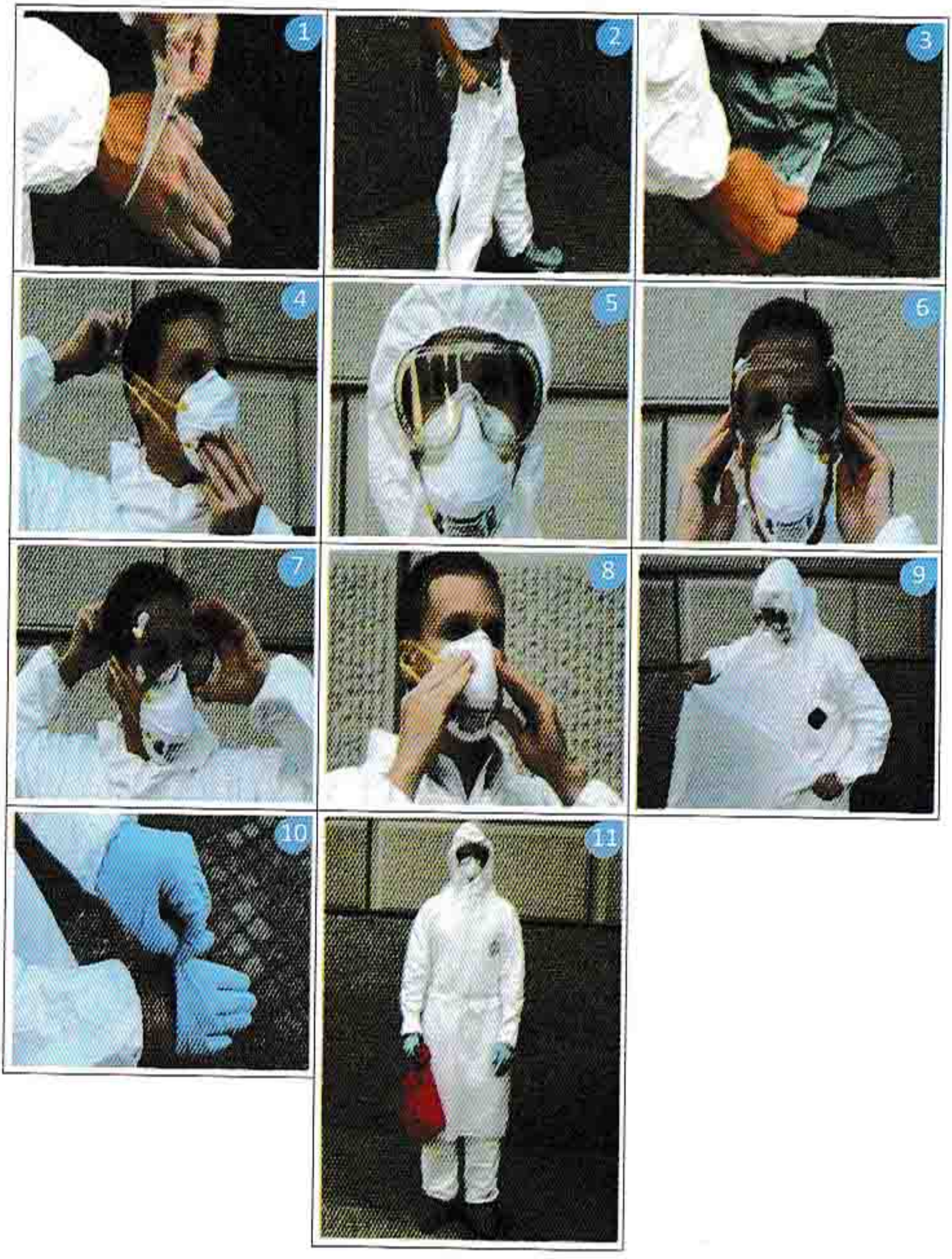
Annexure - 1: Mpox Initial Case Investigation Form

- Record ID__ __ __ __
- Date of diagnosis__ __/__ __/__ __ __ __
- Address: *District*_____ *Upazila*_____ *Locality*_____
- Contact: *Phone Number*_____ *Relation*_____
- Case classification
  - ○ Mild (< 25 skin lesions)
  - ○ Moderate (25–99 skin lesions)
  - ○ Severe (100–250 skin lesions)
  - ○ Very severe (> 250 skin lesions)
- Age:__ __ *Sex/gender*: ○ Male ○ Female ○ Other
- Health worker ○ Yes ○ No
- Medical history ☐ Pregnancy ☐ Immunosuppression ☐ HIV status
- Clinical signs or symptoms
  - ☐ Rash
  - ☐ Fever
  - ☐ Measles
  - ☐ Chills
  - ☐ Headache
  - ☐ Purtisis
  - ☐ Enlarged Lymph node
  - ☐ Rectal Bleeding
  - ☐ Vomiting
  - ☐ Pus
  - ☐ Conjunctivitis
- Date of onset of first symptoms__ __/__ __/__ __ __ __
- Hospital admission ○ Yes ○ No
- Intensive care unit (ICU) admission ○ Yes ○ No
- Recent travel history (in the 21 days before onset of illness) ○ Yes ○ No
- Contact with animals (in the 21 days before onset of illness) ○ Yes ○ No
- Mode of transmission
  - ☐ **Human to human**
    - ☐ Close Contact
    - ☐ Respiratory droplets
    - ☐ Body fluids
    - ☐ Contaminated materials
    - ☐ Mother to child
  - ☐ **Animal to Human**
    - ☐ Bites or Scratches
    - ☐ Contact with lesions
    - ☐ Consumption of meat
- Clade and genomic characterization (if available)_____
- Outcome status at time of reporting
  - ○ Mild/Moderate infection
  - ○ Recovered
  - ○ Severe infection
  - ○ Deceased
- Number of contacts:__ __

  Phone Nos:_____

Annexure - 2 Steps of wearing full PPE



Annexure - 4: Management of blood and body fluid spills

Infection Prevention and Control team/health protection team:
Name: _____
Designation: _____
Contact Number: _____

Blood and/or body fluid spillage.

Wear appropriate personal protective equipment (PPE) e.g. non-sterile disposable gloves and aprons

Is the spillage on soft furnishing e.g. carpets?

NO

Is it a spill of blood or body fluid as specified in Box1 (below)?

YES

NO

YES

- Apply chlorine releasing granules directly to the spill[1]
- If granules not available place disposable paper towels over spillage to absorb and contain it, applying solution of **10,000 parts per million available chlorine (ppm av d)** solution to the towels
- Follow manufacturer's instruction for contact time or leave for 3 minutes
- Discard the gross contamination into healthcare waste bag.

[1]All NHS England settings must use granules or equivalent product e.g. spill kits. Organisations may use spill pads for large spills, e.g. in theatres.

Spill contains ONLY Urine/faeces/vomit/sputum:

- **Do not use a chlorine releasing agent directly on a urine spill**
- Soak a spillage/gross contamination using disposable paper towels
- If a urine spillage, a gelling agent can be used.

- Decontaminate area with a solution of **1,000 parts per million available chlorine (ppm av d)** solution or use a combined detergent/chlorine releasing solution with a concentration of 1,000 ppm av d
- Follow the manufacturer's instructions on a contact time.

- **Wash area with disposable paper towels and a solution of general purpose detergent and warm water**
- **Dry area or allow to air dry**
- **Discard paper towels and disposable PPE into healthcare waste bag**
- **Perform hand hygiene.**

BOX 1

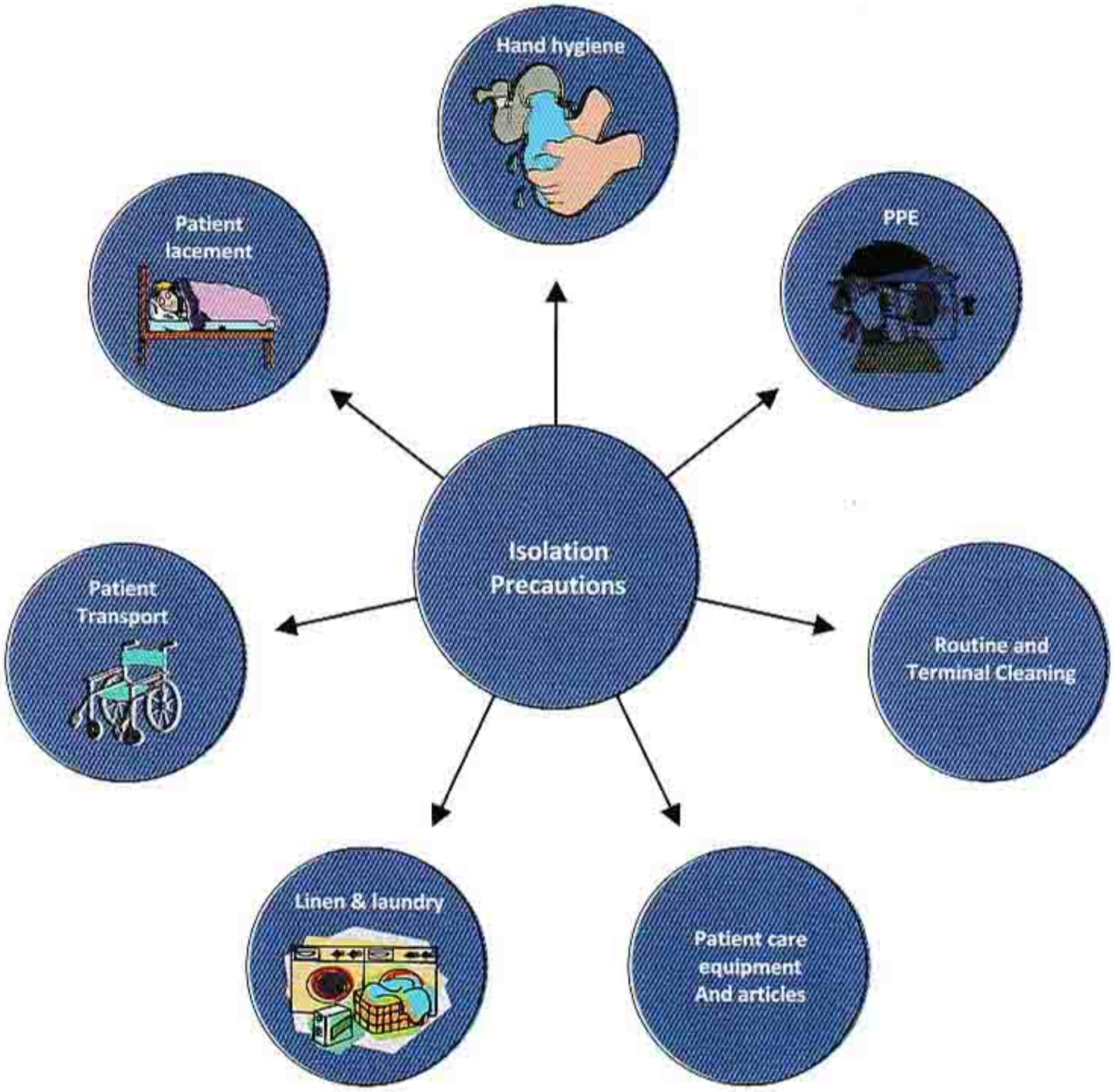
- Cerebrospinal fluid
- Peritoneal fluid
- Pleural fluid
- Synovial fluid
- Amniotic fluid
- Semen

Discuss with IPCT and consider:

- If the furnishing is heavily contaminated, you may have to discard it
- If the furnishing can withstand a chlorine releasing solution then follow appropriate procedure for the type of spillage
- If it is safe to clean with detergent alone then follow appropriate procedure
- If it is not safe to clean with detergent then the item should be discarded.

Source: NHS England 2024

Annexure - 4: Isolation Precautions



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