October 2024

Mpox

Surveillance and Investigation Protocol

Table of Contents

Office of Epidemiology and Prevention Services
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I. ABOUT THE DISEASE

This document is updated frequently and is subject to change as the situation evolves.

Mpox is a zoonotic disease typically presents with fever, rash, and swollen lymph nodes. It is transmitted through respiratory droplets or contact with infected secretions or body fluids. Mpox can cause severe disease in some individuals who are immunocompromised or unvaccinated. Vaccination for high-risk and exposed individuals is the best way to prevent mpox.

The US has seen a resurgence of mpox cases since 2022 related to clade II West African Mpox Virus (MPXV). In addition, the Democratic Republic of the Congo (DRC) declared an outbreak of clade I MPXV in 2023, and transmission started occurring in neighboring countries to the DRC. The Africa Centers for Disease Control and Prevention declared a public health emergency in August 2024. Clade I MPXV has previously been observed to be more transmissible and to cause a higher proportion of severe infection than clade II. For more information on the current global situation, refer to the Centers for Disease Control and Prevention's (CDC) global mpox map.

Outbreaks are associated with sexual contact among gay or bisexual men who have sex with men (GBMSM) and female sex workers and their contacts, infection through contact with infected dead or live wild animals, household transmission, or patient care.

Mpox in West Virginia is a Category I disease and requires immediate reporting to the local health department for prompt action.

A. Clinical Presentation

Mpox usually begins with early symptoms called the prodrome. These symptoms can include fever, chills, malaise, headache, sore throat, nasal congestion, cough, and sometimes swollen lymph nodes (lymphadenopathy). Swelling of lymph nodes may be more generalized or localized to several areas.

In some cases, people have presented with a rash without prodrome symptoms. Many cases have only had localized lesions and have not presented with diffuse rash historically seen. Lesions progress through the following stages before falling off: Macules □ , Papules □ , Vesicles □, Pustules □ Scabs.

Stage	Stage Duration	Characteristics
Enanthem		• At times, lesions first form on the tongue and in the mouth.
Macules	1-2 days	• Macular lesions appear.

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Papules	1-2 days	• Lesions progress from macular (flat) to papular (raised).
Vesicles	1-2 days	• Lesions become vesicular (raised and filled with clear fluid).
Pustules	5-7 days	• Lesions become pustular (filled with opaque fluid)-sharply raised, usually round, and firm to the touch (deep-seated). • Lesions develop a depression in the center (umbilication). • The pustules will remain for 5 to 7 days before crusting.
Scabs	7-14 days	• By the end of the second week, pustules have crusted and scabbed over. • Scabs will remain for about a week before beginning to fall off.

The illness and rash progression typically lasts 2−4 weeks but varies on a case-to-case basis, depending on the person's vaccination status and pre-existing medical conditions.

B. Etiologic Agent

Mpox is caused by infection with the mpox virus, which belongs to the *Orthopoxvirus* genus in the family *Poxviridae*. The *Orthopoxvirus* genus also includes variola (which causes smallpox), vaccinia (used in the smallpox vaccine), and cowpox.

C. Reservoir

The natural reservoir of mpox remains unknown. However, African rodents and non-human primates (monkeys) may harbor the virus and infect people.

D. Incubation Period

Typically, 1-2 weeks but can range from 5−21 days. A person is not contagious during this period.

E. Mode of Transmission

The virus enters the body through broken skin, respiratory tract, or mucous membranes (eyes, nose, or mouth). Transmission of the mpox virus occurs when a person comes into contact with the virus from an animal, human, or material contaminated with the virus.

- Animal-to-human transmission may occur by bite or scratch, bush meat preparation, direct contact with body fluids or lesion material, or indirect contact with lesion material, such as

through contaminated bedding or clothing. This can include transmission from wild animals and pets.

- Human-to-human transmission may occur through large respiratory droplets. Prolonged face-to-face contact is required.
- Other human-to-human methods of transmission include:
  - Direct skin-to-skin contact with rash or lesion material or scabs from an infected person.
  - Contact with saliva, upper respiratory secretions (snot, mucus), and bodily fluids or lesions around the anus, rectum, or vagina from an infected person.
  - Perinatal transmission during pregnancy or to the newborn during and after birth.
  - Direct contact during intimate contact includes oral, anal, or vaginal sex, touching the genitals or anus, hugging, massage, and kissing.
  - Indirect contact with lesion material (such as through contaminated clothing, linens, or surfaces) that have not been disinfected.

F. Period of Communicability

A person may be contagious from one to four days before symptoms appear until the rash is fully healed and a fresh layer of skin has formed.

II. DISEASE PREVENTION AND CONTROL

A. Disease Prevention and Control Objectives

Reduce disease risk through:

1. Public education regarding prevention and control measures – personal hygiene, respiratory precautions, sexual transmission, etc.
2. Public education regarding travel to areas where there is ongoing transmission of mpox.
3. Healthcare providers should be educated on the recognition and reporting of diseases.
4. Detection of local transmission of mpox in West Virginia.

B. Disease Prevention and Control

1. Avoid contact with animals that could harbor mpox.
2. Avoid contact with any materials that have been in contact with a sick animal or person.
3. Isolate patients suspected of having mpox in a single room; special air handling is unnecessary. The door should be closed, and a dedicated bathroom should be provided. Transport and movement of the patient outside of the room should be limited to medically essential purposes. If the patient is transported outside their room, they should use well-fitting source control (e.g., medical mask) and have any exposed skin lesions covered with a sheet or gown. Intubation, extubation, and any procedures likely to spread oral secretions should be performed in an airborne infection isolation room.
   a. For more information on the duration of isolation precautions for patients, please visit https://www.cdc.gov/poxvirus/mpox/clinicians/infection-control-healthcare.html.
4. If a patient presenting for care at a health care facility is suspected of having mpox, infection control personnel and the local health department should be notified immediately.

5. Practice good hand hygiene after contact with infected animals or humans, i.e., wash your hands with soap and water or use an alcohol-based hand sanitizer.
6. Use appropriate personal protective equipment (PPE) when caring for patients. Required PPE includes gown, respirator, face shield, and gloves. For more information, see Mpox Prevention.
7. Avoid activities that could resuspend dried material from lesions, such as using portable fans, dry dusting, sweeping, and vacuuming.
8. Required waste management practices and classification (i.e., assignment to a category under the HMR) currently differ depending on the mpox virus clade (strain). The DOT indicates that waste contaminated with Clade II of mpox virus should be managed as UN3291 Regulated Medical Waste (RMW) like other potentially infectious medical waste (e.g., soiled dressings, contaminated sharps). Clade I of the mpox virus is classified as Category A under the HMR and should be managed accordingly. See the DOT website for more information. Facilities should also comply with state and local regulations for handling, storage, treatment, and disposal of waste, including RMW.
9. Standard cleaning and disinfection procedures should be performed using an EPA-registered hospital-grade disinfectant with an emerging viral pathogen claim. Products with Emerging Viral Pathogens claims may be found on EPA's List Q. Follow the manufacturer's directions for concentration, contact time, and care and handling.

C. Prophylaxis and Treatment

1. JYNNEOS™ (also known as Imvamune or Imvanex)

a. JYNNEOS is the only vaccine with an FDA-approved indication for mpox in adults 18 years and older.

b. It can be used for post-exposure prophylaxis (PEP) and prevention for high-risk adults as a two-dose series, 28 days apart.

i. PEP: The JYNNEOS vaccine should be given within four days from the date of exposure for the best chance to prevent the onset of the disease. If given between 4 and 14 days after exposure, vaccination may reduce the symptoms of the disease but may not prevent the disease.

ii. Prevention: recent studies from the 2022 US mpox Outbreak have estimated that the effectiveness of the JYNNEOS vaccine in preventing mpox disease was 35-75% after one dose and 66-85% after two doses. Therefore, two doses of vaccine are recommended for the best protection. Symptoms reported have been less severe for those who develop infection after vaccination.

c. Criteria for vaccination based on ACIP recommendations include:

i. Anyone who had known or suspected exposure to someone diagnosed with mpox

ii. Anyone who had a sex partner in the past two weeks who was diagnosed with mpox

iii. Any GBMSM or transgender, nonbinary, or gender-diverse person who has had any of the following in the past six months:

- A new diagnosis of one or more sexually transmitted infections (e.g., chlamydia, gonorrhea, or syphilis)
- More than one sex partner

iv. Anyone who has had any of the following in the past six months:
- Sex at a commercial sex venue (such as a sex club or bathhouse)
- Sex-related to a significant commercial event or in a geographic area (city or county) where mpox virus transmission is occurring.
- Sex in exchange for money or other items (such as drugs or food)

v. Anyone with a sex partner who has any of the scenarios listed above

vi. Anyone who anticipates experiencing any of the above scenarios

vii. Anyone living with HIV or other causes of immune suppression and has had recent or anticipated future risk of mpox exposure from any of the scenarios listed above

viii. Anyone working in a setting where mpox exposure can occur (such as a laboratory working with orthopoxviruses)

ix. Recommend vaccination to any adult, regardless of gender identity or sexual orientation, if:
- Traveling to a country with human-to-human transmission of clade I MPXV, **and**
- They anticipate experiencing any of the following:
  a. Sex with a new partner.
  b. Sex at a commercial sex venue, like a sex club or bathhouse.
  c. Sex in exchange for money, goods, drugs, or other trade.
  d. Sex in association with a large public event, such as a rave, party, or festival.

2. Other vaccines (ACAM2000) and treatments (TPOXX, VIGIV, and CMX001/Tembexa) recommended for mpox are currently unavailable through BPH.
   a. Additional treatment information for healthcare providers can be found on the CDC website.
   b. State health departments may request medical countermeasures through the Strategic National Stockpile (SNS) for those needing post-exposure or treatment for mpox.

III. DISEASE INVESTIGATION

A. Case Detection

Mpox lesions may be disseminated or located on the genital or perianal area alone. Some patients may present with proctitis, and their illness could be clinically confused with a sexually transmitted infection (STI) like syphilis or herpes or with varicella-zoster virus infection. Although some populations may have a greater chance of exposure, mpox infections are not exclusive to GBMSM communities.

B. Case Definition (2022)

https://www.cdc.gov/poxvirus/Mpox/clinicians/case-definition.html

- **Clinical Criteria**
  - New characteristic rash*
- **Epidemiologic Criteria (Clade II)**
  - Within 21 days of illness onset:
    - Report having had contact with a person or people with a similar appearing rash or received a diagnosis of confirmed or probable mpox **OR**

- Had close or intimate in-person contact with individuals in a social network experiencing mpox activity. This includes GBMSM who meet partners through an online website, digital application ("app"), or social event (e.g., a bar or party) **OR**
- Traveled outside the US to a country with confirmed cases of mpox or where MPXV is endemic **OR**
- Had contact with a dead or live wild animal or exotic pet from an African endemic species or used a product derived from such animals (e.g., game meat, creams, lotions, powders, etc.).

- **Epidemiologic Criteria (Clade I)**
  - Within 21 days of illness onset:
    - Traveled to an area with evidence of sustained human-to-human transmission of clade I mpox or where clade I MPXV is endemic, **OR**
    - Reports having contact with a person with confirmed, probable, or suspect clade I mpox, **OR**
    - Had close or intimate in-person contact with individuals in a social network currently experiencing class I mpox activity, **OR**
    - Had contact with dead or live wild animals or exotic pets that are central African endemic species or used a product derived from such animals (e.g., game meat, creams, lotions, powders, etc.).
- **Exclusion Criteria**
  - A case may be excluded as a suspect, probable, or confirmed case if:
    - An alternative diagnosis can fully explain the illness **OR**
    - An individual with symptoms consistent with mpox but who does not develop a rash within five days of illness onset **OR**
    - A case where specimens do not demonstrate the presence of *Orthopoxvirus* or MPXV or antibodies to orthopoxvirus as described in the laboratory criteria.

* The characteristic rash associated with mpox lesions involves the following: deep-seated and well-circumscribed lesions, often with central umbilication, and lesion progression through specific sequential stages—macules, papules, vesicles, pustules, and scabs.; this can sometimes be confused with other diseases more commonly encountered in clinical practice (e.g., secondary syphilis, herpes, and varicella zoster). Historically, sporadic accounts of patients co-infected with the mpox virus and other infectious agents (e.g., varicella zoster, syphilis) have been reported, so patients with a characteristic rash should be considered for testing, even if other tests are positive. People with severe immunodeficiency (e.g., advanced HIV) may have skin lesions that are necrotic, diffuse, and plaque-like.

C. Case Classification and Reinfection

Clade II MPXV

1. **Suspect Case:**
   - New characteristic rash* **OR**
   - It meets one of the epidemiologic criteria and has a high clinical suspicion for mpox.

2. **Probable Case:**

- There is no suspicion of other recent *orthopoxvirus* exposure (e.g., Vaccinia virus in ACAM2000 vaccination) **AND** demonstration of the presence of:
  - *Orthopoxvirus* DNA by polymerase chain reaction of a clinical specimen **OR**
  - *Orthopoxvirus* using immunohistochemical or electron microscopy testing methods **OR**
  - Demonstration of detectable levels of anti-orthopoxvirus IgM antibody during 4 to 56 days after rash onset.

3. **Confirmed Case:**
   - Demonstration of *MPXV* DNA by polymerase chain reaction testing or Next-Generation sequencing of a clinical specimen **OR**
   - Isolation of *MPXV* in culture from a clinical specimen.

Clade I MPXV

This interim definition applies to the current situation with clade I outbreaks limited to known endemic areas in Africa and no evidence of widespread transmission in other continents. If the situation changes, the interim definition will be updated accordingly (as of June 2024).

1. **Suspect Case:**
   - Probable or confirmed mpox as defined above **AND**
   - At least one of the Clade I epidemiologic criteria (above).

2. **Probable Case:**
   - Probable or confirmed mpox as defined above **AND**
   - At least one of the Clade I epidemiologic criteria (above) **AND**
   - Clade I and clade II MPXV-negative by polymerase chain reaction testing without Next-Generation sequencing of a clinical specimen to confirm clade.

3. **Confirmed Case:**
   - Demonstration of the presence of clade I MPXV DNA by polymerase chain reaction or Next-Generation sequencing of a clinical specimen.

Mpox Reinfection

Mpox reinfection occurs when a person is classified as a confirmed or probable mpox case and has a recurrence of mpox symptoms after complete resolution of the initial confirmed or probable MPXV infection.

1. **Suspect Mpox Reinfection Case:**
   - Fits the clinical description of mpox reinfection and meets any of the following criteria:
     - New rash*, **OR**
     - Meets one of the epidemiologic criteria and has a high clinical suspicion for mpox

2. **Probable Mpox Reinfection Case:**

- Meets the criteria for a suspect mpox reinfection case AND demonstrates one of the following from a patient specimen:
  - Orthopoxvirus or MPXV DNA by polymerase chain reaction of a clinical specimen **OR**
  - Orthopoxvirus using immunohistochemical or electron microscopy testing methods **OR**
  - Demonstrable increase in anti-Orthopoxvirus IgG antibodies in paired serum samples collected within three days of symptom onset and 7-14 days after symptom onset for patients with no prior mpox/smallpox vaccination or vaccinated ≥180 days before symptom onset

3. **Confirmed Mpox Reinfection Case:**
   - Meets criteria for a probable mpox reinfection case **AND** has significant single nucleotide polymorphisms (SNPs) or genetic variation between MPXV genetic sequences from clinical specimens obtained from two or more episodes of MPXV infection separated by complete resolution of symptoms within the same individual.

   Additional considerations for mpox reinfection:
   - Persistent MPXV infection is defined as MPXV infection without clinical improvement or resolution of symptoms.
   - Relapsed MPXV infection is defined as an MPXV infection that has improved but not entirely resolved, followed by clinical worsening or new mpox symptoms.
   - Patients with severe immunodeficiency, such as people living with HIV with CD4 counts <200, can be at risk for persistent and relapsed MPXV infections.
   - Patients may develop symptoms caused by other infections during MPXV or after their initial infection resolves.

D. Reporting Timeframe to Public Health

Suspect cases of mpox are to be IMMEDIATELY reported to the local health department.

E. Outbreak Recognition

An outbreak of mpox is defined as two or more epi-linked cases from different households with symptom onset within 21 days of one another.

F. Healthcare Provider Responsibilities

1. If mpox is suspected, especially those with a rash suspicious of mpox and/or recent travel history to an area where mpox has been reported, report it immediately to the local health department (LHD). If the LHD cannot be reached, contact the state epidemiologist on-call at (304) 558-5358, ext. 2. An epidemiologist is available 24/7/365 to assist.
2. A high index of suspicion for mpox is warranted when evaluating people with the characteristic rash, particularly for the following:
   a. Traveled outside the US to a country where mpox cases have been reported (this includes a person with travel to the DRC or neighboring countries) during the month before their symptoms began,

b. Reports having contact with a person with a similar rash or who received a diagnosis of mpox,
c. Had close or intimate in-person contact with individuals in a social network experiencing mpox; this includes GBMSM, who meet partners through an online website, app, or social event.

3. Consider mpox a diagnosis even in people vaccinated for or previously diagnosed with mpox.
4. If using a commercial laboratory for testing, follow specimen collection and shipping instructions, including collecting two swabs per 2-3 lesions to ensure specimen availability for clade-specific testing. This testing will help differentiate cases between the current clade II outbreak and those associated with the clade I outbreak.
5. Avoid unroofing or aspiration of lesions or using sharp instruments for mpox testing to minimize the risks of exposure and sharps injury.
6. Ensure the appropriate PPE is used when collecting specimens and caring for patients.
7. If testing assistance is requested through the West Virginia Office of Laboratory Services (OLS) or CDC, testing should occur after getting approval from the epidemiologist on-call. If OEPS/OLS does not approve testing but still desires to do so, ordering providers can send specimens to a commercial laboratory.
    a. **SPECIMEN COLLECTION and STORAGE (West Virginia Department of Health, Bureau for Public Health - Office of Laboratory Services):**
        1. At a minimum, collect two swabs per lesion site as follows:
            a. Use a sterile synthetic swab (including, but not limited to, nylon, polyester, or Dacron) with a plastic, wood, or thin aluminum shaft. Do not use other types of swabs.
            b. Vigorously swab or brush lesion(s) with two separate sterile dry swabs to collect adequate DNA.
            c. Break off the end of the applicator of each swab into a 1.5- or 2-mL screw-capped tube with an O-ring, or place each swab in a separate individual sterile container. Do not add or store in viral or universal transport media.
        2. All specimens should be sent through the OLS. Coordinate specimen collection and shipment with the local health department.
        3. Refrigerate (2-8°C) or Freeze (-20°C or lower) specimens within an hour after collection. Freezing provides the best sample integrity for a more extended period.
        4. Maximum storage time for refrigerated specimens is up to 7 days, and for frozen specimens is up to 60 days.
        5. Refrigerated specimens should be shipped within seven days of collection, and frozen specimens should be shipped within 60 days. Shipping on dry ice is strongly recommended. Specimens received that are >8°C will be rejected.
    b. **SPECIMEN SHIPMENT to OLS BIOTERRORISM LABORATORY**
        1. Contact the West Virginia OLS Bioterrorism Response Lab at 304-205-8917 before shipping.
        2. Sample samples should be shipped immediately upon approval.

3. Complete the *West Virginia OLS BT Lab Clinical Specimen Submission form*. https://dhhr.wv.gov/ols/labs/Documents/BT/BTClinicalTestRequestForm_8-07.pdf
4. Package the sample swabs in an insulated Category A box (for suspected clade I specimens) or a Category B box (for clade II specimens) with cold packs or dry ice.
5. Ensure you have enough dry ice to last the whole transit time.
6. Place the submission form in the box (protected from the ice).
7. For Clade I, ship the package as a suspect Category A. You must be a certified Category A shipper. For Clade II, ship the package in Category B.
8. Ship the sample(s) to **FedEx the next business day and deliver by 10:30 a.m**. to the West Virginia OLS BT Lab at the address below. The recipient's contact number is 304-205-8917.

   WV Office of Lab Services
   ATTN: BT Lab
   167 11th Avenue
   South Charleston, WV 25303
9. As soon as the package is shipped, email the completed *West Virginia OLS Bioterrorism Lab Clinical Specimen Submission form*, FedEx tracking number, patient initials, and patient birth date to Lisa.M.Wallace@wv.gov, Rosemarie.E.Karlen@wv.gov and Nellie.M.Cooper@wv.gov.

8. Initiate infection prevention and control in healthcare as soon as mpox is suspected. Immediately notify the Infection Preventionist.
9. Advise all patients suspected of having mpox to isolate themselves from others.
10. Healthcare facility discharge considerations should include an assessment of the ability of the patient to carry out isolation and infection control recommendations in their home or other setting before discharge. If this is not possible, consider alternative isolation locations.

G. Laboratory Responsibilities

Laboratories should report orthopox/mpox results by real-time electronic notification required by state code (W. Va. Code 16-3-1; 64CSR7). When electronic reporting is unavailable, laboratories shall immediately send a paper copy to the LHD of the patient's county of residence. The West Virginia OLS will provide guidance and assistance on specimen shipping and handling if laboratory confirmation is needed. Appropriately collected samples will be sent to the CDC or an appropriate Laboratory Response Network (LRN) laboratory for testing by PCR. LRN laboratories can provide orthopoxvirus testing on lesion specimens clinicians obtain from suspected patients. Confirmatory *Mpox virus*-specific testing at CDC requires a dry lesion swab specimen. If OLS performs the testing, they will notify the submitter of the results.

H. Local Health Responsibilities

1. Educate health care providers (especially STI providers) about mpox, including infection control and prevention measures.
2. Assist the health care provider in collecting information and facilitate specimen collection, shipping, and handling.

3. Disseminate mpox information provided by the West Virginia Department of Health, Bureau for Public Health to health care providers.
4. Educate the public about mpox. Based on the information available now, the risk to the public is low. Some people who may have symptoms of mpox, such as characteristic rashes or lesions, should contact their healthcare provider for a risk assessment. This includes anyone who:
    a. Traveled outside the US to a country where mpox cases have been reported or where MPX is endemic during the month before their symptoms began.
    b. Reports having contact with a person with a similar rash or who received a diagnosis of mpox.
    c. Had close or intimate in-person contact with individuals in a social network experiencing mpox; this includes GBMSM, who meet partners through an online website, app, or social event.
    d. Had contact with a dead or live wild animal or exotic pet from an African endemic species or used a product derived from such animals (e.g., game meat, creams, lotions, powders, etc.)
5. Vaccinate those who meet the CDC's vaccine recommendation criteria.
    a. As of 4/1/24, the JYNNEOS vaccine is available commercially for providers to order directly from the manufacturer.
    b. As of 10/31/24, the JYNNEOS vials provided by the SNS to the state have expired. Please contact oepsmpox@wv.gov if you need further assistance acquiring vaccines (for uninsured/underinsured patients).
    c. Refer to the JYNNEOS: Mpox Vaccine Guidance document for more information on inventory management in the West Virginia Statewide Immunization Information System (WVSIIS), vaccine storage and handling, redistribution, and intradermal and subcutaneous injection.
6. Notify OEPS immediately via phone once an individual is suspected of mpox.
7. Open a suspected case in the West Virginia Electronic Disease Surveillance System (WVEDSS) within 24 hours, even if laboratory results are pending.
8. After receiving a case report of mpox (suspect/probable/confirmed cases), interview the case using the MPOX MODULAR CASE INVESTIGATION TOOL, initiate isolation for the case, and perform contact tracing for individuals who have been exposed, including evaluating healthcare personnel. Contact tracing should begin four days before illness onset until the case starts isolation.
    a. Individuals with mpox should be isolated from rash or symptom onset until scabs have fallen off and a fresh layer of skin has formed.
    b. All attempts to contact the case should be made before they are considered lost to follow up (LTFU). LTFU is defined as the following:
        i. All avenues (e.g. phone call, text messaging, visit, mailed letter, email, etc.) of obtaining patient information, on at least 3 separate occasions (different days and times) have been exhausted, **AND**

ii. Attempts to collect patient medical information from the healthcare provider on at least 3 separate occasions have been exhausted, **AND**

iii. Attempts to contact patient or obtain information has been clearly documented in WVEDSS *General Comments* section, **AND**

iv. Documentation has been completed within 30 days of the patient's investigation start date.

c. Please consider contacting and collaborating with your jurisdiction's Disease Intervention Specialist (DIS) for assistance in collecting information on intimate/sexual contacts if the case is LTFU or not willing to provide contact information.

d. Contacts should be monitored for 21 days after their last date of contact with the patient.

I. Managing Close Contacts

1. Use the Mpox Close Contact Investigation Questionnaire and the Community Exposure Risk Assessment or the Healthcare Personnel Exposure Risk Assessment to evaluate contacts who have been exposed to mpox.
   a. Symptomatic contacts: should be treated as a potential case and isolated immediately and Recommend testing. Notify OEPS immediately.
   b. Asymptomatic contacts: Use the Mpox Symptom Monitoring Log to monitor all high and some intermediate risk exposures. High risk exposures require daily active monitoring and intermediate exposures require self-monitoring. For more information instructions are provided on the log.
      i. Should be monitored for 21 days after their last date of contact with the patient using the mpox. The type of monitoring depends on the exposure risk and suspected clade MPXV. Clade I requires more active monitoring for some risk categories than clade II. Monitoring includes ascertainment of signs and symptoms of mpox including thorough skin and mouth exam in good lighting. Quarantine is not routinely necessary unless it is determined, in conjunction with OEPS, that an individual should quarantine. For more information on how to monitor those exposed, visit https://www.cdc.gov/poxvirus/mpox/clinicians/monitoring.html.
      ii. Can be permitted to continue routine daily activities (e.g., go to work, school). Contacts should not donate blood, cells, tissue, breast milk, semen, or organs while they are under symptom surveillance.
      iii. High risk asymptomatic contacts should be offered PEP with JYNNEOS. It is recommended that the vaccine be administered within 4 days of exposure to prevent disease.
         a. If given between 4 and 14 days after the date of exposure, vaccination may reduce the symptoms of disease, but may not prevent the disease.
         b. If PEP is needed, and it cannot be acquired commercially by the provider or a pharmacy, please contact oepsmpox@wv.gov.

iv. If a rash occurs: Individuals should follow isolation and control precautions until the rash can be evaluated by a healthcare provider, testing is performed, and the results are available and are negative.

v. If other signs and symptoms develop, but there is no rash: Individuals should follow isolation and control precautions for 5 days after the development of any new sign or symptom, even if this 5-day period extends beyond the original 21-day monitoring period. If 5 days have passed without the development of any new sign or symptom and a thorough skin and oral examination reveals no new skin changes such as rashes or lesions, isolation and prevention practices for mpox can be stopped. If a new sign or symptom develops at any point during the 21-day monitoring period (including during a 5-day isolation if applicable), then a new 5-day period should begin where the individual follows isolation and prevention practices.

J. State Health Responsibilities

1. Submit all mpox cases to the CDC.
2. Coordinate medical countermeasure requests of the SNS through the OLS.
3. Share CDC's Health Advisory on mpox with relevant healthcare provider networks, including STI clinics that may not always receive CDC Health Advisory messages.
4. Provide guidance in the investigation and control of mpox.
5. Assist LHDs in contact tracing of individuals who may have been exposed to the patient while the patient was symptomatic. Contacts should be monitored for 21 days after their last date of contact with the patient.
6. Facilitate specimen collection: For patients who have been evaluated in conjunction with the CDC and determined to meet the CDC's case definition to require further testing, OLS recommends the following:
   - Notify the West Virginia OLS Bioterrorism Response lab that a patient is being tested for mpox.
   - Email the following information to Lisa.M.Wallace@wv.gov, rosemarie.e.karlen@wv.gov, and nellie.m.cooper@wv.gov.
     i. Name of facility submitting the sample.
     ii. Contact person at facility and phone number.
7. Inform the submitting facility to contact the West Virginia Office of Laboratory Services Bioterrorism Response Lab at 304-205-8917 prior to shipping the sample. OLS will answer shipping questions.
8. For more information about specimen collection, storage, shipping and handling recommendations from OLS, see section *III. F. Healthcare Provider Responsibilities.*
   - OLS will not test specimens that do not meet the suspect definition.
9. The Epi on-call is responsible for notification to the LHD if a positive orthopoxvirus specimen result is received from OLS or commercial laboratory.
   - The Epi on-call should notify the oepsmpox@wv.gov email box, the regional epidemiologist and LHD of any positive orthopoxvirus results.

K. Occupational Health

1. Avoid contact with any materials, e.g., bedding, that has been in contact with a sick person.
2. If a patient presenting for care at a hospital or other health care facility is suspected of having mpox, infection control personnel should be notified immediately.
3. Use appropriate personal protective equipment (PPE) when caring for the patient. Required PPE includes gown, respirator, face shield, and gloves.
   a. For additional information about infection control in the hospital: https://www.cdc.gov/poxvirus/mpox/clinicians/infection-control-hospital.html.
   b. Patients who do not require hospitalization for medical indications may be isolated at home using protective measures. For additional information about infection control in the home: https://www.cdc.gov/poxvirus/mpox/clinicians/infection-control-home.html.
4. Practice good hand hygiene after contact with infected humans, i.e., wash hands with soap and water or use an alcohol-based hand sanitizer.
5. In the event that there has been an exposure in a HCP, consider using the HCP Exposure Risk Assessment to determine the risk of exposure and follow any recommendations depending on the exposure. For additional information, visit https://www.cdc.gov/mpox/hcp/infection-control/healthcare-settings.html.
6. Vaccination for select persons at risk for occupational exposure to orthopoxviruses (ACIP, 2022):
   a. For research laboratory personnel,[1] clinical laboratory personnel performing diagnostic testing for orthopoxviruses,[2] and for designated response team members[3] at risk for occupational exposure to orthopoxviruses, the use of JYNNEOS for primary vaccination as an alternative to ACAM2000 is recommended.
   b. For healthcare personnel who administer ACAM2000 or care for patients infected with orthopoxviruses,[4] the use of JYNNEOS (as an alternative to ACAM2000) is recommended, based on shared clinical decision-making.
   c. Persons who are at continued risk[5] for occupational exposure to more virulent orthopoxviruses (like Variola virus or mpox virus) should receive booster doses of JYNNEOS every 2 years after the primary JYNNEOS series.
   d. Persons who are at continued risk[5] for occupational exposure to less virulent orthopoxviruses (like Vaccinia virus or Cowpox virus) should receive booster doses of JYNNEOS at least every 10 years after the primary JYNNEOS series.
   e. Persons who are at continued risk[5] for occupational exposure to orthopoxviruses, and who received an ACAM2000 primary vaccination, should receive a booster dose of JYNNEOS as an alternative to a booster dose of ACAM2000.

[1] Research laboratory personnel are those who directly handle cultures or animals contaminated or infected with replication-competent vaccinia virus, recombinant vaccinia viruses derived from replication-competent vaccinia strains (i.e., those that are capable of causing clinical infection and producing infectious virus in humans), or other orthopoxviruses that infect humans (e.g., mpox, cowpox, and variola).

[2] Clinical laboratory personnel who perform routine chemistry, hematology, and urinalysis testing, including for suspected or confirmed patients with orthopoxvirus infections, are not included in this recommendation as their risk for exposure is low.

[3] Public health authorities, at their own discretion, may approve a cohort of healthcare and/or public health personnel to receive primary vaccination against orthopoxviruses for preparedness purposes (e.g., first responders who might participate in a smallpox or mpox outbreak).
[4] For example, those caring for patients enrolled in clinical trials for replication-competent orthopoxvirus vaccines and those caring for persons with suspected or confirmed orthopoxvirus infections (e.g., clinicians and environmental services personnel).
[5] Continued risk refers to persistent risk due to occupational work performed. Designated public health and healthcare worker response teams approved by public health authorities are not at "continued risk" because they are vaccinated for the purposes of preparedness.

IV. DISEASE SURVEILLANCE

A. Public Health Significance

Mpox is a zoonotic disease that typically presents with rash, fever, and swollen lymph nodes. It was first discovered in 1958 following outbreaks of pox-like disease in monkeys kept for research, hence the name "Monkeypox." Mpox was first documented in humans in 1970 in the Democratic Republic of Congo. Since then, mpox has been reported in people in several central and western African countries. Mpox can cause severe disease. The case fatality ratio was estimated at 3-6%.

Mpox is a rare disease in the US. However, in May of 2022, a case of mpox was reported in a US resident returning from Canada. Following that time, multiple clusters of mpox were reported in several countries in Europe and North America involving people who self-identify as GBMSM. Globally, there have been over 100,000 cases of mpox in 122 countries in which 115 of those countries have never reported mpox. There are two kinds of mpox, clade I and clade II and each clade has subclades: clade Ia and clade Ib; clade IIb. Outbreaks of each subclade have different characteristics about the population they affect, how they are being spread, and how many deaths are occuring.

B. Disease Surveillance Objectives

1. To identify and characterize the epidemiologic features of mpox.
2. To detect and monitor trends of mpox.

C. Surveillance Indicators

1. Proportion of cases with complete clinical, laboratory, and exposure information.
2. Proportion of cases that were reported to public health in a timely manner.

V. REFERENCES

1. Centers for Disease Control and Prevention. Mpox at https://www.cdc.gov/poxvirus/mpox/index.
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3. CDC Health Advisory. Mpox Virus Infection in the United States and Other Non-endemic Countries, 2022. May 20, 2022.
4. World Health Organization at https://www.who.int/news-room/fact-sheets/detail/mpox.

5. U.S. Federal Drug Administration. JYNNEOS at https://www.fda.gov/media/131078/download.
6. Advisory Committee on Immunization Practices. Orthopoxviruses (Smallpox and Mpox) Vaccine Recommendations at https://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/smallpox.
7. CDC Health Advisory. Mpox Caused by Human-to-Human Transmission of *Monkeypox Virus* in the Democratic Republic of the Congo with Spread to Neighboring Countries, 2024. August 7, 2024.

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