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PUBLIC HEALTH ADVISORY
UPDATED MONKEYPOX (MPOX) GUIDANCE
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This is an evolving situation. Updates and modifications to the below guidance will be provided by Riverside University Health System – Public Health as they become available.

Situation Update

A global outbreak of MPOX began in May 2022. Previous outbreaks in places where MPOX is not endemic were mostly related to international travel; however, this outbreak spread rapidly across much of the world through person-to-person contact, disproportionately affecting gay and bisexual men, other men who have sex with men (MSM), and transgender people. Most patients with MPOX have mild disease, although some, particularly those with advanced or untreated HIV infection, may experience more severe outcomes.

As of May 17, 2023, a total of 30,401 cases have been reported in the United States. This outbreak had a peak of about 460 cases per day in August 2022, then gradually declined, likely because of a combination of temporary changes in sexual behavior, vaccination, and infection-induced immunity. However, CDC continues to receive reports of new cases and clusters in the United States and internationally. As of 4/20/2023, 316 cases were reported in Riverside County.

Although approximately 1.2 million JYNNEOS MPOX vaccine doses have been administered in the United States since the beginning of the outbreak, only 23% of the estimated population at risk for MPOX has been fully vaccinated. Vaccine coverage varies widely among jurisdictions. The projected risk of a resurgent MPOX outbreak is greater than 35% in most jurisdictions in the United States without additional vaccination or harm reduction strategies to prevent the spread of MPOX. Resurgent outbreaks in these communities could be as large or larger than in 2022.

Background

After an average incubation period of 6 to 13 days (range, 3 to 21 days), flu-like symptoms may appear, and may include fever, headache, lymphadenopathy, myalgia, and fatigue. This is followed approximately 1 to 3 days later by a rash that may affect the face and extremities (including palms and soles).

Clinical Presentation

- Fever and other prodromal symptoms (e.g., chills, lymphadenopathy, malaise, myalgia, or headache) can occur before rash but may occur after rash or not be present at all.
- Respiratory symptoms (e.g., sore throat, nasal congestion, or cough) can occur.
- 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.
- Lesions are often described as painful until the healing phase when they become itchy (crusts)
- Respiratory symptoms (e.g., sore throat, nasal congestion, or cough) can occur.

The appearance and progression of the rash is very characteristic, evolving sequentially from macules (lesions with a flat base) to papules (slightly raised firm lesions), to vesicles (lesions filled with clear fluid), to pustules (lesions filled with yellowish fluid), and crusts which dry up and fall off.

In addition to being infectious while symptoms are present, a person can also transmit the virus to others one to four days before developing signs or symptoms. A person with MPOX is presumed to remain infectious until lesions have crusted, those crusts have separated, and a fresh layer of healthy skin has formed underneath; the illness typically lasts 2-4 weeks.

Human-to-human transmission occurs through direct contact with body fluids or lesion material, as well as through fomites (such as clothing or bedding) contaminated by the virus, or less commonly through large respiratory droplets during prolonged, face-to-face contact, or during intimate physical contact, such as kissing, cuddling, or sex. It is important to counsel patients on harm-reduction strategies, including:

- Avoid close, skin-to-skin contact with people who have a rash that looks like MPOX.
- Avoid contact with objects and materials that a person with MPOX has used.
- Wash your hands often.

MPOX virus infection can also affect vulnerable anatomic sites, including the eyes, which may require specific therapeutic management and considerations. Involvement of the eyes can be a vision-threatening condition and should be treated urgently. There are very few data on the effectiveness of currently available therapeutics and on the outcomes of ocular MPOX virus. This guidance will be updated as new data becomes available. For more information on management of ocular MPOX: https://www.cdc.gov/poxvirus/mpox/clinicians/ocular-infection.html

Recommendations for Clinicians Evaluating and Treating Patients

Conduct a thorough patient history to assess possible MPOX exposures or epidemiologic risk factors. MPOX is usually transmitted through close, sustained physical contact and has been almost exclusively associated with sexual contact in the current global outbreak. It is important to take a detailed sexual history of any patient with suspected MPOX.

Perform a complete physical examination, including a thorough skin and mucosal (e.g., oral, genital, anal) examination. Doing so can detect lesions of which the patient may be unaware.

Consider MPOX when determining the cause of a diffuse or localized rash, including in patients who were previously infected with MPOX or vaccinated against MPOX. Differential diagnoses include herpes simplex virus (HSV) infection, syphilis, herpes zoster (shingles), disseminated varicella-zoster virus infection (chickenpox), molluscum contagiosum, scabies, lymphogranuloma venereum, allergic skin rashes, and drug eruptions. Specimens should be obtained from lesions (including those inside the mouth, anus, or vagina), if accessible, and **tested for MPOX and other sexually transmitted infections (STI), including HIV, as indicated**. The diagnosis of an STI does not exclude MPOX, as a concurrent infection may be present.

Patients with MPOX benefit from supportive care and pain control. MPOX can commonly cause severe pain and can affect anatomic sites, including the anus, genitals, and oropharynx, which can lead to other complications. Assess pain in all patients with MPOX virus infection and recognize that substantial pain may exist from mucosal lesions not evident on physical exam. Topical and systemic strategies should be used to manage pain. Pain management strategies should be tailored to the needs and context of an individual patient.

Tecovirimat (TPOXX) is considered first-line among options that have not been approved by the U.S. Food and Drug Administration to treat eligible patients with MPOX. If a clinician intends to prescribe oral tecovirimat, consider seeking access through enrollment in the AIDS Clinical Trials Group (ACTG) Study of Tecovirimat for Human Monkeypox Virus (STOMP) so that the trial can determine efficacy of this drug. This trial includes a placebo-controlled, randomized arm, and an open-label option for individuals with severe disease or those who decline randomization. Remote enrollment is available. For patients not eligible for the STOMP trial or who decline to participate, stockpiled oral tecovirimat is available upon request for MPOX patients who meet treatment eligibility (e.g., have severe disease or are at increased risk for severe disease) under CDC's Expanded Access Investigational New Drug (IND) protocol. More information about evaluating and treating patients can be found on the CDC MPOX Clinical Guidance web pages (link provided below).

Individuals at High Risk of Severe Disease

Individuals at high risk of severe disease include:

- People with immunocompromising conditions (e.g., HIV/AIDS, leukemia, lymphoma, generalized malignancy, solid organ transplantation, therapy with alkylating agents, antimetabolites, radiation, tumor necrosis factor inhibitors, high-dose corticosteroids, being a recipient with hematopoietic stem cell transplant <24 months post-transplant or ≥24 months but with graft-versus-host disease or disease relapse, or having autoimmune disease with immunodeficiency as a clinical component
- Pediatric populations, particularly patients younger than 8 years of age
- Pregnant or breastfeeding women
- People with a history or presence of atopic dermatitis, people with other active exfoliative skin conditions (e.g., eczema, burns, impetigo, varicella zoster virus infection, herpes simplex virus infection, severe acne, severe diaper dermatitis with extensive areas of denuded skin, psoriasis, or Darier disease [keratosis follicularis])
- People with one or more complications (e.g., secondary bacterial skin infection; gastroenteritis with severe nausea/vomiting, diarrhea, or dehydration; bronchopneumonia; concurrent disease or other comorbidities)

Additional information is available at:
https://www.cdc.gov/poxvirus/monkeypox/clinicians/Tecovirimat.html

For more information about people at higher risk of severe disease:

- **People with HIV: https://www.cdc.gov/poxvirus/mpox/clinicians/people-with-HIV.html**
- **Pregnancy: https://www.cdc.gov/poxvirus/mpox/clinicians/pregnancy.html**
- **Pediatric: https://www.cdc.gov/poxvirus/mpox/clinicians/pediatric.html**

Recommendations for Vaccinating Patients

JYNNEOS vaccine can be given as post-exposure prophylaxis (PEP) both to people with known and presumed exposure to the MPOX virus. Vaccine can also be given to people with certain risk factors and recent experiences that may make them more likely to have been exposed to MPOX. As PEP, vaccine should be given as soon as possible, ideally within 4 days of exposure; however, administration 4 to 14 days after exposure may still provide some protection against MPOX. People who are vaccinated should continue to avoid close, skin-to-skin contact with someone who has MPOX.

JYNNEOS involves 2 vaccine doses given 28 days apart; peak immunity is expected 14 days after the second dose. Previous studies have suggested that JYNNEOS vaccination is protective against MPOX. In a new CDC report, vaccine effectiveness was found to be 75% for 1 dose and 86% for 2 doses of JYNNEOS vaccine, indicating substantial protection against MPOX, irrespective of route of administration or immunocompromise status. When combined with other prevention measures, vaccination prior to exposure and PEP vaccination strategies might help control outbreaks by reducing transmission of the MPOX virus, preventing disease, or reducing disease severity and hospitalization. Duration of immunity after one or two doses of JYNNEOS is unknown.

Currently, CDC does not recommend routine immunization against MPOX for the general public. MPOX vaccination should be offered to people with high potential for exposure to MPOX:

- People who had known or suspected exposure to someone with MPOX.
- People who had a sex partner in the past 2 weeks who was diagnosed with MPOX.
- Gay, bisexual, and other MSM, and transgender or nonbinary people (including adolescents who fall into any of these categories) who, in the past 6 months, have had:
    - A new diagnosis of one or more sexually transmitted diseases (e.g., chlamydia, gonorrhea, syphilis).
    - More than one sex partner.
- People who have had any of the following in the past 6 months
    - Sex at a commercial sex venue.
    - Sex in association with a large public event in a geographic area where MPOX transmission is occurring.
    - Sex in exchange for money or other items.
- People who are sex partners of people with the above risks.
- People who anticipate experiencing any of the above scenarios.
- People with HIV infection or other causes of immunosuppression who have had recent or anticipate potential MPOX exposure.
- People who work in settings where they may be exposed to MPOX.
    - People who work with orthopoxviruses in a laboratory.

Extensive risk assessment should not be conducted in people who request vaccination to avoid the barriers created by the stigma experienced by many who could benefit from vaccination. People in the community at risk (e.g., gay, bisexual, or other MSM; transgender or nonbinary people) asking for vaccination is adequate attestation to individual risk of MPOX exposure. People who previously received only one JYNNEOS vaccine dose should receive a second dose as soon as possible.

Testing Recommendations

Confirmatory laboratory diagnostic testing for monkeypox is performed using real-time polymerase chain reaction (PCR) assay on lesion-derived specimens.

Providers should submit specimens through commercial labs if possible. Follow specimen collection instructions provided by the laboratory. Public health approval is not required to submit specimens to a commercial lab: however, providers should notify public health about patients suspected to have MPOX without waiting for results to return to allow for contact tracing efforts to begin expeditiously.

Providers using commercial labs must report all Riverside County residents with orthopoxvirus positive and/or presumptive positive test results as well those confirmed through positive Monkeypox DNA (see Reporting).

Public Health Laboratory Testing

Providers that do not have access to commercial orthopoxvirus testing, may request testing for suspected cases by submitting a MPOX Investigation and Intake form located at: https://rivcoph.org/Portals/0/Documents/Monkeypox/Monkeypox%20Intake%20Form.pdf?ver=2022-06-30-124330-540&timestamp=1656618676131

Specimen Collection and Transport to the Public Health Laboratory

If a patient is evaluated and MPOX is high on the differential diagnosis, collect two swabs from two different lesions for preliminary and confirmatory testing as listed:

1. Vigorously swab or brush lesion with two separate sterile dry polyester or Dacron swabs. (Two from each lesion) Do Not de-roof lesions or use sharps.
2. Acceptable Specimen Type(s) and Collection Method Human Specimens:
    - Lesion swabs, in Viral Transport Medium (preferred) or dry
    - Dry lesion scabs or crusts

    Minimum Volume Required Submitters should sample at least two (2) MPOX lesions per patient (maximum 4 lesions). Each lesion should be sampled with 2 separate swabs to accommodate confirmatory testing, if needed.

    Transport Medium (if using) For lesion swabs only: 1–3 ml of Viral Transport Medium
3. The two separate sterile containers should be placed in 2 separate biohazard bags and refrigerated at 4° Celsius.

Specimens being tested through Public Health will be picked up by a RUHS-PH courier, within 24 hours-Monday through Friday. Store specimens at negative 80° Celsius, if it is greater than 72 hours between specimen collection and pickup.

Swabs can be collected and stored at the proper temperature without waiting to discuss the case with Public Health. This will avoid outpatients needing to be recalled should they meet criteria for testing through Public Health.

Infection Control

Patients presenting with suspected MPOX should be placed, as soon as possible, into a single-person exam room with door closed, or an airborne infection isolation room, if available, although an airborne infection isolation room is not required. The patient should remain masked, as tolerated (as currently required for all persons in healthcare settings) and any exposed skin lesions should be covered with a sheet or gown.

Healthcare personnel (HCP) evaluating patients with suspected MPOX should wear the following personal protective equipment (PPE): gloves, gown, eye protection (goggles or face shield) and a N95

or equivalent or higher-level respirator. HCP should don PPE before entering the patient's room and use it for all patient contact. HCP should remove and discard gloves, gown, and eye protection, and perform hand hygiene prior to leaving the patient's room; the N95 respirator should be removed, discarded, and replaced with a mask for source control after leaving the patient's room and closing the door.

An EPA-registered hospital-grade disinfectant should be used for cleaning and disinfecting environmental surfaces. All disposable equipment used for obtaining swabs must be properly discarded according to the facility's established procedures**.**

For more information on infection control in a healthcare setting:
https://www.cdc.gov/poxvirus/monkeypox/clinicians/infection-control-healthcare.html

Monitoring of Exposed Health Care Personnel (HCP)

At present, those who have been exposed are not required to quarantine themselves but should look for symptoms daily, as well as check their body temperature twice a day. Exceptions may be indicated based on the HCP's level of exposure risk and MPOX vaccination status.

Only those who are symptom-free should report for work. This may help limit missed diagnoses and prevent further inadvertent spread.

Additional information on monitoring is located at:
https://www.cdc.gov/poxvirus/monkeypox/clinicians/monitoring.html

Exclusion from Work of HealthCare Personnel (HCP)

HCP who tests positive for orthopoxvirus or Monkeypox virus DNA should be excluded from work until all symptoms have resolved, and all lesions have crusted, those crusts have separated, and a fresh layer of healthy skin has formed underneath. This process can take two to four weeks.

Home Isolation Instructions for Patients:

Current data suggests people can spread MPOX from the time symptoms start until all symptoms have resolved and all lesions have crusted, those crusts have separated, and a fresh layer of healthy skin has formed underneath. This process can take from two to four weeks. However, if a person with MPOX is unable to remain fully isolated throughout the illness, they should be instructed to follow the home isolation instructions outlined in the attached Home Isolation Instruction sheet.

For more information on home isolation:
https://www.cdc.gov/poxvirus/monkeypox/clinicians/infection-control-home.html

Treatment and Management Considerations

Management and treatment of MPOX disease includes nonspecific supportive care and treatment of symptoms. For individuals at risk for severe disease, antiviral treatments are available, with investigational new drug (IND) paperwork submitted by the monitoring healthcare provider and/or institution.

Clinicians are encouraged to offer meningococcal vaccine (MenACWY) to MSM and transgender persons who have sex with men. Vaccination may be particularly beneficial for these individuals when planning to attend gatherings (especially in crowded venues) with other MSM from around the country. For more information, please see the health alert, available at this link: CAHAN-Meningococcal Vaccine for MSM**.**

Clinicians should also consider offering doxycycline post-exposure prophylaxis (doxy-PEP) for prevention of bacterial sexually transmitted infections. Emerging evidence from a study among Men Having Sex with Men (MSM) and transgender women (TGW) suggests that doxy-PEP significantly reduces acquisition of chlamydia, gonorrhea, and syphilis.

The Dear Colleague letter from the California Department of Public Health is located at: https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CDPH-Doxy-PEP-Recommendations-for-Prevention-of-STIs.pdf

Disease Reporting

A patient being tested as a suspect MPOX case should be reported by fax, to Disease Control at 951-358-5446 or through CalREDIE.

Case information can be entered in CalREDIE (for healthcare facilities who are enrolled), select "Monkeypox disease" in the drop-down menu. Please enter CMR-level data on the Patient and Case Investigation tabs and add any additional information into the Notes field or upload it into the Electronic Filing Cabinet. Please **Do Not** include any information about the patient's HIV status in CalREDIE.

This is important to facilitate Public Health intervention such as obtaining information for contact tracing. The patient should be instructed in home isolation, pending test results.

Case Definition

Suspect case:

- New characteristic rash* OR
- Meets one of the epidemiologic criteria and has a high clinical suspicion for MPOX. Clinical suspicion may exist if presentation is consistent with illnesses confused with MPOX (e.g., secondary syphilis, herpes, and varicella zoster).

Probable case: 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 the period of 4 to 56 days after rash onset.

Confirmed case: Demonstration of the presence of MPOX virus by polymerase chain reaction testing or Next-Generation sequencing of a clinical specimen OR isolation of MPOX virus in culture from a clinical specimen.

*The characteristic rash associated with MPOX lesions involve 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 that are more commonly encountered in a clinical setting (e.g., secondary syphilis, herpes, and varicella zoster). Historically, sporadic accounts of patients co-infected with 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.

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Additional information on MPOX is located at:

CDC HAN: https://emergency.cdc.gov/han/2023/han00490.asp

CDC: https://www.cdc.gov/poxvirus/monkeypox/

CDPH: https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Monkeypox.aspx

Riverside County: https://www.ruhealth.org/monkeypox-providers

Additional considerations may also be important for:

People with HIV: https://www.cdc.gov/poxvirus/monkeypox/clinicians/people-with-HIV.html

People who are pregnant: https://www.cdc.gov/poxvirus/monkeypox/clinicians/pregnancy.html

Children and adolescents: https://www.cdc.gov/poxvirus/monkeypox/clinicians/pediatric.html

New MMWR studies (5/19/2023): Estimated Effectiveness of JYNNEOS Vaccine in Preventing MPOX: A Multijurisdictional Case-Control Study — United States, August 19, 2022–March 31, 2023 | MMWR (cdc.gov)

New CDC Presentation (5/18/23): Webinar Thursday, May 18, 2023 - MPOX Update: Stay Up to Date on Testing, Treatment, and Vaccination (cdc.gov)

The Dear Colleague letter from the California Department of Public Health is located at: https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CDPH-Doxy-PEP-Recommendations-for-Prevention-of-STIs.pdf

Meningococcal Vaccine for MSM: https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH Document Library/Immunization/CAHAN-MeningVacMSM.pdf

Hepatitis in MSM: https://www.cdc.gov/msmhealth/viral-hepatitis.htm