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First Case of Clade I Mpox Diagnosed in Massachusetts

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Summary

The Massachusetts Department of Public Health (MDPH) is announcing the first case of Clade I mpox confirmed in the Commonwealth; this is the fifth case identified in the U.S. to date. In November 2024, the Centers for Disease Control and Prevention (CDC) issued a Health Alert Network (HAN) Health Advisory to provide information about the first case of clade I mpox diagnosed in the United States (U.S.). All five cases reported to date had recent travel to areas with sustained clade I mpox transmission. The risk of clade I mpox to the public in the United States and in Massachusetts remains low.

MPXV (monkeypox virus) has two distinct genetic clades: clade I (with subclades Ia and Ib) is endemic to some countries in Central Africa, and clade II (with subclades IIa and IIb) is historically endemic to some countries in West Africa. There are some epidemiological and clinical differences between clade I and clade II mpox. Subclade Ia mpox cases in Central Africa have been spread through contact with infected dead or live wild animals, household transmission, or patient care; a high proportion of cases have been reported in children younger than 15 years of age.

Subclade Ib, more recently identified in eastern DRC, has been spread through intimate and adult sexual contact between different demographics, including heterosexual spread with sex trade workers. Current data suggest that some travel-associated cases being reported from around the globe came from heterosexual sex and other intimate skin-to-skin contact. So far, subclade Ib has a lower case-fatality rate than subclade Ia mpox.

Countries with sustained transmission currently include , Burundi, Central African Republic, Democratic Republic of the Congo, Kenya, Malawi, Republic of the Congo, Rwanda, South Sudan, Tanzania, Uganda, and Zambia. People travel to countries with active clade I mpox outbreaks for a variety of reasons, including visits with family and friends, tourism, and work. Travelers to countries with sustained spread of clade I mpox should be made aware of activities associated with transmission and should be vaccinated with two doses of JYNNEOS if they anticipate possible exposures through sexual or intimate contact, household contact or within healthcare settings while traveling.

Clinicians should be aware of mpox symptoms and ask patients about recent travel history and other risk factors for mpox, and consider MPXV testing when appropriate. Suspected cases of clade I mpox should be reported to MDPH promptly.

Recommendations for Clinicians and Public Health Practitioners

Prevention

- **Recommend vaccination to people who are at risk for exposure during travel in addition to others who are eligible for mpox vaccine. Mpox vaccine can also be given as post-exposure prophylaxis (PEP).**
- Continue to follow CDC's current vaccine guidance to prevent mpox.
    - Two doses of JYNNEOS vaccine offer substantial protection against mpox and are expected to offer protection regardless of clade.

    - If people at risk for mpox have only received one dose, remind them to get a second dose as soon as possible (at least 28 days after their first dose).
    - More than two JYNNEOS vaccine doses ("boosters") are not currently recommended for most people.
    - As PEP, vaccine should be given as soon as possible, ideally within four days of exposure; administration 4 through 14 days after exposure may still provide some protection against mpox.
- Counsel patients on activities that may increase risk for MPXV exposure and risk reduction strategies if they have plans to travel to a country where ongoing human-to-human transmission of clade I MPXV is occurring. Travelers to affected countries should:
    - Avoid close contact with people who are sick with signs and symptoms of mpox, including skin or genital lesions.
    - Avoid contact with contaminated materials used by people who are sick, such as clothing, bedding, toothbrushes, sex toys, or materials used in healthcare settings.
    - Avoid contact with animals (e.g. small rodents, non-human primates and anteaters) that can carry the virus that causes mpox or their products (e.g., bushmeat, lotions, hides) in areas where mpox is endemic, particularly in Central or West Africa.

Evaluation and Diagnosis

- **Consider mpox as a possible diagnosis in patients with epidemiologic characteristics and lesions or other clinical signs and symptoms consistent with mpox regardless of previous vaccination or infection. Be sure to obtain a travel history.**
- This includes symptomatic people who have been in Central or Eastern Africa (including, but not limited to, Burundi, Central African Republic, Democratic Republic of the Congo, Kenya, Malawi, Republic of the Congo, Rwanda, South Sudan, Tanzania, Uganda, and Zambia) in the previous 21 days.
- This also includes people who had close or intimate contact with symptomatic people who have been in these countries.
- An up-to-date list of countries affected by clade I mpox outbreaks is available on the CDC website.
- Clinical Findings:
    - After an incubation period of 3-17 days, some individuals will develop a prodrome that may include fever, malaise, headache, sore throat, or cough, and (in many cases) swollen lymph nodes. Not all cases will develop a prodrome.
    - Mpox infection typically causes lesions that progress from macules, papules, vesicles, to pustules, and then scabs. Mature lesions are firm or rubbery, well-circumscribed, deep-seated, and often develop umbilication (resembles a dot on the top of the lesion).
    - Rash may be confined to only a few lesions or only a single lesion and doesn't always involve the palms and soles.
    - Lesions are often described as painful until the healing phase when they become itchy (crusts).
    - Lesions often occur in the genital and anorectal areas or in the mouth.
    - Rectal symptoms (e.g., purulent or bloody stools, rectal pain, or rectal bleeding) have been frequently reported in the current outbreak.
- The differential diagnosis of a diffuse or localized rash is broad and may include herpes simplex virus (HSV), syphilis, herpes zoster (shingles), disseminated varicella-zoster virus infection, molluscum contagiosum, scabies, lymphogranuloma venereum, allergic skin rashes, and drug eruptions Follow CDC guidance on mpox infection prevention and control to minimize transmission risk when evaluating and providing care to patients with suspected mpox.
- Ask patients with signs and symptoms of mpox but no recent travel whether they have had contact with people who had recently been in Central or Eastern Africa and who were symptomatic for mpox.
- Advise all patients suspected of having mpox to stay at home and from others until mpox has been ruled out by laboratory testing. Suspected cases of mpox clade I should be reported to MDPH Division of Epidemiology (24/7) at 617-983-6800 to discuss recommendations to prevent further spread of the disease.
- Test all suspected cases for MPXV. If a symptomatic patient reports travel to Central or Eastern Africa in the 21 days prior to relevant symptom onset, please contact the MDPH Division of Epidemiology (24/7) at 617-983-6800 to facilitate testing for MPXV that includes clade I MPXV testing. When clade I disease is suspected, prioritize submission of specimens to the MA SPHL.

- Follow specimen collection guidelines (including collecting two swabs per 2-3 lesions) to ensure specimen availability for clade-specific testing. This testing will help distinguish cases that are part of the ongoing clade II mpox global outbreak from those that are part of this clade I outbreak.
    - Avoid unroofing or aspirating lesions (or otherwise using sharp instruments for mpox testing) to minimize the risk of a sharps injury.
- Note that specimen collection instructions may differ for different laboratories. Specimens sent to the MA SPHL should be sent on **dry swabs**.

Treatment

- Promptly consult MDPH about any mpox cases for which severe manifestations might occur (e.g., in people with advanced HIV infection or severe immunocompromise).

Recommendations for Laboratories

- According to Advisory Committee on Immunization Practices (ACIP) recommendations, employers should offer pre-exposure *orthopoxvirus* vaccination to workers at risk of occupational exposure. Two vaccines may be used to prevent mpox disease, JYNNEOS and ACAM2000.
- Clinical laboratories that perform clade-specific testing, (e.g., molecular testing or genetic sequencing) should alert MDPH if results from tests indicate detection of clade I MPXV.
    - Laboratories should be aware of potential genetic mutation impacts on the molecular test(s) that they are using. For instance, the subclade Ib is not detected with the previously developed "clade I PCR test". This test is now considered a clade Ia test. Visit Lab Advisory: Recommendations for Mpox Specimen Testing for additional information.
- As with all procedures, laboratories should perform a site-specific and activity-specific risk assessment to identify and mitigate risks.
    - Follow CDC guidance on infection prevention and control for mpox to minimize risk when working with suspected mpox specimens.

For Clinicians and Public Health Partners

- Clade I Mpox Outbreak Originating in Central Africa | Mpox | CDC
- Ongoing Clade II Mpox Global Outbreak | Mpox | CDC
- Clinical Overview of Mpox | Mpox | CDC
- Public Health Strategies for Mpox | Mpox | CDC
- Guide to Taking a Sexual History | CDC
- Mpox Considerations for People Who Are Pregnant or Breastfeeding | Mpox | CDC
- Clinical Considerations for Mpox in Children and Adolescents in the U.S.
- Select Agent Regulations | Biosafety Laboratory Guidance for Handling and Processing Mpox Specimens | CDC
- Information for Clinical/Diagnostic Laboratories, Healthcare Facilities, and Other Entities Not Registered with the Federal Select Agent Program | FSAP

References

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3. Rao AK. "Evidence to Recommendations Framework: Vaccination with JYNNEOS During Mpox Outbreaks." Advisory Committee on Immunization Practices (ACIP) presentation. Atlanta, GA, February 22, 2023. https://www.cdc.gov/acip/downloads/slides-2023-02-22-24/Mpox-07-Rao-508.pdf
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