MONKEYPOX DIAGNOSTICS

LITERATURE REVIEW

Faculty Review by: Dr. Malinee Neelamegam
Student Lead: Jesus Tamayo
Student team: Travis Allen, Victor Amajor, Breanna Andriot, Sampada Chaudhari, Pamela Gomez Pinedo, Navya Jampani, Jessica Lee, Kali Nguyen, Nedeke Ntekim, Cardon Porter, Mauli Shah, Maggie Stein, Samantha Walczak

hsc Center for Health Policy

WHO TO TEST

Indication to test

Meets suspicion based on history, clinical presentation, and epidemiological factors such as direct contact exposure or high-risk travel history.

Suspected cases

- Unexplained acute rash (characteristics: well-circumscribed lesion with central umbilication)
- One or more symptoms (ex. headache, acute fever, lymphadenopathy, myalgia, profound weakness, rectal pain, and back pain)
- One or more exposure criteria within 21 days of illness (ex. contact with person with similar rash or known diagnosis of monkeypox, traveling outside the country with confirmed cases of monkeypox, or contact with dead or live endemic species)
- Symptoms are not explainable by other causes of acute rash (ex. varicella zoster, herpes zoster, measles, herpes simplex, syphilis, etc.)

Contact definition

- Direct skin-skin contact (ex. touching, hugging, kissing, or sexual contact)
- Contact with contaminated materials (ex. bedding, laundry, or cleaning contaminated rooms)
- Prolonged face-to-face respiratory exposure within close proximity
- Respiratory exposure to infected person
- Eye mucosal or lesion exposure (ex. eyes or scabs)
- Healthcare workers exposed in absence of proper PPE

SPECIMEN COLLECTION

- Proper Personal Protective Equipment (PPE) is crucial, including gown, gloves, eye protection, and N95 mask or greater. While Monkeypox is not known to be airborne, due to its similarity to other orthopoxviruses, including Smallpox, broad PPE recommendations are out of an abundance of caution
- Suspected monkeypox patients isolated
- Recommended specimen type is lesion material
- Two swabs should be used per lesion, and we should collect specimens from 2-3 lesions, preferably from different locations or different appearing lesions. Do not use cotton swabs. It is not necessary to de-roof lesions before swabbing.
- Special air handling is not required. O-ring container is best practice.
- The only CDC accepted transport media is Viral Transport Medium (VTM).
- To ensure safe and responsible transport, specimens are subject to Clinical Laboratory Improvement Amendments (CLIA) restrictions, and the CDC 50.34 form must be completed for each specimen.
- Specimens must be shipped on dry ice. Specimens received outside acceptable temperature ranges will NOT be accepted. Freeze-thaw cycle should be avoided

Types of Laboratory Tests

Urine and Blood testing

- Urine and blood carry a relatively low quantity of virus, so urinalysis and serum testing are not often used for diagnosis

Real Time PCR

- Samples of DNA are taken from lesions in different locations on the body and viral DNA is amplified.
- Results can take several days to return (most commonly 3-4).
- This test is highly selective for the monkeypox virus. False positives/negatives are highly unlikely, but false positives may present in patients who recently received a *Vaccinia*-based vaccine.

Antibody testing is not currently available

Monkeypox Testing

The primary contact for testing should be a primary care provider or urgent care location.

FEEDBACK SURVEY

Additional Resources and References

As of June 2022, The Department of Health and Human Safety distributed testing resources to larger commercial laboratories nationwide including Aegis Science, LabCorp, Quest Diagnostics and Sonic Healthcare, all of which are accessible in Texas

Labs are now able to report testing results within 24 hours of being ordered by a physician