NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER • Governor
KODY H. KINSLEY • Secretary
MARK BENTON • Deputy Secretary for Health
SUSAN KANSAGRA MD, MBA • Assistant Secretary for Public Health
Division of Public Health

To: All North Carolina Clinicians and Laboratories
From: Zack Moore, MD, MPH, State Epidemiologist
Re: Person-to-Person Monkeypox Transmission in Multiple Countries
Date: June 17, 2022 (replaces memo dated May 20, 2022)

This memo is intended to provide an update to guidance for North Carolina clinicians in evaluation and response to possible cases of monkeypox.

Background:

Since May 2022, *Monkeypox virus* infections have been identified in multiple countries outside of endemic regions, including the United States, in individuals with no travel history to endemic regions. While *Monkeypox virus* can affect anyone, recent cases in non-endemic countries have been identified predominantly in gay, bisexual or other men who have sex with men (MSM).

Clinical Features:

Monkeypox typically presents with a prodrome of flu-like symptoms and lymphadenopathy followed by a rash that progresses to vesicular, to pustular, and then scabbing over a period of 2-4 weeks. Lesions are well circumscribed, deep seated, and often develop umbilication. Lesions may be disseminated or localized and may be present on the palms and soles.

Disease in many patients in the current outbreak has not presented classically. Individuals have presented with proctitis alone, or with a rash localized to the genitals or perianal area with no preceding prodrome.

Monkeypox virus can be spread person-to-person through contact with body fluids or lesions, items that have been in contact with fluids or lesions, and respiratory droplets. While it is possible to become infected via exposure to infected animals, zoonotic transmission has not been identified in the current outbreak. The incubation period is usually 7−14 days but can range from 5−21 days. People with monkeypox are infectious from the start of the prodromal period until the lesions heal and new skin forms underneath scabs.

At this time, there are no specific treatments for monkeypox infection, but smallpox and monkeypox vaccines (ACAM2000 and Jynneos), tecovirimat (ST-246), and vaccinia immune globulin (VIG) have been used in outbreaks.

Guidance for Clinicians:

Any suspected cases of monkeypox should immediately be reported to the Communicable Disease Branch Epidemiologist on Call at 919-733-3419. The NC Division of Public Health is available to assist with monkeypox evaluation and testing, and testing can be performed at the NC State Laboratory of Public Health (NCSLPH).

North Carolina providers should consider monkeypox in all patients presenting with a clinically consistent picture. Molecular testing for varicella or other illnesses may be considered for patients in whom a monkeypox diagnosis is suspected, *but this testing should not delay report to public health. Additional guidance is available from the CDC Health Advisory posted June 14, 2022.*

Suspicion for monkeypox should be heightened if the rash occurs in a person who in the last 21 days:

1) Reports having had contact with a person or people who have a similar appearing rash or received a diagnosis of confirmed or suspected monkeypox OR
2) Had close or intimate in-person contact with person(s) in a social network experiencing monkeypox infections. This includes MSM who meet partners through an online website, app, or social event OR
3) Has recently returned from travel to an endemic area.

The health department should be called for a clinically consistent rash even if these risk factors are not present.

When monkeypox is suspected, healthcare workers should implement contact and enhanced droplet or airborne precautions (if performing aerosolizing procedures), including gloves, protective gown, eye protection, and surgical mask or NIOSH-approved N95 or higher-level respirator for aerosolizing procedures. Respirators should not be re-used between patients because fomite transmission is possible. For people with monkeypox who do not require hospitalization, home isolation is required during the infectious period.

NCSLPH Specimen Collection and Testing Guidelines:

Testing Criteria

- All suspected cases of monkeypox infections based on the clinical criteria described in this document should be reported to the **NC DPH Communicable Disease Branch at (919) 733-3419 for prior approval for laboratory testing**.

Testing Employed

The NCSLPH Bioterrorism and Emerging Pathogens (BTEP) Unit has validated the CDC Orthopox, Non-variola Orthopox, and Variola real-time PCR (RT-PCR) assays. When positive results are derived from the non-variola orthopox assay, the duplicate specimen will be sent to CDC for DNA characterization that includes monkeypox specific testing.

- Estimated turn-around time for initial results is 6 to 48 hours from time of specimen receipt and based upon the number of specimens received.

- USE STANDARD, CONTACT, AND DROPLET PRECAUTIONS WHEN COLLECTING SPECIMENS FOR MONKEYPOX TESTING: https://www.cdc.gov/poxvirus/monkeypox/clinicians/prep-collection-specimens.html

- Duplicate specimens (i.e. swabs of lesion fluid) must be collected simultaneously and sent to NCSLPH. One specimen from each set will be used for testing at NCSLPH; the second specimen will be sent to CDC, as needed.

Specimens for Orthopox RT-PCR Testing

NOTE: At least two lesions should be sampled, preferably from different locations on the body. To allow for further characterization at CDC, TWO DRY SWABS should be used simultaneously to vigorously scrub each lesion.

Disease Stage	**Acceptable Specimen Types**
Vesicles / Pustules	Swab, using **TWO DRY SWABS**, the lesion base/lesion fluid

Specimen Collection Guidance:

- Place each specimen in individual collection tube (i.e., one tube per swab).
- Label each specimen tube separately with:
  - **Specimen site / type**
  - Patient name
  - Date of birth
  - Date of collection

Swab collection - (lesion fluid)– sterile nylon, polyester, or Dacron swabs with a plastic, wood, or thin aluminum shaft. Do not use cotton or other types of swabs. **Dry swabs will be processed for molecular detection**; **do not add transport media**. Unroofing the lesion is not required if the lesion is vigorously scrubbed. To unroof the lesion:

1. Use a disposable scalpel (or a sterile 26 Gauge needle) to open and remove the top of the vesicle or pustule (do not send the scalpel or needle).
2. Taking TWO sterile polyester or Dacron swabs, simultaneously use both to vigorously swab the base of the lesion.
3. Break off the end of each swab separately into screw-capped plastic aliquot tubes without any preservative. DO NOT ADD ANY TRANSPORT MEDIA.

Specimen Storage and Shipping Requirements:

- Within one hour of collection, place all specimens in a 2-8°C refrigerator or a freezer at -20°C or colder.
- Refrigerated (2-8°C) samples are acceptable for testing up to 7 days after collection. Frozen samples (-20°C or lower) are acceptable for testing for up to 1 month after collection.
- Shipment to NCSLPH – If shipment is to be received at NCSLPH within 5 days of collection, specimens must be received cold (2-8°C, packaged with frozen cold packs) to be acceptable for testing. For delays exceeding 5 days, freeze specimens at -70°C & ship on dry ice to be received at NCSLPH frozen (-20°C or lower).
- Specimens must be packaged with cold packs to ensure an arrival temperature between 2 - 8°C if refrigerated and -20°C or lower if frozen. Packages should be shipped to NCSLPH as Category B. Category B shipping instructions can be found here: Cat B Poster_v3 (dot.gov). However, please note that specimens must be packaged with frozen cold packs. If you have questions regarding Category B shipping, please contact the BTEP Unit using the information below.
- The following supplies are necessary for Cat B shipping: a rigid package with insulation, frozen ice packs, appropriate Category B labels, and a leakproof container specimens can be placed into (this can be a larger sample container or a specimen bag)
- ALL specimens collected for monkeypox testing as part of a case investigation should be sent to NCSLPH.

All specimen submissions **must** have a completed BTEP Specimen Submission Form

THE BTEP UNIT MUST BE CONTACTED (919-807-8600) PRIOR TO ANY SHIPMENT OR IF YOU HAVE QUESTIONS.

Other Testing:

In addition to specimens for monkeypox testing, specimens should be collected and submitted to SLPH for VZV/HSV and syphilis testing unless already completed at an outside laboratory.

Varicella Zoster/Herpes Simplex Virus Swab collection - (lesion fluid)– sterile nylon, polyester, or Dacron swabs with a plastic or thin aluminum shaft. Do not use cotton or other types of swabs. Dry swabs are preferred for molecular detection; **unlike swabs being tested for orthopox/monkeypox, HSV and VZV tests require viral transport media**.

1. Using a sterile instrument, open the fluid filled vesicle
2. Using firm pressure, absorb the fluid with a sterile swab and scrape the perimeter of the lesion obtaining cellular material on the swab tip.
3. Break off the end of the swab into a screw-capped plastic aliquot **tube with viral transport media**. Store HSV/VZV specimens refrigerated (2-8°C). Do not freeze. Specimen must be received at NCSLPH within five days of collection, cold (2-8°) on frozen ice packs and may be shipped with the Orthopox test specimen.

Monkeypox Resources

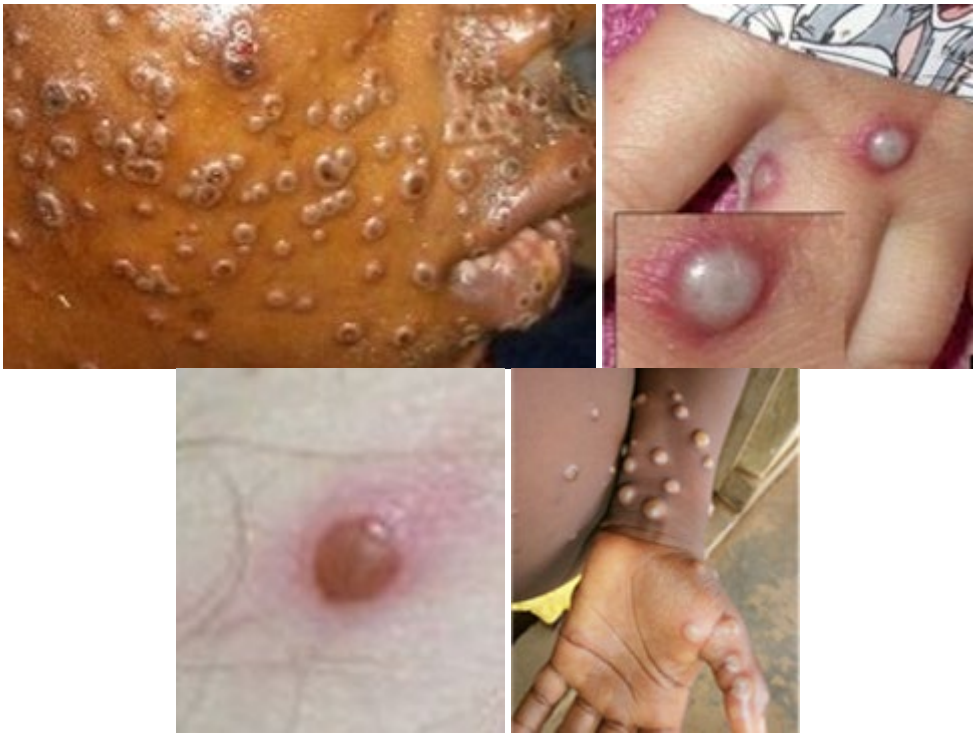

Photo credit: CDC

Additional information from NC DHHS and CDC:

The North Carolina Health Department Monkeypox Page:
https://epi.dph.ncdhhs.gov/cd/diseases/monkeypox.html

The CDC Monkeypox Outbreak Page:
https://www.cdc.gov/poxvirus/monkeypox/response/2022/index.html

The COCA call for clinicians about the monkeypox outbreak:
https://emergency.cdc.gov/coca/calls/2022/callinfo_052422.asp

Journal articles on monkeypox:

Monkeypox Outbreak — Nine States, May 2022. FS Minhaj et. al.
https://www.cdc.gov/mmwr/volumes/71/wr/mm7123e1.htm

Community transmission of monkeypox in the United Kingdom, April to May 2022. R Vivancos et. al.
https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2022.27.22.2200422

The Detection of Monkeypox in Humans in the Western Hemisphere. KD Reed et. al.
https://www.nejm.org/doi/full/10.1056/NEJMoa032299

Monkeypox Genital Lesions. R. Patrocinio-Jesus et. al.
https://www.nejm.org/doi/full/10.1056/NEJMicm2206893