



NC DEPARTMENT OF  
**HEALTH AND  
HUMAN SERVICES**

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Division of Public Health

To: All North Carolina Clinicians and Laboratories  
From: Zack Moore, MD, MPH, State Epidemiologist  
Scott Shone, PhD, HCLD(ABB), Public Health Laboratory Director  
Re: Person-to-Person Monkeypox Transmission in Multiple Countries  
Date: July 12, 2022 (5 pages – replaces version dated June 17, 2022)

This memo is intended to provide an update regarding the prevention of monkeypox and the evaluation and response to possible cases. Key updates include the expanded testing availability and the availability of vaccines.

**Background:**

Since May 2022, *Monkeypox virus* infections have been identified outside of endemic regions, including the United States in individuals with no travel history to endemic regions. Many recent cases have been identified predominantly in gay, bisexual or other men who have sex with men (MSM), although it's important to note that monkeypox can affect anyone and infectious diseases do not tend to remain only within specific sexual or social networks.

A toolkit with educational materials to help communities understand monkeypox is available at <https://epi.dph.ncdhhs.gov/cd/diseases/monkeypox/toolkit.html>.

**Clinical Features:**

Monkeypox may present with a prodrome of flu-like symptoms and lymphadenopathy followed in 2-3 days by a rash that progresses from macular to papular to vesicular, then pustular, and then scabbing over and resolving over a period of 2-4 weeks. The prodrome may also appear simultaneously with the rash or not at all. Lesions are well circumscribed, deep seated, and often develop umbilication. Lesions may be disseminated or localized and may present in the perianal or genital area, face, mouth, and palms and soles. During this outbreak, some cases have presented with proctitis, anal pain, rectal lesions, and tenesmus.

*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. 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 symptoms until the lesions heal and new skin forms underneath scabs.

**NC DEPARTMENT OF HEALTH AND HUMAN SERVICES • DIVISION OF PUBLIC HEALTH**

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## Testing and Reporting:

**Any suspected cases of monkeypox should immediately be reported to [your local health department](#) or to the Communicable Disease Branch Epidemiologist on Call at 919-733-3419.** The NC Division of Public Health (NCDPH) is available to assist with monkeypox evaluation and testing, and with implementation of public health interventions to prevent further spread. Testing can be performed through the NC State Laboratory of Public Health (NCSLPH). Testing is also now available commercially, including through LabCorp and Mayo Clinical Laboratories. Other commercial laboratories are planning to offer testing in the coming days, including Quest Diagnostics, Sonic Healthcare, and Aegis Science. Testing at laboratories other than SLPH does not require prior public health approval. However, suspected cases must still be reported to your [local public health department](#) or NCDPH (919-733-3419) within 24 hours per the [NC State Administrative Code](#).

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 reports any of the following in the 21 days prior to symptom onset:

- 1) Having 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](#) or an [area where monkeypox is spreading](#) in the current outbreak.

## Infection Prevention:

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](#). Cleaning processes for testing facilities are similar to standard cleaning after a standard patient visit. See: [CDC Infection Control in Healthcare Settings](#).

## Vaccination and Treatment:

The U.S. government has stockpiled two vaccines — JYNNEOS and ACAM2000 — that can prevent monkeypox in people who have been exposed to the virus if given soon after exposure. In the United States, there is currently a limited supply of JYNNEOS, although more is expected in coming weeks and months. There is an ample supply of ACAM2000. However, this vaccine should not be used in people who have some health conditions, including a weakened immune system, skin conditions like atopic dermatitis/eczema, or pregnancy.

All available JYNNEOS doses have been allocated to states to give to people with known or suspected exposure to monkeypox. This includes:

- People who have been in close physical contact with someone diagnosed with monkeypox, or
- Men who have sex with men, or transgender individuals, who have had multiple or anonymous sex partners in the last 14 days in either a venue where monkeypox was present or in an area where the virus is known to be spreading. Updated information on where monkeypox is spreading is posted on the CDC site [here](#).

Information for the public about vaccine eligibility and access is available [here](#). Supplies and eligibility criteria are expected to expand over the coming weeks.

At this time, there are no specific treatments approved for monkeypox infection, but tecovirimat (TPOXX), vaccinia immune globulin (VIG), and cidofovir can be considered and are available from the strategic national stockpile. Particular consideration for these options should be taken if the patient has immunocompromising conditions, lesions in the throat, eyes, or perirectal area, or the patient is a pregnant person or child: [Treatment Information for Healthcare Professionals | Monkeypox | Poxvirus | CDC](#)

### **NCSLPH Specimen Collection and Testing Guidelines:**

#### Testing Criteria

**If testing is requested through the NCSLPH, prior approval from the NCDPH Communicable Disease Branch is required (919-733-3419).** Testing through other laboratories does not need to be pre-approved, but suspected cases must be reported within 24 hours.

#### State 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 may be sent to CDC for DNA characterization that includes monkeypox specific testing.

- Estimated turn-around time for initial results at NCSLPH is 6 to 72 hours from time of specimen receipt but may vary depending on 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	
<p><b>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 <u>vigorously scrub</u> each lesion.</b></p>	
Disease Stage	Acceptable Specimen Types
Macules / Papules / Vesicles / Pustules	Vigorously scrub, using <b>TWO DRY SWABS</b> , 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, but may provide better results. 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 \(dot.gov\)](https://www.fda.gov/oc/ohrt/cats/cats_b.html). 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 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 can be collected and submitted to SLPH for VZV/[HSV](#) and [syphilis](#), but must be accompanied by the appropriate specimen submission form(s). Unlike swabs being tested for orthopox/monkeypox, HSV and VZV tests require viral transport media.

**Additional information from NCDHHS and CDC:**

NCDHHS monkeypox information:

<https://epi.dph.ncdhhs.gov/cd/diseases/monkeypox.html>

CDC Monkeypox outbreak information:

<https://www.cdc.gov/poxvirus/monkeypox/response/2022/index.html>

CDC Monkeypox vaccine information:

<https://www.cdc.gov/poxvirus/monkeypox/clinicians/smallpox-vaccine.html>

COCA call for clinicians about the monkeypox outbreak:

[https://emergency.cdc.gov/coca/calls/2022/callinfo\\_052422.asp](https://emergency.cdc.gov/coca/calls/2022/callinfo_052422.asp)

**Selected scientific publications:**

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>