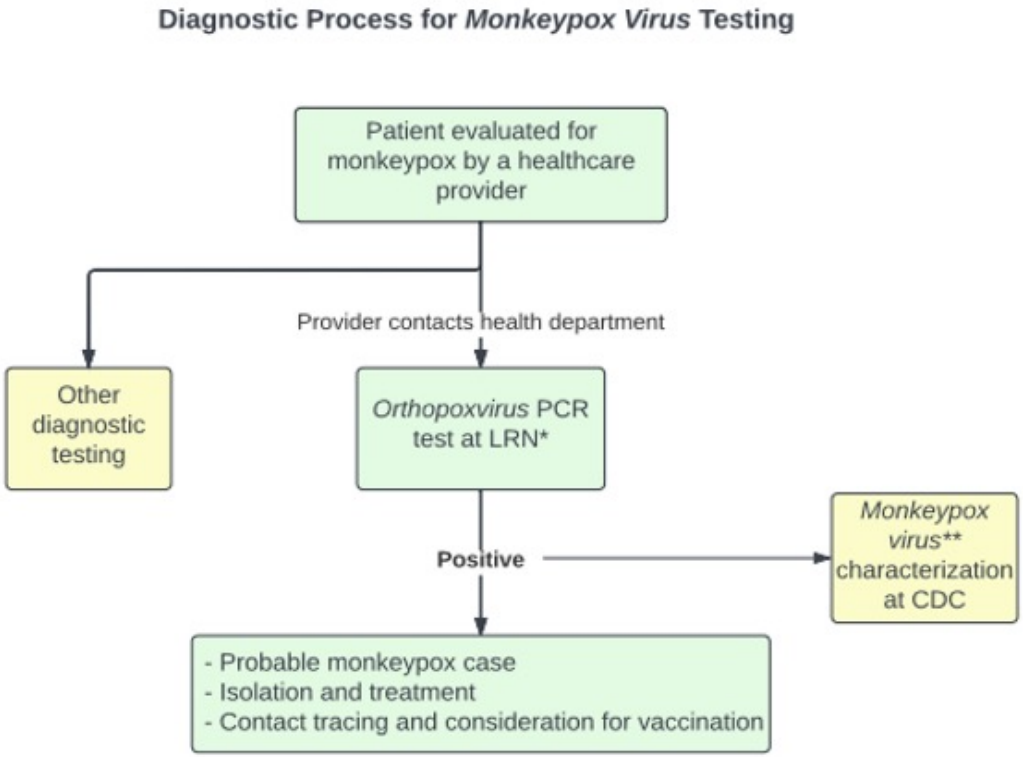
Monkeypox Testing Basics

September 2022

MDHHS
Michigan Department of Health & Human Services

Public Health Laboratories (PHLs): Testing Algorithm

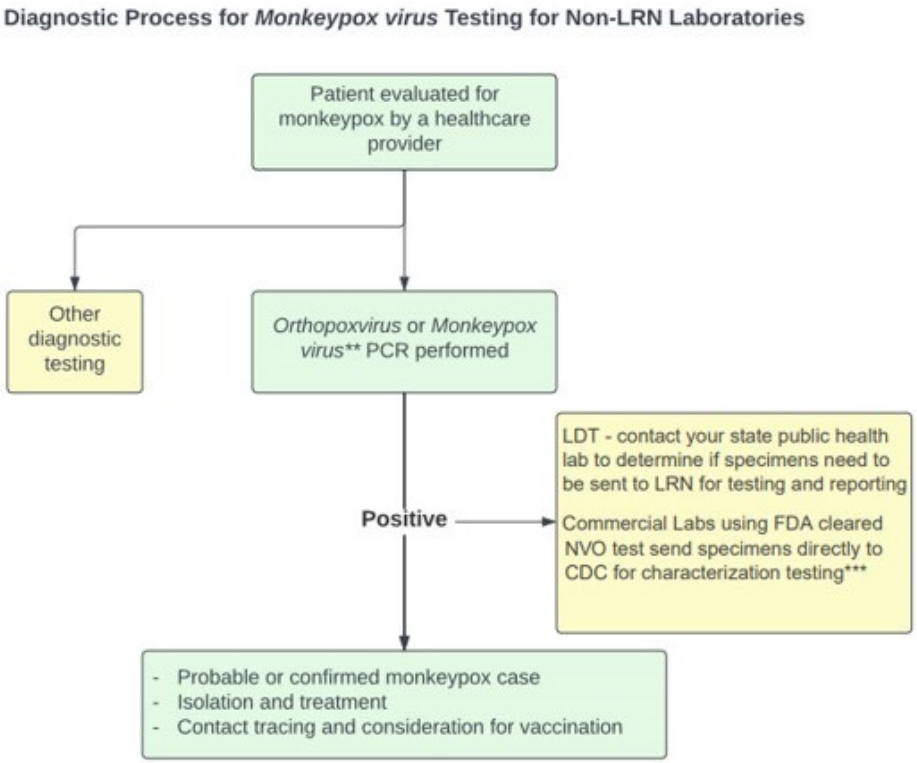


***PCR - polymerase chain reaction; LRN - laboratory response network**
****Monkeypox is a member of the orthopox group of viruses.**

Important Links and Contacts | Information for Laboratory Personnel | Preparation and Collection of Specimens | Emergency Operations Center: 770.488.7100 *(Available 24/7)* | LRN contact: Use the 'Contact Us' feature on the LRN website, Or LRN@cdc.gov | Public Health contact list to pursue LRN lab testing

MDHHS
Michigan Department of Health & Human Services

Commercial Laboratories: Testing Algorithm



*PCR - polymerase chain reaction; LRN - laboratory response network; LDT - lab developed test; NVO - non-variola orthopoxvirus; PHL - public health laboratory

**Monkeypox is a member of the orthopox group of viruses

***Unless specific criteria has been met and only a % of specimens need to be sent to CDC for characterization

Important Links and Contacts | Information for Laboratory Personnel | Preparation and Collection of Specimens | Emergency Operations Center: 770.488.7100 *(Available 24/7)* | poxvirus@cdc.gov | Public Health contact list to pursue LRN lab testing | Reporting Results

Current confirmed commercial labs:

- Labcorp
- Maye
- Aegis
- Quest
- Sonic

MDHHS Michigan Department of Health & Human Services

Acceptable Specimens: Bureau of Laboratories

- Dry swab of lesion.
  - Polyester, Nylon, or Dacron swabs with a plastic shaft
- Swabs can be collected from up to three lesions on different areas of the body.
  - Separate swab per collection site (i.e., one swab for lesion on arm and one for lesion on leg).
  - Up to two swabs per lesion (additional swab sent to CDC for monkeypox virus characterization).
- To collect, vigorously swab or brush lesion with dry swab.
  - If two swabs are collected from a lesion, they may be placed in the same container.
  - Ensure collection site is clearly labelled on specimen container (i.e., arm, groin, anus).
- Break off or cut the shaft and place swab in a sterile container (i.e., urine cup, conical tube, or 2 ml tube with screw cap).

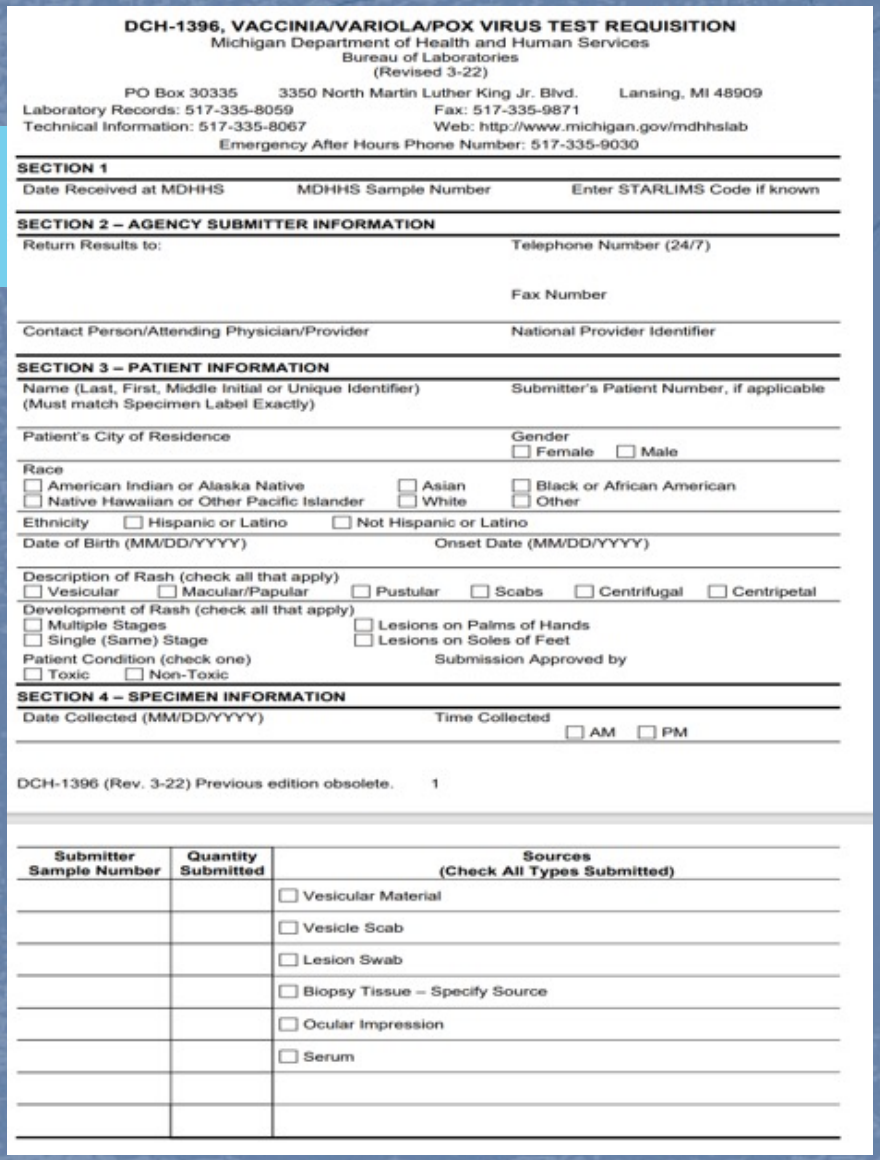
Other Acceptable Specimens

- Skin or crust from roof of vesicle (Bureau of Laboratories).
- Swab in Viral Transport Medium (VTM); will be sent to CDC for testing.
- Specimen types and collection instructions for commercial laboratories.
  - Confirm with the submission laboratory before collecting.

Storage and Shipping: Bureau of Laboratories

- Refrigerate (2-8°C) or freeze (-20°C or lower) specimens within an hour after collection.
- If specimens are refrigerated send on cold packs and if frozen send on dry ice.
- Refrigerated specimens can be stored for up to seven days and frozen specimens may be stored for up to a month.
- Samples may be shipped to MDHHS BOL as Category B.
  - Check with your system's lab to gain assistance or reach out to your LHD if needed.

Requisition Forms



DCH-1396, VACCINIA/VARIOLA/POX VIRUS TEST REQUISITION
Michigan Department of Health and Human Services
Bureau of Laboratories
(Revised 3-22)

PO Box 30335 3350 North Martin Luther King Jr. Blvd. Lansing, MI 48909
Laboratory Records: 517-335-8059 Fax: 517-335-9871
Technical Information: 517-335-8067 Web: http://www.michigan.gov/mdhhslab
Emergency After Hours Phone Number: 517-335-9030

SECTION 1

Date Received at MDHHS | MDHHS Sample Number | Enter STARLIMS Code if known

SECTION 2 – AGENCY SUBMITTER INFORMATION

Return Results to: | Telephone Number (24/7) | Fax Number

Contact Person/Attending Physician/Provider | National Provider Identifier

SECTION 3 – PATIENT INFORMATION

Name (Last, First, Middle Initial or Unique Identifier) (Must match Specimen Label Exactly) | Submitter's Patient Number, if applicable

Patient's City of Residence | Gender ☐ Female ☐ Male

Race
☐ American Indian or Alaska Native ☐ Asian ☐ Black or African American
☐ Native Hawaiian or Other Pacific Islander ☐ White ☐ Other

Ethnicity ☐ Hispanic or Latino ☐ Not Hispanic or Latino

Date of Birth (MM/DD/YYYY) | Onset Date (MM/DD/YYYY)

Description of Rash (check all that apply)
☐ Vesicular ☐ Macular/Papular ☐ Pustular ☐ Scabs ☐ Centrifugal ☐ Centripetal

Development of Rash (check all that apply)
☐ Multiple Stages ☐ Lesions on Palms of Hands
☐ Single (Same) Stage ☐ Lesions on Soles of Feet

Patient Condition (check one) ☐ Toxic ☐ Non-Toxic | Submission Approved by

SECTION 4 – SPECIMEN INFORMATION

Date Collected (MM/DD/YYYY) | Time Collected ☐ AM ☐ PM

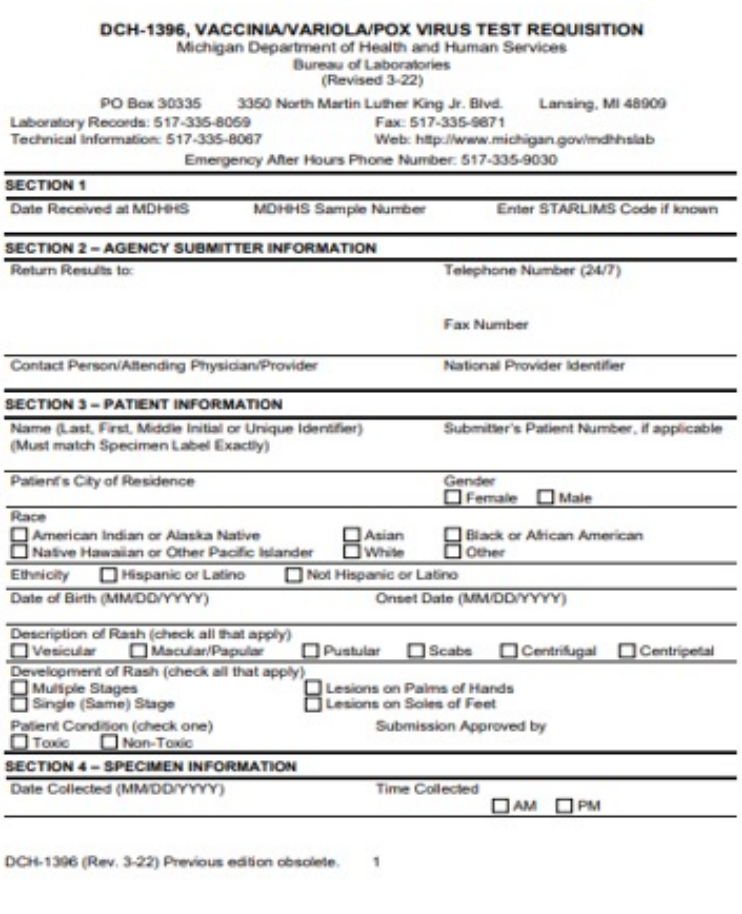
DCH-1396 (Rev. 3-22) Previous edition obsolete. 1

Submitter Sample Number	Quantity Submitted	Sources (Check All Types Submitted)
		☐ Vesicular Material
		☐ Vesicle Scab
		☐ Lesion Swab
		☐ Biopsy Tissue – Specify Source
		☐ Ocular Impression
		☐ Serum

- DCH-1396 form
  - Available: **Michigan.gov/mdhhslab**
  - Go to "Test Requests" and then select the form which is at bottom of list.
- Please complete as best as possible with two identifiers that match the samples (i.e., full name and DOB).

MDHHS
Michigan Department of Health & Human Services

Vaccinia/Variola/Pox Virus Test Requisition



DCH-1396, VACCINIA/VARIOLA/POX VIRUS TEST REQUISITION
Michigan Department of Health and Human Services
Bureau of Laboratories
(Revised 3-22)

PO Box 30335 3350 North Martin Luther King Jr. Blvd. Lansing, MI 48909
Laboratory Records: 517-335-8059 Fax: 517-335-9871
Technical Information: 517-335-8067 Web: http://www.michigan.gov/mdhhslab
Emergency After Hours Phone Number: 517-335-9030

SECTION 1

Date Received at MDHHS | MDHHS Sample Number | Enter STARLIMS Code if known

SECTION 2 – AGENCY SUBMITTER INFORMATION

Return Results to: | Telephone Number (24/7)

Fax Number

Contact Person/Attending Physician/Provider | National Provider Identifier

SECTION 3 – PATIENT INFORMATION

Name (Last, First, Middle Initial or Unique Identifier) (Must match Specimen Label Exactly) | Submitter's Patient Number, if applicable

Patient's City of Residence | Gender ☐ Female ☐ Male

Race
☐ American Indian or Alaska Native ☐ Asian ☐ Black or African American
☐ Native Hawaiian or Other Pacific Islander ☐ White ☐ Other

Ethnicity ☐ Hispanic or Latino ☐ Not Hispanic or Latino

Date of Birth (MM/DD/YYYY) | Onset Date (MM/DD/YYYY)

Description of Rash (check all that apply)
☐ Vesicular ☐ Macular/Papular ☐ Pustular ☐ Scabs ☐ Centrifugal ☐ Centripetal

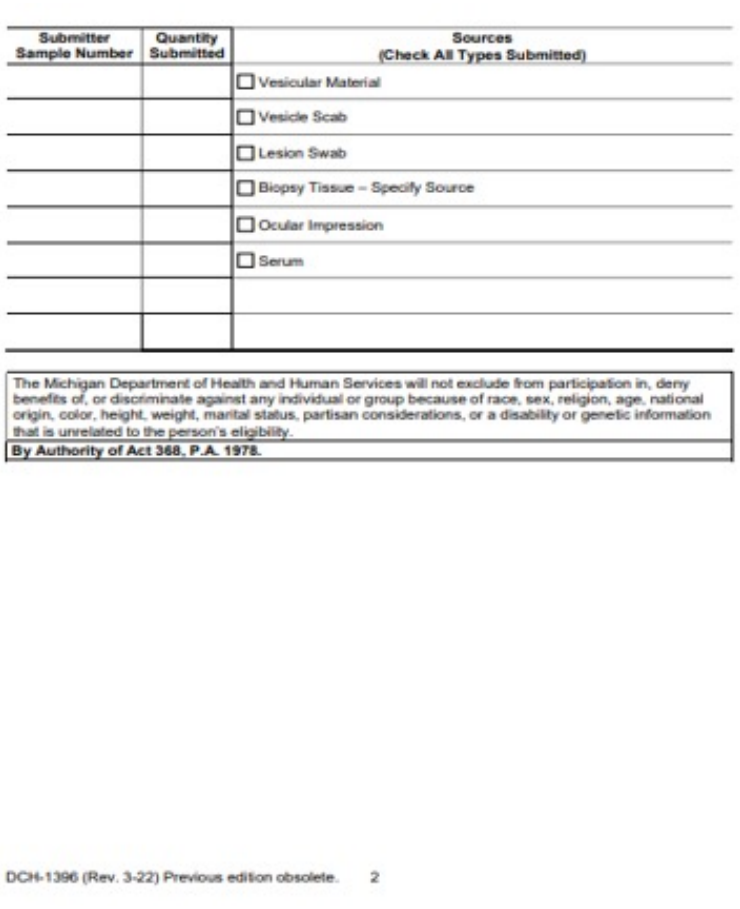
Development of Rash (check all that apply)
☐ Multiple Stages ☐ Lesions on Palms of Hands
☐ Single (Same) Stage ☐ Lesions on Soles of Feet

Patient Condition (check one) | Submission Approved by
☐ Toxic ☐ Non-Toxic

SECTION 4 – SPECIMEN INFORMATION

Date Collected (MM/DD/YYYY) | Time Collected ☐ AM ☐ PM

DCH-1396 (Rev. 3-22) Previous edition obsolete. 1



Submitter Sample Number	Quantity Submitted	Sources (Check All Types Submitted)
		☐ Vesicular Material
		☐ Vesicle Scab
		☐ Lesion Swab
		☐ Biopsy Tissue – Specify Source
		☐ Ocular Impression
		☐ Serum

The Michigan Department of Health and Human Services will not exclude from participation in, deny benefits of, or discriminate against any individual or group because of race, sex, religion, age, national origin, color, height, weight, marital status, partisan considerations, or a disability or genetic information that is unrelated to the person's eligibility.

By Authority of Act 368, P.A. 1978.

DCH-1396 (Rev. 3-22) Previous edition obsolete. 2

MDHHS Michigan Department of Health & Human Services

Monkeypox Specimen Submission MDHHS – Bureau of Laboratories

Michigan.gov/mdhhslab

INSTRUCTIONS FOR SUBMISSION OF SPECIMENS FOR POTENTIAL POXVIRUS AND OTHER FEBRILE VESICULAR RASH ILLNESS

IMPORTANT: Specimens not properly labeled, test requisitions not completed or not matching specimen labels will not be tested.

NOTE: Suspected cases of smallpox must be immediately reported to the Michigan Department of Health and Human Services (MDHHS). Contact MDHHS laboratory director at 517-335-8063 and the MDHHS epidemiologist/health officer at 517-335-8165 during normal business hours. After hours call 517-335-9030. Be prepared to provide pertinent patient information and emergency 24/7 contact information of the laboratory, attending, and consulting or ED physicians.

1. **Freeze coolants upon receipt of the Unit.**
2. Complete the "Vaccinia/Variola/Pox Virus Requisition" on the reverse of these instructions. Place **completed** requisition in plastic bag provided to protect from moisture.
3. Collect the specimens listed below.
   a. **Vesicular material:** Open and remove the top of the lesion using a sterile scalpel or 26-guage needle. Place the vesicle skin "roof" in a dry, sterile 1.5-2.0 ml screw-capped plastic vial with O-ring. Cap vial to maintain relative sterility. Additionally, scrape the base of the blister with the blunt edge of the scalpel or a wooden applicator and smear the scrapings onto a microscope slide or touch a microscope slide multiple times to an open lesion. Repeat for 2 or more lesions. DO NOT add transport medium to these specimens.
   b. **Swabs:** Using a Dacron swab, scrub the base of a lesion or ocular site and place swab in a screw-capped plastic vial with Oring. Break off swab handle and screw on cap. DO NOT add transport medium to the vial.
   c. **Vesicular scabs:** Remove the scab from 2-4 lesions using a sterile scalpel or 26-guage needle. Place in a sterile 1.5-2.0 ml screw-capped vial with O-ring. DO NOT add liquid to this vial.
   d. **Biopsy tissues:** Use a 3.5-4 mm punch biopsy device to sample an entire lesion. If possible, bisect the biopsied material using sterile scissors or scalpel. Place half the biopsied material in formalin for histopathologic and immunohistochemical evaluation. Place the other half of the biopsied material in a sterile 1.5-2.0 ml screw-capped plastic vial with O-ring. Repeat with at least one more lesion. DO NOT add transport medium to these vials.
   e. **Ocular impression smears:** Ocular impressions should only be collected by an ophthalmologist. Touch a microscope slide to the ocular site. Prepare 2 to 3 slides. Allow slides to air dry for about 10 minutes.
   f. **Serum:** Draw 10cc of blood into a plastic marble-topped or yellow-topped serum separator tube. Allow approximately 30 minutes for blood to clot. Then, if possible, centrifuge specimen to separate serum from blood clot and send only the serum. Testing requires at least 1 ml of serum.
4. Label all specimens with the same name/unique identifier used on the test requisition. Indicate the source of the specimen (e.g. vesicle aspirate, roof, scab, throat etc.)
5. Tighten caps securely on all vials or tubes and apply parafilm to seal the caps. Place slides in appropriate, labeled containers. Wrap slide holder with parafilm to prevent accidental opening.
6. Refrigerate all specimens - **DO NOT FREEZE** - until ready to ship.

DCH-1396 (Rev. 3-22) Previous edition obsolete. 3

7. When ready to ship, place properly labeled specimen vials, wrapped in absorbent material provided, into the aluminum screw-capped can and secure cap with tape. Place aluminum can into the cardboard shipping unit canister; seal the lid with tape and place into the UN 6.2 corrugated packaging.
8. Complete and apply the appropriate shipping label provided to the Styrofoam lined overpack box. Add the previously frozen ice substitute refrigerants to the overpack box and seal with tape.
9. Ship package in the manner directed by MDHHS - see **NOTE** above.

NOTE: The shipper is responsible for being sure that their package is in compliance with the current shipping regulations.

DCH-1396 (Rev. 3-22) Previous edition obsolete. 4

MDHHS
Michigan Department of Health & Human Services

Common Specimen Submission Errors

- **Specimen Label** – Two unique identifiers required
  - Full legal name, date of birth, patient number – matches Test Requisition Form
  - Date of collection
  - Collection site (groin, face, mouth, etc.)
- **Improper Packaging** – Category B (UN3373) packaging requirements – ship cold
- **Incomplete Test Requisition Form** – missing required information
  - Submitter information
  - Patient name
  - Date of birth
  - Date of collection
  - Specimen source – lesion, scab, body location

Resources

- Preparation and Collection of Specimens | Monkeypox | Poxvirus | CDC
- Microsoft Word - DCH_1396_55931_7_rev_03_2022 (1) (michigan.gov)

Questions or Comments

- Diana K. Riner, MS, PhD, MDHHS Virology and Immunology Section Manager
  RinerD@Michigan.gov
- Marty K. Soehnlen, PhD, MPH, PHLD(ABB), MDHHS Director of Infectious Disease
  SoehnlenM@Michigan.gov
- Matthew Bashore, MPH, MDHHS Manager DASH Central Receiving Unit
  BashoreM@Michigan.gov