Utah Department of Health & Human Services

Report immediately

Mpox virus disease

Disease plan

Quick links

Last updated: May 3, 2023 by Jade Murray-Thompson, MPH

Questions about this disease plan?

Contact the Utah Department of Health and Human Services Office of Communicable Diseases: 801-538-6191.

Mpox virus disease critical clinical information

Clinical evidence

Signs/symptoms

- New rash (any of the following)
  - Macular
  - Papular
  - Vesicular
  - Pustular
  - Generalized or localized
  - Discrete or confluent
- Fever (either of the following)
  - Subjective
  - Measured temperature of ≥100.4° F [>38° C]
- Other signs and symptoms:
  - Chills and/or sweats
  - New lymphadenopathy (periauricular, axillary, cervical, or inguinal)
  - Myalgias
  - Head and upper respiratory symptoms

Period of communicability

- A person is contagious with prodromal symptoms and until after all the scabs on the skin fall off and a fresh layer of intact skin forms underneath.

Incubation period

- 6 to 13 days but can range from 5 to 21 days

Mode of transmission

- Direct contact with the infectious rash, scabs, crusts, or fluids from sores, saliva, or infected bodily fluids, including respiratory secretions

Laboratory testing

Type of lab test

- Real-time PCR

Type of specimen

- Dry swab of lesion
- Specimen collection guidelines are outlined on page 10 of the disease plan

Treatment recommendations

Type of treatment

- TPOXX (Oral, IV), TEMBEXA

Time period to treat

- Dosing is based on patient kg, and is given as a 14-day course.

Prophylaxis

- Jynneos smallpox vaccine

Contact management

Isolation of case

- While symptomatic with a fever or any respiratory symptoms, including sore throat, nasal congestion, or cough, remain isolated in the home and away from others unless it is necessary to see a healthcare provider or for an emergency.
    - This includes avoiding close or physical contact with other people and animals.
    - Cover the lesions, wear a well-fitting mask (more information below), and avoid public transportation when leaving the home as required for medical care or an emergency.
- While a rash persists but in the absence of a fever or respiratory symptoms:
    - Cover all parts of the rash with clothing, gloves, and/or bandages.
    - Wear a well-fitting mask to prevent the wearer from spreading oral and respiratory secretions when interacting with others until the rash and all other symptoms resolve.
    - Masks should fit closely on the face without any gaps along the edges or around the nose and be comfortable when worn properly over the nose and mouth.
- Until all signs and symptoms of mpox illness fully resolve:
    - Do not share items worn or handled by the sick person with other people or animals. Launder or disinfect items worn or handled and surfaces that were touched by a lesion.
    - Avoid close physical contact, including sexual and/or close intimate contact, with other people.
    - Avoid sharing utensils or cups. Items should be cleaned and disinfected before use by others.
    - Avoid crowds and congregate settings.
    - Wash hands often with soap and water or use an alcohol-based hand sanitizer, especially after direct contact with the rash.

Infection control procedures

- See Appendix A for detailed infection control procedures.

Why is mpox virus disease important to public health?

Mpox, previously known as monkeypox, is a rare disease caused by infection with the mpox virus. Mpox virus is part of the same family of viruses as variola virus, the virus that causes smallpox. While fatality rates have been high in previous outbreaks in Africa,[1] fatalities were rare in the 2022 global outbreak. Mpox is not related to chickenpox.

Utah's local health departments (LHDs), medical facilities, emergency medical services (EMS), and many other partners have worked to enhance preparedness and response capacity for mpox in the state.

Disease and epidemiology

Clinical description

- Lesions are firm or rubbery, well-circumscribed, deep-seated, and often develop umbilication (resembles a dot or depression in the center of the lesion).[2]
- During the 2022 global outbreak:
    - Lesions often occur in the genital and anorectal areas or in the mouth.
    - Rash is not always disseminated across many sites on the body.
    - Rash may be confined to only a few lesions or one single lesion.
    - Rash does not always appear on palms and soles.
    - Rectal symptoms (e.g., purulent or bloody stools, rectal pain, or rectal bleeding) frequently reported.[2]
- During the 2022 global outbreak, lesions occurred primarily in the genital and anorectal areas. Please note that this is **not** the only place lesions will typically manifest. Lesion manifestations could be dependent on the affected population. The affected population may vary between outbreaks.
- Lesions are often described as painful initially, and later may become itchy as they crust over.
- Fever and other prodromal symptoms (e.g., chills, lymphadenopathy, malaise, myalgias, or headache) can occur before rash but may occur after rash or not be present at all.[3]
- Respiratory symptoms (e.g., sore throat, nasal congestion, or cough) can occur.[3]

Lesions historically develop simultaneously and evolve together on any given part of the body. The evolution of lesions progresses through 4 stages—macular, papular, vesicular, to pustular—before scabbing over and desquamation.[3]

The severity of illness can depend upon the initial health of the individual and the route of exposure. The West African virus genetic group, or clade, which is the clade involved in the 2022 outbreak, is associated with milder disease and fewer deaths than the Congo Basin virus clade.

Stage	Stage duration	Characteristics
Enanthem	TBD	• Lesions may first form on the tongue and in the mouth.
Macules	1–2 days	• Macular lesions appear.
Papules	1–2 days	• Lesions typically progress from macular (flat) to papular (raised).
Vesicles	1–2 days	• Lesions then typically become vesicular (raised and filled with clear fluid).
Pustules	5–7 days	• Lesions then typically become pustular (filled with opaque fluid)—sharply raised, usually round, and firm to the touch (deep seated). • Finally, lesions typically develop a depression in the center (umbilication). • The pustules will remain for approximately 5 to 7 days before beginning to crust.
Scabs	7–14 days	• By the end of the second week, pustules crust and scab over. • Scabs remain for about a week before beginning to fall off.

*This is a typical timeline, but the timeline can vary.[2]

Rash resolved

Pitted scars and/or areas of lighter or darker skin may remain after scabs fall off. Once all scabs fall off and a fresh layer of skin forms, a person is no longer contagious.[2]

Causative agent

Mpox virus is part of the same family/genus (poxiviridae/orthopox) of viruses as variola virus, the virus that causes smallpox. Mpox symptoms are similar to smallpox symptoms, but milder. While fatality rates were high in previous outbreaks in Africa, fatalities were rare in the 2022 global outbreak.

Differential diagnosis

When evaluating a patient for possible mpox, it is important to consider alternative and/or concurrent diagnoses, including infectious and non-infectious disorders.[4] Following an incubation period of 5–21 days, initial symptoms of mpox are usually systemic and compatible with influenza; fever, myalgias, headache, and sometimes sore throat. The differential diagnosis depends, in part, upon the individual's symptoms, where they have traveled or resided, if they have had close contact with someone who is ill, their vaccination history, and their age and comorbid conditions. Examples of differential diagnoses include:

- STIs
    - Herpes and syphilis
- Shingles
- Chickenpox
- Molluscum contagiosum
- Other pox viruses [4]

Laboratory identification

Laboratory diagnosis of mpox virus infection is made by the detection of RNA in dry lesion swabs. This is done using nucleic acid testing.

RT-PCR tests that detect specific RNA sequences have become the standard method to diagnose mpox virus disease. These tests can be performed for individuals who meet the Centers for Disease Control and Prevention's (CDC) definition of persons under investigation for mpox (PUIs).[5] Click here for Utah-specific guidance on management of PUIs. CDC recommends mpox testing be conducted only for persons who meet the criteria for PUIs and have compatible clinical symptoms that meet clinical and epidemiologic criteria for testing suspect specimens. Additional or more specialized testing of mpox should be handled by the CDC. These tests are typically done in a laboratory with higher biosafety level containment. The Utah Public Health Laboratory (UPHL) can arrange to ship specimens safely to the CDC. In addition to UPHL, ARUP, and Intermountain Health laboratories accept mpox specimens for testing.

Other commercial laboratories that accept mpox specimens for testing include:

- Aegis Science, Labcorp, Mayo Clinic Laboratories, Quest Diagnostics, and Sonic Healthcare

Clinicians may choose to submit specimens for mpox testing to their preferred laboratory for results.

Specimen collection/submission

The Utah Department of Health and Human Services (DHHS) Office of Communicable Diseases or LHD must be consulted regarding patients suspected of having mpox before any specimens are collected. DHHS or LHD needs to collect patient information before specimen collection and submission regardless of whether the specimen is being sent to UPHL or a commercial laboratory.

Specimens should be collected using appropriate PPE. UPHL and commercial laboratories can conduct testing for Non-variola Orthopoxvirus using the LRN non-variola orthopox real-time PCR assay. This test is for the detection of non-variola orthopoxvirus on specified instruments from individuals who meet CDC's definition of persons under investigation for mpox (PUIs). Report suspect cases to public health (DHHS or LHD) immediately.

Standard submission to UPHL, commercial laboratories, and CDC for PCR includes collecting 2 lesion swabs. Vigorously swab or brush the most prominent "juicy" lesion with 2 separate sterile dry polyester or Dacron swabs. Break off the end of the applicator of each swab into a 1.5- or 2-mL screw-capped tube with O-ring or place each entire swab in a separate sterile container.[5] **Do not add or store in viral or universal transport media**. Write a site of collection on each specimen. Refrigerate (2–8°C) or freeze (-20°C or lower) specimens within an hour after collection. Store refrigerated samples for up to 7 days and frozen samples for up to 1 month.[5] Refrigerated samples should be sent within 5 days of collection; frozen samples should be shipped within 21 days of collection. For more information, see CDC guidelines for collecting and handling specimens for mpox testing.

Submit to UPHL via courier with a **test request form accompanying each submission to UPHL.**

Treatment

TPOXX

Most people do not require treatment for mpox. For severe cases that require treatment, tecovirimat (TPOXX) was developed to protect against smallpox and may be used to treat mpox. Tecovirimat (TPOXX), is recommended for people who are more likely to get severely ill[6]—for example—patients with weakened immune systems or severe disease.

The CDC, in partnership with the FDA, has made it easier for patients to receive tecovirimat (TPOXX) treatment for mpox under an expanded access Investigational New Drug (EA-IND) protocol (also known as compassionate use). For additional information, see CDC's information about tecovirimat treatment.

Tecovirimat (TPOXX) is available both as a pill or as an intravenous (IV) infusion. IV tecovirimat is only given until an individual can tolerate taking oral TPOXX.[6]

Tecovirimat is given as a 14-day course and should be taken according to specific dietary instructions. Take each dose with a full glass of water. The meal should contain about 600 calories and 25 grams of fat.[6] Examples might include a cheeseburger with fries, rice with fried chicken, pasta alfredo, bagel with cream cheese, avocado, peanut butter, ready-to-drink meal, etc.

TEMBEXA (brincidofovir)

TEMBEXA is only available* under a single patient investigational new drug (IND).

Clinicians with mpox patients who need brincidofovir treatment should submit an online request.

Information regarding treatment considerations can be found at on the CDC website.

*Utah does not currently have any doses on hand.

Case fatality

There are 2 types of mpox virus: clade I and clade II. Infections in the 2022 outbreak are from clade II, or more specifically, clade IIb.

Infections with clade IIb are rarely fatal. More than 99% of people who get this form of the disease are likely to survive.[7] However, people with severely weakened immune systems, children younger than 1 year of age, people with a history of eczema, and people who are pregnant or breastfeeding may be more likely to get seriously ill or die.

The clade I type of mpox virus has a fatality rate of around 10%.[7]

Reservoir

The natural reservoir of mpox remains unknown. However, African rodents and non-human primates (like monkeys) may harbor the virus and infect people.[7]

Transmission

Mpox can spread to anyone through close, personal, often skin-to-skin contact, including:

- Direct contact with mpox rash and scabs from a person with mpox, as well as contact with their saliva, upper respiratory secretions (nasal discharge, mucus), and areas around the anus, rectum, or vagina.[7]

This direct contact can happen during intimate contact, including:

- Oral, anal, or vaginal sex, or touching the genitals (penis, testicles, labia, and vagina) or anus of a person with mpox
- Hugging, massage, and kissing
- Prolonged face-to-face contact[7]

There is considerable risk of contracting mpox by touching objects, fabrics, and surfaces used by someone with mpox that have not been disinfected, such as clothing, bedding, towels, fetish gear, or sex toys.[7]

Susceptibility

Anyone not previously infected is susceptible; the duration of immunity from previous infection and vaccine is still unclear.[7]

Incubation period

The incubation period for mpox ranges from 6 to 13 days but may range from 5 to 21 days.[7]

Period of communicability

A person is contagious at the onset of prodromal symptoms and until after all the scabs on the skin fall off and a fresh layer of intact skin forms underneath.[7]

Epidemiology

Mpox was discovered in 1958 when 2 outbreaks of a pox-like disease occurred in colonies of monkeys kept for research. The first human case of mpox was recorded in 1970.[1] Prior to the 2022 outbreak, mpox had been reported in people in several central and western African countries. Previously, almost all mpox cases in people outside of Africa were linked to international travel to countries where the disease commonly occurs or through imported animals. African rodents and non-human primates (like monkeys) might harbor the virus and infect people.

Knowledge regarding the means by which mpox virus spreads is rapidly evolving. As a result, it is subject to change. Best available data indicate that during the current outbreak (2022), the principal mode by which people have been infected is through close contact during sexual activity with one or more mpox lesions on the skin or mucosal surfaces (e.g., oropharynx, anorectum) of a person with mpox.

Public health control measures

Public health responsibility

- Immediately notify the DHHS epidemiologist on-call or the state epidemiologist of a suspect case.
- Investigate all suspect cases of disease and fill out mpox investigation form in EpiTrax.
- Provide education to the general public, clinicians, and first responders regarding disease transmission and prevention.
- Identify clusters or outbreaks of this disease.
- Identify sources of exposure and stop further transmission.
- Identify potential sources of transmission that may exist in the U.S. (such as non-human primates [NHPs] or laboratory specimens).
- Identify sources of transmission and geographical areas of risk outside of the U.S.
- Stop transmission from such sources and geographical areas.
- Identify cases as early as possible to prevent transmission to other persons or animals.

Prevention

General preventive measures

- Avoid close, skin-to-skin contact with people who have a rash that looks like mpox. This might include skin with what appears to be a rash, pimples, blisters, or scabs.[8]
    - The rash might appear on the genitals (penis, testicles, labia, vagina) or anus and could be on other areas like the hands, feet, chest, face, or mouth. Do not touch the rash or scabs of a person with mpox.
    - Do not kiss, hug, cuddle, or have sex with someone with mpox.
- Avoid contact with objects and materials used by a person with mpox.[8]
    - Do not share eating utensils or cups with a person who has mpox.
    - Use gloves when handling or touching the bedding, towels, or clothing of a person with mpox.
    - Do not handle or share sex toys, fetish gear, or other items that have come in contact with the genital fluids of a person with mpox.
- Wash your hands often.[8]
    - Wash your hands often with soap and water, or use an alcohol-based hand sanitizer, especially before eating or touching your face and after you use the bathroom.
    - Handwashing is one of the best ways to protect you, your family, and your friends from getting sick.
- Get vaccinated.[8]
    - The JYNNEOS vaccine is approved for prevention of smallpox and mpox. It is the

primary vaccine being used in the U.S. during this outbreak.
    - Use the Mpox Vaccine Locator to find nearby healthcare locations in your area that provide mpox vaccinations.
- If you visit Central or West Africa, avoid contact with animals that can spread mpox virus, usually rodents and primates.[8]
    - Also, avoid sick or dead animals, as well as bedding or other materials they may have touched. Learn more about Mpox in animals.

Prevention measures within a healthcare setting

In addition to standard precautions, if a patient seeking care is suspected to have mpox infection, additional infection control precautions (as described below) should be implemented. Infection prevention and control personnel should be notified immediately.

Avoid activities that could resuspend dried material from lesions (e.g., use of portable fans, dry dusting, sweeping, vacuuming).

Patient placement

A patient with suspected or confirmed mpox infection should be placed in a single-person room; special air handling is not required.[9] The door should be kept closed (if safe to do so). The patient should have a dedicated bathroom. Transport and movement of the patient outside of the room should be limited to medically essential purposes.[9] If the patient is transported outside of their room, they should use well-fitting source control (e.g., medical mask) and have any exposed skin lesions covered with a dressing. If unable to use a dressing, make sure lesions are covered with a sheet or gown.[9]

Intubation, extubation, and any procedures likely to spread oral secretions should be performed in an airborne infection isolation room.[9]

Personal protective equipment (PPE)

Place a sign indicating proper PPE on the patient's door. PPE used by healthcare personnel who enter the patient's room should include:[10]

- Gown
- Gloves
- Eye protection (i.e., goggles or a face shield that covers the front and sides of the face)
- NIOSH-approved particulate respirator equipped with N95 filters or higher

All PPE should be removed and disposed of before exiting the room. Hand hygiene should be performed after leaving the room.

Waste management

Waste management (i.e., handling, storage, treatment, and disposal of soiled PPE, patient dressings, etc.) should be performed in accordance with U.S. Department of Transportation (DOT) Hazardous Materials Regulations (HMR; 49 CFR parts 171-180.)[10] Required waste management practices and classification (i.e., assignment to a category under the HMR) currently differ depending on the mpox virus clade (strain). The DOT indicates waste contaminated with Clade II [PDF – 4.06 MB] of mpox virus should be managed as UN3291 regulated medical waste (RMW) in the same manner as other potentially infectious medical waste (e.g., soiled dressings, contaminated sharps). Clade I of mpox virus is classified as Category A under the HMR and should be managed accordingly. See the DOT website for more information. Facilities should also comply with state and local regulations for handling, storage, treatment, and disposal of waste, including RMW.

Pursuant to 49 CFR 173.134(a)(1)(i), classification of waste as a Category A substance for transportation must be based on the known medical history or symptoms of the patient, endemic local conditions, or professional judgment concerning the individual circumstances of the patient.

During the ongoing 2022 multi-national outbreak of clade IIb mpox, if a clinician or their public health authority determines a patient does not have known epidemiological risk for clade I of mpox virus (e.g,. history of travel to the Democratic Republic of the Congo, the Republic of Congo, the Central African Republic, Cameroon, or Gabon in the prior 21 days; contact with a dead or live wild animal or exotic pet that is an African endemic species, or used a product derived from such animals) it is appropriate to manage the patient's waste as regulated medical waste. However, if epidemiological risk factors indicate a risk for clade I mpox virus, waste should be managed as a Category A infectious substance pending clade confirmation, and while local and state public health authorities are consulted. DOT has provided clarifications about enforcement of mpox waste management on their website.

Environmental infection control

Standard cleaning and disinfection procedures should be performed using an EPA-registered hospital-grade disinfectant with an emerging viral pathogen claim.[10] Products with Emerging Viral Pathogens claims may be found on EPA's List Q. Follow the manufacturer's directions for concentration, contact time, and care and handling.

Soiled laundry (e.g., bedding, towels, personal clothing) should be handled in accordance with recommended [PDF – 241 pages] standard practices, avoiding contact with lesion material that may be present on the laundry. Soiled laundry should be gently and promptly contained in an appropriate laundry bag and never be shaken or handled in a manner that may disperse infectious material.

Avoid activities such as dry dusting, sweeping, or vacuuming. Wet cleaning methods are preferred.

Management of food service items should also be performed in accordance with routine procedures.

Detailed information on environmental infection control in healthcare settings can be found in CDC's Guidelines for Environmental Infection Control in Health-Care Facilities and Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings [section IV.F. Care of the environment].

For patients with suspected or confirmed mpox infection in a healthcare setting:

- Those with suspected mpox infection should have recommended isolation precautions for mpox maintained until mpox infection is ruled out.
- Those with confirmed mpox infection should have recommended isolation precautions for mpox maintained until all lesions have crusted, those crusts have separated, and a fresh layer of healthy skin has formed underneath.

Decisions regarding discontinuation of isolation precautions in a healthcare facility may need to be made in consultation with the local or state health department, depending on the jurisdiction.[9]

Vaccine

Healthcare workers who have been exposed to mpox may benefit from post-exposure prophylaxis with the JYNNEOS vaccine, ideally within 4 days of exposure.[12] Healthcare workers are not considered at high risk of mpox infection and therefore are not recommended for general vaccination.

Vaccine

Two vaccines may be used for the prevention of mpox disease:[11]

- JYNNEOS vaccine is approved for the prevention of mpox and smallpox. During the current outbreak, JYNNEOS is the main vaccine being used in the United States.
- ACAM2000 vaccine is approved for immunization against smallpox and made available for use against mpox under an expanded access investigational new drug (EA-IND) protocol.

Guidance for healthcare professionals and public health officials regarding use of JYNNEOS and ACAM2000 vaccines during the mpox outbreak that began in the United States on May 17, 2022 may be found here. Considerations apply only to the use of vaccine products in the United States.

This interim guidance is in addition to existing standard guidance and recommendations for use of these vaccines from CDC's Advisory Committee on Immunization Practices (ACIP).

The U.S. national monkeypox vaccine strategy was announced on June 28, 2022. Multiple federal agencies, including the Administration for Strategic Preparedness and Response (ASPR), U.S. Food and Drug Administration (FDA), National Institutes of Health (NIH), and Centers for Disease Control and Prevention (CDC) are coordinating to implement this enhanced vaccination strategy.

No data are currently available on the clinical efficacy or effectiveness of JYNNEOS or ACAM2000 for mpox disease. Limited data on performance of JYNNEOS vaccine in the current outbreak are becoming available. Because there are limitations in our knowledge about the effectiveness of these vaccines in the current outbreak, people who are vaccinated should continue to take steps to protect themselves from infection by avoiding close, skin-to-skin contact, including intimate contact, with someone who has mpox.[11]

In the United States, there is a large supply of ACAM2000, but this vaccine has more known side effects and contraindications and therefore is not generally recommended for use.

Isolation and quarantine requirements

Correct and consistent use of PPE when caring for a patient with mpox infection is highly protective and prevents transmission to HCP. However, unrecognized errors during the use of PPE (e.g., self-contaminating when removing contaminated PPE) may create opportunities for transmission to HCP. Therefore, in the absence of an exposure described below, HCP who enter a contaminated patient room or care area while wearing recommended PPE, should be aware of the signs and symptoms of mpox; if any signs or symptoms of mpox occur, HCP should notify occupational health services for further evaluation and should not report to work (or should leave work, if signs or symptoms develop while at work).[9] Risk level category intended to highlight the need for monitoring and assist with determining the need for postexposure prophylaxis (PEP) can be found: Infection Control: Healthcare Settings | Mpox | Poxvirus | CDC

Case investigation

Reporting

Report any illness to public health authorities that meets any of the following criteria:

- New rash (any of the following)
  - Macular
  - Papular
  - Vesicular
  - Pustular
  - Generalized or localized
  - Discrete or confluent

  –and–

- Fever (either of the following)
  - Subjective
  - Measured temperature of ≥100.4° F [>38° C]

  –or–

- Other signs and symptoms:
  - Chills and/or sweats
  - New lymphadenopathy (periauricular, axillary, cervical, or inguinal)

- One or more of the following epidemiological risk factors:

  Within 21 days of illness onset:

  - Contact with a person or people with a similar appearing rash or who received a diagnosis of confirmed or probable mpox **or**
  - Close or intimate in-person contact with individuals in a social network experiencing mpox activity; this includes men who have sex with men (MSM) who meet partners through an online website, digital application (“app”), or social event (e.g., a bar or party) **or**
  - Travel outside the US to a country with confirmed cases of mpox or where mpox virus is endemic **or**
  - Contact with a dead or live wild animal or exotic pet that is an African endemic species or used a product derived from such animals (e.g., game meat, creams, lotions, powders, etc.)

Other recommended reporting procedures:

- All cases (suspected or confirmed) of mpox should be reported.
- Reporting should be on-going and routine.
- Reporting should be immediate.

Any suspect or confirmed case of mpox, or of any potential exposure to an agent which could cause mpox, must be reported to the DHHS Office of Communicable Diseases immediately at 1-888-EPI-UTAH.

Case definition

Suspect case

- New characteristic rash **or**
- Meets 1 of the epidemiologic criteria and has a high clinical suspicion for mpox

Probable case

- No suspicion of other recent *Orthopoxvirus* exposure (e.g., *Vaccinia virus* in ACAM2000 vaccination) **and** demonstration of the presence of
    - *Orthopoxvirus* DNA by polymerase chain reaction of a clinical specimen **or**
    - *Orthopoxvirus* using immunohistochemical or electron microscopy testing methods **or**
    - Demonstration of detectable levels of anti-orthopoxvirus IgM antibody during the period of 4 to 56 days after rash onset

Confirmed case

- Demonstration of the presence of mpox virus DNA by polymerase chain reaction testing or next-generation sequencing of a clinical specimen **or** isolation of mpox virus in culture from a clinical specimen

Exclusion criteria

A case may be excluded as a suspect, probable, or confirmed case if:

- An alternative diagnosis can fully explain the illness **or**
- An individual with symptoms consistent with mpox does not develop a rash within 5 days of illness onset **or**
- A case where high-quality specimens do not demonstrate the presence of *Orthopoxvirus* or mpox virus or antibodies to orthopoxvirus

Case investigation process

Following immediate notification of public health officials, the LHD and DHHS will coordinate case investigation and gather the following information:

- The case's name, age, address, phone number, status (e.g., hospitalized, at home, deceased), and parent/guardian information (if applicable)
    - The name and phone number of the hospital where the case is or was hospitalized
    - The name and phone number of the attending physician
    - The name and phone number of the infection control official at the hospital
    - If the patient was seen by a healthcare provider before hospitalization or seen at more than 1 hospital (provide these names and phone numbers)
- Please complete the mpox form(s) in UT-NEDSS and note the following:
    - Record the case's demographic information.
    - Accurately record clinical information including mpox as the disease being investigated, date of symptom onset, symptoms, whether hospitalized, and hospital and clinician contact information.
    - Include all available diagnostic laboratory test information.
    - Record information relevant to prevention and control. Use the incubation period range for mpox. Specifically, focus on the period beginning a minimum of 2 days prior to the case's onset date, back to no more than 21 days before onset for travel history. Determine the date(s) and geographic area(s) of travel to identify where the patient may have become infected.
    - Include any additional comments regarding the case.
    - If you have made several attempts to obtain case information but have been unsuccessful (e.g., the case or healthcare provider does not return your calls or respond to a letter, or the case refuses to divulge information or is too ill to be interviewed), fill out the form with as much information as you have gathered. Please note on the form the reason(s) why it could not be filled out completely.

Monitoring and management of persons under investigation (PUI)

After initial notification, PUIs are to be evaluated in coordination by DHHS and the investigating jurisdiction using the criteria in the epidemiological risk section.

Close contacts may be notified by a public health professional from their state, tribal, local, or territorial health department, or directly by someone with whom they had close contact during the time the person with mpox had symptoms. People exposed to mpox virus can continue their routine daily activities (for example, go to work or school) if they do not have signs or symptoms of mpox.

Full guidance on PUI monitoring can be found in this DHHS guidance document and on the CDC website.

Outbreaks

One case of mpox in Utah is considered an outbreak. If possible, obtain a source of infection, such as travel to a geographical region where a known outbreak of mpox is occurring, and institute applicable preventive or control measures.

Identifying case contacts

Identify all other potentially exposed case contacts through the mpox contact tab in UT-NEDSS. Contacts should be evaluated and individual risk status assigned on the risk factors outlined in the epidemiological risk factors section.

References

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Version control

Updated December 2022: Created mpox disease plan

UT-NEDSS minimum/required fields by tab

Demographic

- First name
- Last name
- Date of birth
- Street name
- City
- County
- ZIP code
- State
- Birth sex
- Gender identity
- Race
- Ethnicity
- Phone number

Clinical

- Disease
- Date diagnosed
- Hospitalized
- Died
- Date of death
- Onset date
    - Does that patient have an active rash at the time of the interview?

Laboratory

- Test type
- Organism
- Result value
- Test result
- Lab test date
- Specimen source
- Collection date
- Lab name

Investigation

- Within the last 3 weeks have you had domestic or international travel?
- Travel country
- Travel state
- Travel city
- Travel start date
- Travel end date
- Mode of travel used (choose all that apply)
- During the 3 weeks preceding the onset of symptoms, did the patient have contact with one or more persons who had similar symptoms?
- In the last 3 weeks did the patient engage in sex (vaginal, oral, or anal) and/or close intimate contact (cuddling, kissing, mutual masturbation, sharing sex toys)?
- In the last 3 weeks did the patient have sex or close intimate contact with: (select all that apply and provide number for each)
- In the last 3 weeks did the patient have sex with someone who had recently traveled outside of your city or community?
- Did you meet any of your sex partners at: (Check all that apply)
- If you met sex partners online or on an app, which did you use? (Check all that apply)
- Did the patient touch any live animals in the 3 weeks before symptom onset?

Reporting

- Reporting agency name
- Date first reported to public health

Administrative

- State case status
- Outbreak association
- Outbreak name

Case report form

2022 U.S. Monkeypox Outbreak
Short Case Report Form

Instructions for State, Local, and Territorial Health Jurisdictions: This form is an aid for public health officials when collecting essential data elements needed for investigating and reporting probable or confirmed monkeypox cases to CDC as part of the 2022 U.S. Monkeypox Outbreak response. Local public health officials may choose to use this fillable PDF for data collection within their jurisdiction, but data submission to CDC should be through established case surveillance systems and not through individually completed forms. Case information should always be captured electronically to minimize transcription errors; however, this form may be printed if needed.

Please visit the CDC Website for the latest public health information about monkeypox:
www.cdc.gov/monkeypox

Note: This form is to be administered to the patient or their proxy–if the patient is deceased, administer with their proxy and/or healthcare provider.

Form Approved
OMB No. 0920-1011
Exp. Date 01/31/2023
Short Case Report Form 2022 Monkeypox Outbreak

Public reporting burden of this collection of information is estimated to average **20** minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to CDC/ATSDR Reports Clearance Officer; 1600 Clifton Road NE, MS D-74 Atlanta, Georgia 30333; ATTN: PRA (0920-1011)

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State-assigned case ID:

State/Territory of Residence:

County of Residence:

If you reside in a Tribal Area, please specify:

[FOR INTERVIEWER] Did the individual die from this illness?

○ Yes ○ No ○ Unknown

If deceased, date of death:

Demographic Information

What is your age, in years?

What is your race? (check all that apply)

- ☐ White
- ☐ African American or Black
- ☐ Asian
- ☐ Native Hawaiian/Pacific Islander
- ☐ American Indian/Alaska Native
- ☐ Multiple Races
- ☐ Unknown Race
- ☐ Other
- ☐ Declined to answer

If the selected race is American Indian or Alaska Native, what is the tribal affiliation?

If you selected other for race, please specify:

What is your ethnicity? (check one):

- ☐ Hispanic or Latino
- ☐ Non-Hispanic or Latino
- ☐ Declined to answer
- ☐ Unknown

Do you currently describe yourself as male, female, or transgender?

- ☐ Male
- ☐ Female
- ☐ Transgender Female
- ☐ Transgender Male
- ☐ Another gender identity
- ☐ Declined to answer

What sex were you assigned at birth, on your original birth certificate?

◯ Male ◯ Female ◯ Declined to answer ◯ Unknown

[FOR INTERVIEWER] Did the individual ever receive a vaccine against smallpox?

◯ Yes ◯ No ◯ Unknown

If yes, please give the reason, date, manufacturer, and dose number for each vaccine received:

	Reason	Vaccine Date	Vaccine Manufacturer	Dose Number
Vaccine 1	◯ Pre-exposure ◯ Post-exposure ◯ Routine pre-exposure ◯ Unknown		◯ MIP ◯ BN ◯ WAL	
Vaccine 2	◯ Pre-exposure ◯ Post-exposure ◯ Routine pre-exposure ◯ Unknown		◯ MIP ◯ BN ◯ WAL	
Vaccine 3	◯ Pre-exposure ◯ Post-exposure ◯ Routine pre-exposure ◯ Unknown		◯ MIP ◯ BN ◯ WAL	

*MIP = Emergent Biosolutions (ACAM2000); BN = Bavarian Nordic A/S (JYNNEOS); WAL = Wyeth (DryVax - prior to 2008)

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History of Possible Exposures

Did you engage in any sex (e.g., vaginal, oral or anal sex) and/or close intimate contact (e.g., cuddling, kissing, touching partner's genitals or anus, or sharing sex toys) in the three weeks before your first symptom appeared (also called symptom onset)?

◯ Yes ◯ No ◯ Unknown

If yes, indicate the number of partner(s) (including named and anonymous) below:

Male:

◯ Yes ◯ No ◯ Unknown

If yes, number of male partners or description if no number is provided:

[FOR INTERVIEWER]: If individual is unable to specify, provide a range of options for the number of male partners:

◯ 1 ◯ 2-4 ◯ 5-9 ◯ 10+ ◯ Refused to answer

Female:

◯ Yes ◯ No ◯ Unknown

If yes, number of female partners or description if no number is provided:

[FOR INTERVIEWER]: If individual is unable to specify, provide a range of options for the number of female partners:

◯ 1 ◯ 2-4 ◯ 5-9 ◯ 10+ ◯ Refused to answer

Transgender Female:

◯ Yes ◯ No ◯ Unknown

If yes, number of transgender female partners or description if no number is provided:

[FOR INTERVIEWER]: If individual is unable to specify, provide a range of options for the number of transgender female partners:

◯ 1 ◯ 2-4 ◯ 5-9 ◯ 10+ ◯ Refused to answer

Transgender Male:
◯Yes ◯No ◯Unknown

If yes, number of transgender male partners or description if no number is provided:

[FOR INTERVIEWER]: If individual is unable to specify, provide a range of options for the number of transgender male partners:
◯1 ◯2-4 ◯5-9 ◯10+ ◯Refused to answer

Other Gender Identity:
◯Yes ◯No ◯Unknown

If yes, number of other gender identity partners or description if no number is provided:

[FOR INTERVIEWER]: If individual is unable to specify, provide a range of options for the number of other gender identity partners:
◯1 ◯2-4 ◯5-9 ◯10+ ◯Refused to answer

[FOR INTERVIEWER] Specify if this case is epidemiologically linked to another confirmed or probable case:
If yes, please provide Case ID(s) (if known) and contact type:
◯Yes ◯No ◯Unknown

If yes, please provide CDC assigned Case ID. Enter International if not a U.S. Case, or enter "unknown" if unknown

If yes, please provide State assigned Case ID.

Contact type:
- ☐ Providing care to case – home setting
- ☐ Indirect contact (e.g., shared sexual partners)
- ☐ Sexual (e.g., vaginal, oral, or anal sex) or intimate contact (e.g., cuddling, kissing, touching partner's genitals or anus, or sharing sex toys)
- ☐ Shared food, utensils, or dishes
- ☐ Shared towels, bedding, or clothing
- ☐ Shared transportation (e.g., carpooling, riding a bus, rising a motorcycle, using a taxi, using Uber) (specify mode of transportation)

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- ☐ Shared bathrooms (toilets, sinks, showers)
- ☐ Face-to-face contact, not including intimate contact (being within six feet for more than three hours of an unmasked case-patient without wearing, at a minimum, a surgical mask)
- ☐ Health care worker
- ☐ Identified air contact
- ☐ Other

If other, please specify:

Travel

If you spent time

- **in a country outside the U.S., or**
- **in a state/territory outside your home state/territory**

during the 3 weeks before your first symptom appeared (also called symptom onset), please report all travel events below:

Was the travel event domestic or international?

◯ **Domestic** ◯ **International**

Domestic Travel:

States traveled to:

Date of departure (MM/DD/YYYY):

Date of return (MM/DD/YYYY):

Did you have intimate or sexual contact with new partners on trip?

◯ **Yes** ◯ **No** ◯ **Unknown**

[FOR INTERVIEWER] Any additional comments on travel within the US that may be important:

International Travel:

Country traveled to:

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Date of departure (MM/DD/YYYY):

Date of return to US (MM/DD/YYYY):

Did you have any intimate or sexual contact with new partners on trip?

◯ Yes ◯ No ◯ Unknown

[FOR INTERVIEWER] Any additional comments on travel outside the US that may be important?

[FOR INTERVIEWER] Is this individual a health care worker who was exposed at work?

◯ Yes ◯ No ◯ Unknown

[FOR INTERVIEWER] Please provide the suspect location of exposure

◯ International ◯ Domestic ◯ Air Travel Contact ◯ Other ◯ Unknown

[FOR INTERVIEWER] If other, please specify the suspect location of exposure.

[FOR INTERVIEWER] Please provide any additional details on the location of exposure (e.g., health care setting, large gathering, private party)

[FOR INTERVIEWER] Please provide the number of identified contacts this case may have exposed (either named or anonymous)

Diagnostic Testing Information

What laboratory performed the testing?

◯ LRN Member Lab
◯ Commercial Lab
◯ Academic/Hospital Lab
◯ Unknown

Performing lab specimen IDs (i.e. a laboratory generated number that identifies the specimen related to this test)

What was the orthopox virus test result?

◯ OPX+ ◯ OPX- ◯ Inconclusive ◯ Unknown

What was the test result date?

Clinical Information

What signs or symptoms did you experience during the course of your illness?:

Fever:
◯ Yes ◯ No ◯ Unknown

Rash:
◯ Yes ◯ No ◯ Unknown

Enlarged Lymph Nodes:
◯ Yes ◯ No ◯ Unknown

Pruritis (itching):
◯ Yes ◯ No ◯ Unknown

Rectal Pain:
◯ Yes ◯ No ◯ Unknown

Rectal Bleeding:
◯ Yes ◯ No ◯ Unknown

Pus or blood on stools:
◯ Yes ◯ No ◯ Unknown

Proctitis:
◯ Yes ◯ No ◯ Unknown

Tenesmus/urgency to defecate:
◯ Yes ◯ No ◯ Unknown

Headache:
◯ Yes ◯ No ◯ Unknown

Malaise (general feeling of illness or weakness):
◯ Yes ◯ No ◯ Unknown

Conjunctivitis:
◯ Yes ◯ No ◯ Unknown

Abdominal Pain:
◯ Yes ◯ No ◯ Unknown

Vomiting or Nausea:
◯ Yes ◯ No ◯ Unknown

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Myalgia (muscle aches):
◯Yes ◯No ◯Unknown

Chills:
◯Yes ◯No ◯Unknown

What day was the date of your illness onset (the date any symptoms mentioned above first started)?

Did you have a rash during the course of your illness?
◯Yes ◯No ◯Unknown

If yes, what was the date of rash onset (in other words, the date the rash first appeared)?

☐Unknown

If yes, where on your body is the rash? (choose all that apply)
- ☐Face
- ☐Head
- ☐Neck
- ☐Mouth
- ☐Lips or oral mucosa
- ☐Trunk
- ☐Arms
- ☐Legs
- ☐Palms of hands
- ☐Soles of feet
- ☐Genitals
- ☐Perianal
- ☐Other locations

If other, please specify

[FOR INTERVIEWER] Any evidence of ocular involvement (ocular lesions, keratitis, conjunctivitis, eyelid lesions)?
◯Yes ◯No ◯Unknown

[FOR INTERVIEWER] Has this individual been diagnosed with any acute infections other than monkeypox during this current illness/or within the last three weeks? (e.g., gonorrhea, chlamydia, syphilis, HSV, other STI, varicella)
◯Yes ◯No ◯Unknown

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If yes, please specify infections

[FOR INTERVIEWER] What is the individual's HIV status?
◯ HIV Positive ◯ HIV Negative ◯ Unknown

If HIV positive, was the individual's viral load undetectable when it was last checked?
◯ Yes ◯ No ◯ Unknown

Does the individual have any known immunocompromising conditions (excluding HIV) or take immunosuppressive medications? Immunocompromising conditions can include organ transplants, stem cell transplants, and active cancer. Certain medicines like chemotherapy, biologic therapies, and steroids can also weaken the immune system.
◯ Yes ◯ No ◯ Unknown

If yes, describe the associated condition or treatment

Has the individual been hospitalized for monkeypox?
◯ Yes ◯ No ◯ Unknown

If yes, what was the reason for the hospitalization? (choose all that apply)
- ☐ Breathing problems requiring mechanical ventilation
- ☐ Breathing problems not requiring mechanical ventilation
- ☐ Treatment for secondary infection
- ☐ Pain control
- ☐ Disseminated disease
- ☐ Exacerbation of underlying condition (e.g. autoimmune or skin condition)
- ☐ Other

If other, specify:
Individual's most recent admission date to the hospital for the condition covered by the investigation:

Individual's most recent discharge date from the hospital for the condition covered by the investigation:

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[FOR INTERVIEWER] Is the individual currently receiving HIV pre-exposure prophylaxis?
◯ Yes ◯ No ◯ Unknown

Are you currently pregnant?
◯ Yes ◯ No ◯ Unknown

Are you currently breastfeeding?
◯ Yes ◯ No ◯ Unknown

[FOR INTERVIEWER] Please use this space to include any additional notes or comments.

Appendix

Healthcare exposure risk level table

Risk level of exposure	Exposure characteristics	Recommendations	
		Monitoring	PEP
Higher	Unprotected contact between an exposed individual's broken skin or mucous membranes and the skin lesions or bodily fluids from a patient with mpox (e.g., inadvertent splashes of patient saliva to the eyes or mouth of a person), or soiled materials (e.g., linens, clothing) **OR** Being inside the patient's room or within 6 feet of a patient with mpox during any medical procedures that may create aerosols from oral secretions (e.g., cardiopulmonary resuscitation, intubation), or activities that may resuspend dried exudates (e.g., shaking soiled linens), without wearing a NIOSH-approved particulate respirator with N95 filters or higher and eye protection	Yes	Recommended
Intermediate	Within 6 feet for a total of 3 hours or more (cumulative) of an unmasked patient with pox without wearing a face mask or respirator **OR** Unprotected contact between an exposed individual's intact skin and the skin lesions or bodily fluids from a patient with mpox, or soiled materials (e.g., linens, clothing) **OR** Activities resulting in contact between an exposed individual's clothing and the patient's lesions or bodily fluids, or their soiled materials (e.g., during turning, bathing, or assisting with transfer) while not wearing a gown	Yes	Informed clinical decision making recommended on an individual basis to determine whether benefits of PEP outweigh risks of transmission or severe disease

Lower	Entry into the contaminated room or patient care area of an mpox patient without wearing all recommended PPE, and in the absence of any exposures above	Yes	None
No risk	No contact with the patient who has mpox, their contaminated materials, nor entry into the contaminated patient room or care area	No	None