

# Monkeypox

## What Physicians Need to Know



**Monkeypox** is a rare disease caused by an orthopoxvirus that normally occurs in central and western Africa. Since May 2022, over 1,500 monkeypox cases have been reported in more than 30 countries that usually don't report the disease, including the U.S. and Canada. The current monkeypox outbreak is caused by the West African clade (strain), which is less virulent and has a mortality rate of less than 1%.



As of June 13, 65 cases have been reported in the U.S., with at least one in Texas. Given the novelty of the infection and some of the atypical features seen in this outbreak – and since signs and symptoms may mimic a flu-like illness – TMA's Committee on Infectious Diseases developed this resource to help physicians identify, diagnose, and treat potential cases of monkeypox.

### Is monkeypox related to smallpox?

Monkeypox is caused by the monkeypox virus, which is in the same family as the variola virus that causes smallpox. Although the signs and symptoms are similar, monkeypox is clinically less severe than smallpox. The signs and symptoms of monkeypox may be more severe in the immunocompromised, children, and pregnant women.

### How is monkeypox transmitted?

Monkeypox spreads through direct contact with infected people or animals, primarily through skin-to-skin contact, respiratory droplets, or contaminated fluids or materials. It may be vertically transmitted from the pregnant mother to her fetus. It does not linger in the air and is not thought to be transmitted during short periods of shared air space. Prior studies of monkeypox outbreaks show spread of monkeypox virus by respiratory secretions appears uncommon.

### What are the symptoms of monkeypox?

Signs and symptoms develop seven to 14 days (range five to 21 days) after exposure and usually include prodrome of fever, malaise, myalgias, sore throat, headache, and lymphadenopathy.

Within one to three days of symptom onset, a rash appears, usually beginning on the face and then spreading to the trunk and extremities. It can involve palms, soles, and mucosal surfaces. Importantly, the lesions in the same area of the body tend to be in the same stage.

Source: NHS England High Consequence Infectious Diseases Network



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*continued*



The rash begins as macules (days one to three), then becomes:

- (1) Papular (days three to four);
- (2) Vesicular (days four to five); and finally
- (3) Umbilicated or with confluent pustules (days five to seven).

The pustules then crust over, and around day 12, scab and fall off. A patient is considered contagious until all the scabs have fallen off.

**The presentations in the current outbreak have been atypical and include a rash that begins in areas where skin-to-skin contact with active lesions has occurred, including the genital and perianal region. The prodromal symptoms may be mild or absent, and the rash may not spread to other parts of the body.**

Those working in urgent care, emergency departments, primary care, and sexual health clinics should be vigilant and consider monkeypox in the differential in any person with a characteristic rash and/or generalized symptoms of fever, and any epidemiologic link as noted below.

### What are the epidemiologic risk factors identified among recent cases?

The risk factors may include, but are not limited to:

- Travel history to a region with active or endemic cases;
- Contact with anyone with confirmed or probable monkeypox or a similar-appearing rash; and
- Close or intimate in-person contact with individuals in a social network experiencing monkeypox activity. This includes men who have sex with men who meet partners through a website, digital application, or social event (e.g., at a bar or party).

See Centers for Disease Control and Prevention (CDC) probable, suspected, and confirmed [case definitions](#), which include exclusion criteria.

### What should I do if I think my patient has monkeypox?

If your patient has been exposed or has symptoms consistent with monkeypox, immediately contact your [local health department](#) or the Texas Department of State Health Services (DSHS) at (512) 776-7676 or [EAIDUMonitoring@dshs.texas.gov](#).

Specimen collection should occur **only after consultation** with the health department; a laboratory will not accept specimens without DSHS approval. Molecular testing for orthopox is performed by a Laboratory Response Network laboratory, and monkeypox is confirmed by CDC.

While DSHS or your local health department can advise on how to proceed with specimen collection, in general, follow this guidance while the patient is waiting and undergoing specimen collection:

- Isolate the patient in a single-person room if available. Special air handling is not required, but the patient should be masked if transported outside the room, and any lesions should be covered.
- Ensure all staff are wearing appropriate personal protective equipment (PPE), i.e., gowns, gloves, eye protection, and N95 respirator, when examining the patient and collecting specimens.
- Notify the lab about suspicion of monkeypox prior to sending specimens, and follow any local infection-prevention guidance. Include all completed forms with submitted specimens.
- Dispose of all waste (such as soiled PPE and patient dressings) in accordance with U.S. Department of Transportation [guidelines](#), as well as any state and local regulations. These may vary based on the monkeypox virus clade.
- Follow standard cleaning and disinfecting procedures using an Environmental Protection Agency (EPA)-registered, hospital-grade disinfectant with an emerging viral pathogen claim ([EPA's List Q](#)).
- Do not shake or handle soiled laundry in a manner that may disperse infectious material. Follow standard handling practices to avoid contact with lesions material.
- Avoid dry dusting, sweeping, or vacuuming. Wet cleaning methods minimize dispersing infectious material.



## What techniques should I know to collect specimens?

- Ensure staff collecting specimens wear appropriate PPE.
- Clearly label specimens from monkeypox patients.
- Collect multiple specimens from multiple type of lesions in different locations of the body. Choose fresh lesions whenever possible. Scabs may be included.
- Vigorously swab or brush lesions with two separate, dry polyester or Dacron swabs. Do not use a cotton swab.
- 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 the entire swab in a separate sterile container.
- DO NOT ADD or STORE in viral or universal transport media.
- Note that confirmatory CDC testing requires a DRY LESION SWAB specimen.
- Refer to the poxvirus molecular detection and poxvirus serology tests on the [CDC Test Directory](#) for specimen storage, packaging, and shipping instructions.

## What home isolation instructions should a person with monkeypox follow?

Instructions for patients:

- Stay home in a separate room from other household members and pets if possible.
- Abstain from all sexual activity.
- Avoid use of contact lenses to prevent inadvertent infection of the eye.
- Avoid shaving areas of the body with lesions as this can lead to spread of the virus.
- Use a separate bathroom from other household members. If not possible, clean and disinfect surfaces after use if lesions are exposed.
- Wear a mask when around others, especially if experiencing respiratory symptoms (cough, shortness of breath, sore throat). If that is not feasible, the other household members should consider wearing a mask.
- Wear disposable gloves whenever treating or touching lesions and dispose of them after use. Wash hands after touching any contaminated material or skin.
- Cover skin lesions with long sleeves and pants as much as possible.
- Avoid direct contact with upholstered furniture and porous materials that cannot be laundered by placing coversheets, waterproof mattress covers, blankets, or tarps over these surfaces. Consider additional precautions such as steam cleaning if there is concern about contamination.
- Do not shake soiled laundry to avoid spread of infectious particles. Wash laundry in a washing machine with warm water and detergent (bleach not needed).
- Do not share personal items, linens, or eating and drinking items. Wash soiled dishes and utensils in warm water and soap or in a dishwasher. Clean all items that may be shared such as towels and sheets before others use them.

**Inform infected patients that they are contagious until all lesions have resolved, the scabs have fallen off, and a fresh layer of intact skin has formed.**

## What if someone in my health care setting is exposed to monkeypox?

Health care personnel who have cared for a monkeypox patient should monitor for any symptoms of monkeypox (fever, chills, new rash, new lymphadenopathy) for 21 days after their last contact with the patient. Health care personnel who did not wear PPE while exposed to monkeypox can continue to work with active surveillance of symptoms, which includes measurement of temperature at least twice daily for 21 days following the exposure. Prior to reporting for work each day, the health care worker should be interviewed regarding evidence of fever or rash.

Health care workers who have cared for or otherwise been in direct or indirect contact with monkeypox patients while adhering to recommended infection control precautions may undergo self-monitoring or active monitoring as determined by the local or state health department.



## Is post-exposure prophylaxis available to those who are exposed and asymptomatic?

Following a high-risk exposure in some people, post-exposure prophylaxis may be recommended with one of two vaccines currently available to prevent smallpox. The JYNNEOS vaccine is a nonreplicating live attenuated vaccine, and the ACAM2000 is a replicating live virus vaccine.

Post-exposure vaccination is 85% effective in preventing infection. Post-exposure vaccination is ideally administered within four days of exposure, and if given between four and 14 days after exposure, it may reduce the severity of symptoms but not prevent the infection. The local or state health department and CDC will determine whether vaccination as post-exposure prophylaxis is indicated.

## Is there a treatment for monkeypox?

Treatment for monkeypox virus infections is generally symptomatic as most individuals infected with monkeypox virus have a mild, self-limiting disease. Immunocompromised individuals, those who are pregnant, and children under 8 years old are at risk of complications and may benefit from treatment with antivirals. Two potential antivirals are available.

Possible treatments are these:

- Brincidofovir is a prodrug of cidofovir, an antiviral medication Food and Drug Administration (FDA)-approved for the treatment of cytomegalovirus retinitis in patients with AIDS and for smallpox, that may be used for monkeypox as an FDA-authorized expanded access investigational new drug (EA-IND). It is associated with renal and other toxicities.
- Tecovirimat (TPOXX) is an FDA-approved antiviral medication for treatment of smallpox for which CDC holds an EA-IND authorization for its use in monkeypox. Oral and intravenous formulations are available.
- Vaccinia immune globulin, intravenous, may be considered in patients with severe monkeypox infection or for prophylaxis in exposed individuals with T cell-mediated immunodeficiencies (where vaccination is contraindicated). This is FDA-licensed for the treatment of complications due to smallpox vaccination.

If treatment is indicated, CDC and DSHS epidemiologists must be consulted, and they and the attending physician must provide approval. Request access to treatments and postexposure prophylaxis through the [State of Texas Assistance Request](#).

## References and More Resources

[Monkeypox in 2022: What Clinicians Need to Know \(JAMA\)](#)

[CDC Monkeypox Response: Transmission](#)

[DSHS Monkeypox Virus Infection in the United States and Other Nonendemic Countries – 2022](#)

[CDC Information for Healthcare Professionals](#)

[CDC Interim Guidance for the Treatment of Monkeypox](#)

[CDC Interim Guidance for Household Disinfection of Monkeypox Virus](#)

[World Health Organization fact sheet on Monkeypox virus](#)

[Health alert from Texas HHS on June 7, 2022](#)