



PRACTICE ALERT

MONKEYPOX

What is monkeypox?

Monkeypox is a form of orthopoxvirus which also includes variola, vaccinia and the more common chickenpox. The first human case was identified in 1970, and most cases have been limited to central and western Africa.¹ However, over 70 countries are now reporting monkeypox cases, including many where monkeypox is not endemic such as the United States.²

The World Health Organization has designated the current monkeypox outbreak as an international public health emergency.³

The current number of cases globally, in the U.S. and by state can be found at <https://www.cdc.gov/poxvirus/monkeypox/response/2022/us-map.html>

How is monkeypox spread?

The virus that causes monkeypox disease can be spread from animal to human, from human to human. In the current outbreak, in counties where monkeypox disease is not endemic, it is being spread person to person. The virus can also be transmitted by coming into contact with recently contaminated materials such as clothing, bedding and other linens used by an infected person or animal. The monkeypox virus can be transmitted via respiratory secretions, bodily fluids and skin lesions. Monkeypox infection can also be spread in utero by crossing the placenta when a pregnant person becomes infected. Routes of entry include oropharynx, nasopharynx or intradermal.⁴ Studies have suggested that the virus may be transmitted via airborne particulates.⁵

Monkeypox is not, at this time, considered to be a sexually transmitted disease. It is important that public health education not stigmatize specific groups for the spread of monkeypox as this can result in infected persons not coming forward for care, difficulty with contact tracing, and a false sense of security for people who are not part of the stigmatized group.⁶

Are there different strains of monkeypox?

There are several common clades (strains) of monkeypox. The Central African, or Congo Basin, clade is referred to as Clade 1. The West African clades include Clades 2 and 3 (referring to strains by clade number helps limit geographic stigma). Based on preliminary data, it appears that Clade 3 is the strain currently circulating in non-endemic countries. The current rapid person-to-person spread of monkeypox in non-endemic areas leads some scientists to believe that the virus may have mutated to spread more easily amongst humans.⁷

How acute can a monkeypox infection be?

In countries where monkeypox is endemic, Clade 1 historically has a mortality rate of 10% and Clades 2 and 3 historically have a mortality rate of 1%. However, in higher income countries, the mortality rates may be lower.⁸

What are common symptoms of monkeypox?

Monkeypox infection typically starts with flu-like symptoms which may include fever, malaise, chills, sore throat, headache and muscle aches as well as lymphadenopathy (swelling of the lymph nodes). These symptoms are usually followed by a rash that develops into pustules on the face, mouth, tongue and body.⁹ Complications from monkeypox infection can include pneumonia, encephalitis, eye infections and other secondary infections.¹⁰

However, symptoms that have been considered atypical in past monkeypox outbreaks are common in the current outbreak,¹¹ including:

- presentation of only a few or even just a single lesion
- absence of skin lesions in some cases, with anal pain and bleeding
- lesions in the genital or perineal/perianal area which do not spread further
- lesions appearing at different (asynchronous) stages of development
- the appearance of lesions before the onset of fever, malaise and other constitutional symptoms (absence of prodromal period)

Some infected persons experience severe pain.¹²

What is the incubation period for monkeypox and when is a person infectious?

The incubation period is usually 1-2 weeks but can last as long as 21 days. A person is considered infectious from the onset of symptoms until all lesions have crusted over, those crusts have separated, and a fresh layer of healthy skin has formed under the crust. At this time it is believed that an infected person is not infectious to others during the incubation period.¹³

How is monkeypox infection treated?

For most patients with monkeypox, the infection resolves on its own after 2-4 weeks. While no antiviral specifically targeted to the monkeypox virus currently exists, patients can be treated with antiviral agents developed to treat smallpox. Vaccinia Immune Globulin Intravenous (VIGIV) may also be considered for high risk patients.¹⁴

Antiviral medications remain in short supply. In addition, because of limited testing capacity and the speed with which the outbreak is spreading, many patients are not receiving timely diagnosis which can delay treatment as well as hinder timely contact tracing.¹⁵

Are there vaccines to prevent monkeypox?

There are 2 smallpox vaccines that also protect against monkeypox infection. These include ACAM2000 and the newer JYNNEOS (also known as Imvamune or Imvanex). Vaccines are provided to people with a significant risk of exposure to monkeypox, including healthcare workers treating patients with monkeypox. Healthcare workers who have a high likelihood of occupational exposure to the monkeypox virus may also be offered vaccination as pre-exposure prophylaxis. Vaccines must be given within 4 days of exposure for the best chance of preventing infection and within 4-14 days of exposure to help limit severity of disease. However, because of a shortage of JYNNEOS, not all those who are at risk of monkeypox infection are receiving the vaccine. Increased JYNNEOS vaccine supplies are expected in the near future, but because of production limitations, there may be ongoing problems with adequate vaccine supply. There is an adequate supply of ACAM2000, but it cannot be given to people who have weakened immune systems, skin conditions such as eczema, dermatitis or psoriasis, or are pregnant because the ACAM2000 vaccine contains live vaccinia virus. It also may cause serious side effects in some people. People are considered fully vaccinated about 2 weeks after their second shot of JYNNEOS and 4 weeks after receiving ACAM2000.¹⁶

In the U.S. routine smallpox vaccination ended in 1972. Healthcare workers were required to be vaccinated until 1976. Some military personnel received smallpox vaccines until later dates. Those who were previously vaccinated for smallpox may retain some level of immunity against monkeypox.¹⁷ Any nurse who has been previously vaccinated should check with their medical provider regarding their level of continued immunity.

What infection control measures should be in place at my facility?

It is important that healthcare facilities are prepared to quickly identify and isolate patients who are suspected to have monkeypox. Request a copy of your facility's monkeypox infection control plan in order to determine if the following infection control measures are in place:

- Contact, droplet and airborne precautions should be followed for all patients with, or suspected to have, monkeypox.
- Training for nurses on identification and treatment of monkeypox.

- Triage procedures to rapidly identify and isolate suspected monkeypox cases, particularly in emergency departments, urgent care units and outpatient care clinics.
- An adequate number of isolation rooms for admitted patients with, or suspected to have, monkeypox are available. Airborne infection isolation rooms (AIIRs) are preferred and should not be limited to aerosol-generating procedures as studies suggest that airborne transmission of monkeypox is a risk. Information on temporary AIIRs is available by contacting the NYSNA Occupational Health and Safety Representatives.
- An adequate supply of PPE, including respirators, gowns, gloves and eye protection for staff coming into close contact with patients with, or suspected to have, monkeypox is available. All disposable PPE should be removed and disposed of after every patient care session.
- Training, with hands-on practice, on how to doff used PPE without risk of self contamination.
- Procedures to ensure the safe handling of linen in rooms of patients with, or suspected to have, monkeypox. Soiled linen may contain infectious lesion material.
- Procedures to handle medical waste of patients with confirmed or suspected monkeypox.
- Cleaning protocols that do not disperse lesion materials (i.e. no dry dusting, sweeping or vacuuming).
- Policies and procedures that limit visitor and staff contact with patients who have, or are suspected to have, monkeypox.
- Contact tracing and notification procedures to rapidly identify and notify staff who may have been exposed to monkeypox.
- An adequate supply of JYNNEOS to vaccinate staff who may be exposed to monkeypox should they choose to be inoculated.
- Procedures to limit patient transport within the facility and, if transportation outside the patient room is necessary, to limit the risk of exposure by patient masking and covering of lesions.

If you have any questions or concerns about safety related to infection control in your facility, please contact your NYSNA Representative and the NYSNA Health and Safety Representatives at healthandsafety@nysna.org.

¹ World Health Organization Monkeypox Fact Sheet. May 19, 2022. <https://www.who.int/news-room/fact-sheets/detail/monkeypox>

² 2022 Monkeypox Outbreak Global Map. World Health Organization, Data as of 27 Jul 2022 5:00 PM EDT <https://www.cdc.gov/poxvirus/monkeypox/response/2022/world-map.html>

³ Second meeting of the International Health Regulations (2005) (IHR) Emergency Committee regarding the multi-country outbreak of monkeypox. World Health Organization. July 23, 2022. [https://www.who.int/news/item/23-07-2022-second-meeting-of-the-international-health-regulations-\(2005\)-\(ihr\)-emergency-committee-regarding-the-multi-country-outbreak-of-monkeypox](https://www.who.int/news/item/23-07-2022-second-meeting-of-the-international-health-regulations-(2005)-(ihr)-emergency-committee-regarding-the-multi-country-outbreak-of-monkeypox)

⁴ Moore, M.J., Rathish, B., Zahra, F. Monkeypox. (2022). StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK574519/>

⁵ Barnewall, R.E., Fisher, D.A., Robertson, A.B., et al. (2012). Inhalational monkeypox virus infection in cynomolgus macaques. *Frontiers in Cellular and Infection Microbiology*. 2:117. <https://doi.org/10.3389/fcimb.2012.00117>

⁶ Reducing Stigma in Monkeypox Communication and Community Engagement updated July 12, 2022. U.S. Centers for Disease Control and Prevention. <https://www.cdc.gov/poxvirus/monkeypox/reducing-stigma.html>

⁷ Isidro, J. Borges, V., Pinto, M., et al. Phylogenomic characterization and signs of microevolution in the 2022 multi-country outbreak of monkeypox virus.(2022). *Nature Medicine*. <https://www.nature.com/articles/s41591-022-01907-y>

⁹ Monkeypox Symptoms. World Health Organization. https://www.who.int/health-topics/monkeypox#tab=tab_2

¹⁰ Monkeypox: key facts, 19 May 2022. World Health Organization. <https://www.who.int/news-room/fact-sheets/detail/monkeypox>

¹¹ Multi-country monkeypox outbreak: situation update 27 June 2022. World Health Organization. <https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON396>

¹² Thornhill, J.P., Barkati, S., Sharon Walmsley, S. et al. (2022). Monkeypox virus infection in humans across 16 countries — April–June 2022. *New England Journal of Medicine*. DOI: 10.1056/NEJMoa2207323. <https://www.nejm.org/doi/10.1056/NEJMoa2207323>

¹³ Monkeypox: Clinical Recognition, updated June 24, 2022. U.S. Centers for Disease Control and Prevention. <https://www.cdc.gov/poxvirus/monkeypox/clinicians/clinical-recognition.html>

¹⁴ Interim Clinical Guidance for the Treatment of Monkeypox. Updated June 22, 2022. U.S. Centers for Disease Control and Prevention. <https://www.cdc.gov/poxvirus/monkeypox/clinicians/treatment.html>

¹⁵ Diamond, D. Doctors treating monkeypox complain of ‘daunting’ paperwork, obstacles. July 15, 2022. *Washington Post*. <https://www.washingtonpost.com/health/2022/07/15/monkeypox-response-vaccine->

[treatment-obstacles-adams/](#)

¹⁶ Monkeypox and Smallpox Vaccine Guidance, updated June 2, 2022. Centers for Disease Control and Prevention. <https://www.cdc.gov/poxvirus/monkeypox/clinicians/smallpox-vaccine.html>

¹⁷ Hammarlund, E., Lewis, M., Hansen, S. et al. (2003). Duration of antiviral immunity after smallpox vaccination. Nature Medicine. 9:1131–1137. <https://www.nature.com/articles/nm917>