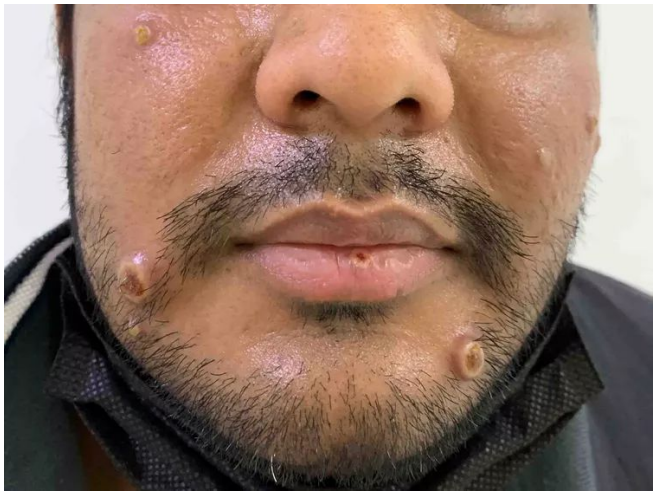
MPOX: Don’t be SORRY, vaccinate!

Taylor Piontek, FNP-C, AAHIVS

Financial Disclosures

- Taylor Piontek, faculty for this CE activity, has no relevant financial relationship(s) with ineligible companies to disclose.
- None of the planners for this activity have relevant financial relationships to disclose with ineligible companies.
- The Arizona Alliance for Community Health Centers is accredited by the Arizona Medical Association to provide medical education for physicians.
- The Arizona Alliance for Community Health Centers designated the 2025 Arizona Immunization Conference educational activity for a maximum of 11 hours AMA PRA Category 1 Credits Physicians should only claim credit commensurate with the extent of their participation in the activity.
- The Arizona Pharmacy Association is accredited by the Accreditation Council for Pharmacy Education (ACPE) as a provider of continuing pharmacy education.

Introduction to Mpox



Mpox is a zoonotic viral disease caused by the Mpox virus, belonging to the Orthopoxvirus genus.

First identified in 1958 in monkeys and later in humans in 1970 in the Democratic Republic of the Congo.

The virus has two genetic clades: Clade I (more severe) with two subclades (clade Ia and Ib) and Clade II (less severe, global outbreak in 2022).

Image Retrieved from https://www.verywellhealth.com/monkeypox-rash-treatment-6385977

Objectives

Viewers will have a brief understanding of Mpox, who it affects, and how it is spread

Viewers will be able to appropriately determine patients that may benefit from the Mpox vaccine

Viewers will be able to recognize possible s/s of an mpox infection

Transmission and Risk Factors

- Both mpox clades spread through close skin-to-skin contact, respiratory droplets, and contaminated objects.
- In Central Africa, Ia transmitted through contact with infected dead or live wild animals, household transmission, and patient care.
- Subclade Ib (identified in DRC) spread through intimate and adult sexual contact between different demographics.
- To date, clade Ib has lower case-fatality rate than clade Ia.
- High-risk populations include:
    - Close contacts of confirmed positive individuals.
    - Immunocompromised individuals.
    - Those with multiple sexual partners.
- Preventive measures include vaccination, hygiene, and avoiding close contact with positive persons.
- Those more likely to get severely ill include people who are immunocompromised, pregnant persons, children under the age of 1, and those with a history of eczema.

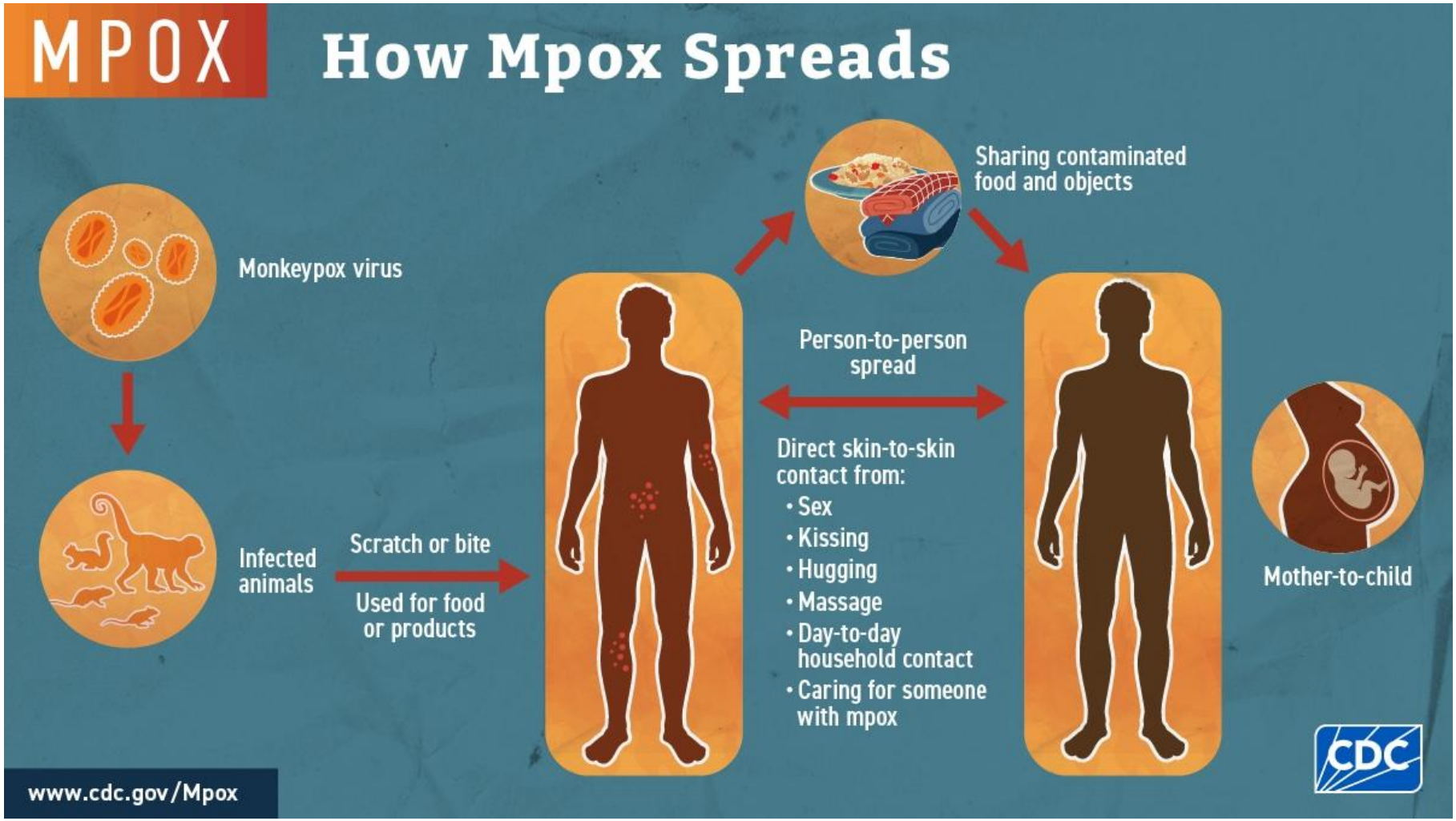


Image Retrieved from https://www.cdc.gov/mpox/causes/index.html

Clinical Presentation

- Symptoms of Mpox:
  - Fever, headache, muscle aches, and swollen lymph nodes.
  - Rash that progresses from macules to papules, vesicles, pustules, and scabs.
  - Rash commonly appears on the face, palms, soles, and genital area.
  - Incubation period: 3-17 days, with illness lasting 2-4 weeks.

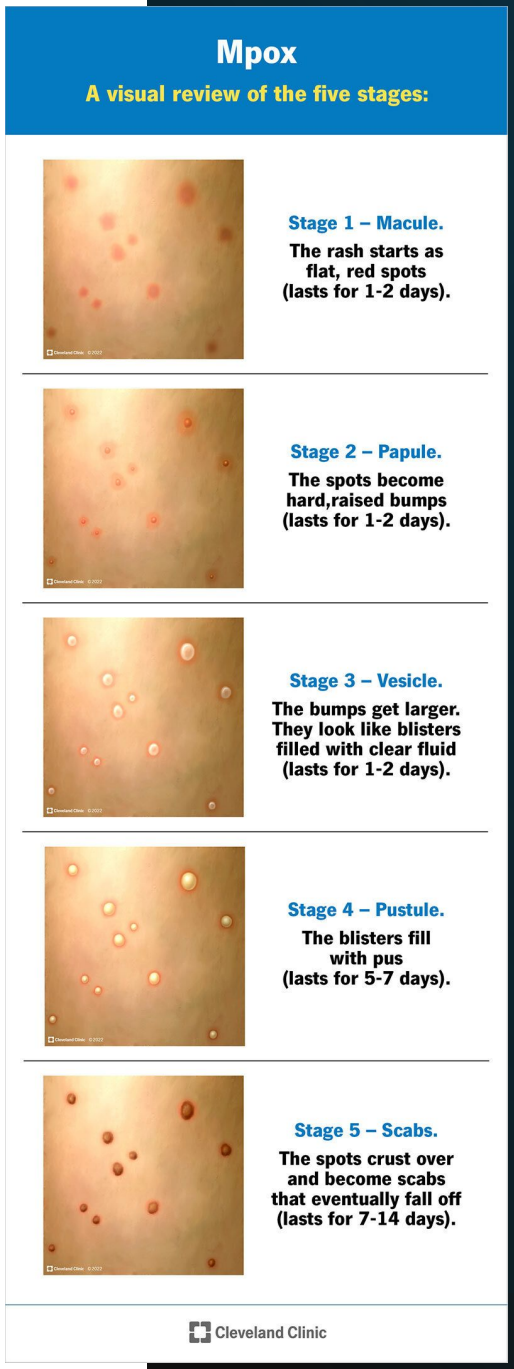


Image Retrieved from https://my.clevelandclinic.org/health/diseases/22371-monkeypox

Diagnosis

1. CLINICAL EVALUATION: HISTORY, SYMPTOMS, LESION ASSESSMENT.

2. LABORATORY TESTING: PCR TESTING OF LESION SAMPLES.

Epidemiology in the United States

- Mpox cases reported across the United States, peaking in mid-2022 were clade II.
- Predominantly affecting men who have sex with men (MSM) but can affect anyone.
- Major outbreaks in urban centers.
- There have been four cases of clade Ib identified in the US thus far.
- More than 100,000 cases of clade II in 122 total countries, including 115 countries where mpox was not previously reported.

Mpox in Maricopa County, Arizona

Maricopa County reported the highest number of cases in Arizona.

2022: 483 cases.

2023: 17 cases.

2024: 59 cases (as of current data).

Public health response included targeted vaccinations and awareness efforts.

Mpox Vaccine Overview

- ACAM2000 is licensed to prevent smallpox and recommended by the ACIP for certain people at risk for exposure to orthopoxvirus infections.
  - Not being used in the ongoing clade II mpox outbreak that started in 2022.
  - More side effects and contraindications.
- JYNNEOS is a two-dose vaccine approved for Mpox and smallpox prevention and has been the predominant vaccine used in the clade II outbreak.

  - 0.5 mL subcutaneously, followed by a second dose 4 weeks later
- Who should get the vaccine?
  - Known or suspected exposure to someone with mpox
  - Sex partner in the past 2 weeks who was diagnosed with mpox
  - Gay, bisexual, or other men who has sex with men (MSM), or a person who has sex with gay, bisexual, or other MSM who in the past 6 months has had any of the following:
    - A new diagnosis of one or more sexually transmitted diseases (e.g., chlamydia, gonorrhea, or syphilis)
    - More than one sex partner
  - Any of the following in the past 6 months:
    - Sex at a commercial sex venue (like a sex club or bathhouse)
    - Sex related to a large commercial event or in a geographic area (city or county for example)

    where mpox virus transmission is occurring
  - Sex partner with any of the above risks
  - Anticipation of experiencing any of the above scenarios
  - Traveling to a country with a clade I mpox outbreak and anticipate any of the following activities during travel:
    - Sex with a new partner
    - Sex at a commercial sex venue (e.g., a sex club or bathhouse)
    - Sex in exchange for money, goods, drugs, or other trade
    - Sex in association with a large public event (e.g., a rave, party, or festival)
  - You are at risk for occupational exposure to orthopoxviruses (e.g., certain people who work in a laboratory or a healthcare facility).

Vaccine Efficacy and Recommendations

- Effectiveness studies show:
  - Two doses provide the best protection.
  - Estimated 86% protection for fully vaccinated individuals.
  - It is unknown how long protection may last or if it decreases overtime.
  - Peak immunity reached 14 days after second dose received.
- If someone has had mpox, it is not recommended that they receive the vaccine.
- There are currently no booster doses recommended other than for those that work in a research laboratory with mpox or other orthopoxviruses.
- It is still possible to get mpox if someone has been vaccinated.
- Vaccines can be administered at health departments and local pharmacies.

Addressing Vaccine Hesitancy

- Key concerns include:
  - Misinformation about the vaccine
  - Fears of side effects
    - Most common side effects include injection site reactions of pain, redness, swelling, induration, swelling, and itching.
    - Most common systemic adverse reactions include muscle pain, fatigue, headache, nausea, and chills.
  - Stigma associated with vaccination
- Strategies to improve uptake:
  - Public education campaigns
  - Community engagement
  - Transparent communication about vaccine safety

Treatment Options

- Currently no specific treatment approved for mpox infections.
- Supportive care and pain control is sufficient for most patients who do not have severe disease.
- Severe manifestations of the infection include:
  - *Ocular infections*
  - *Neurologic complications*
  - *Complications due to advanced HIV infection and uncontrolled viral spread*
  - *Myopericarditis*
  - *Mucosal lesions (rectal, genital, oral, urethral) causing complications*
  - *Skin conditions, such as eczema, which can cause uncontrolled viral spread*
- Tecovirimat (TPOXX, ST-246)
  - *Made available for the treatment for mpox in certain patients under the CDC-held Expanded Access-Investigational New Drug (EA-IND) protocol.*
  - *Studies found that TPOXX was safe, but did not change recovery time*
- Brincidofovir
  - *Mostly reserved for those with severe disease and those who are severely immunocompromised*

Conclusion and Q&A

KEY TAKEAWAYS:

MPOX IS A VIRAL DISEASE WITH TWO CLADES, CLADE 1 (MORE SEVERE) AND CLADE 2.

VACCINATION IS A CRITICAL TOOL IN PREVENTING TRANSMISSION.

ADDRESSING VACCINE HESITANCY IS ESSENTIAL TO CONTROL FUTURE OUTBREAKS.

MARICOPA COUNTY HAS TAKEN SIGNIFICANT STEPS TO MANAGE MPOX OUTBREAKS.

References

- Centers for Disease Control and Prevention. (2024, August 26). *Information for healthcare professionals*. Centers for Disease Control and Prevention. https://www.cdc.gov/poxvirus/mpox/ clinicians/index.html
- Centers for Disease Control and Prevention. (2024b, August 27). *JYNNEOS vaccine effectiveness*. Centers for Disease Control and Prevention. https://www.cdc.gov/mpox/data-research/vaccines/index.html
- Centers for Disease Control and Prevention. (2025a, January 30). *Clinical treatment of Mpox*. Centers for Disease Control and Prevention. https://www.cdc.gov/mpox/hcp/clinical- care/index.html
- Centers for Disease Control and Prevention. (2025b, January 30). *Mpox*. Centers for Disease Control and Prevention. https://www.cdc.gov/mpox/index.html
- Centers for Disease Control and Prevention. (2025c, February 14). *Interim clinical considerations for use of vaccine for MPOX Prevention in the United States*. Centers for Disease Control and Prevention. https://www.cdc.gov/mpox/hcp/vaccine-considerations/vaccination-overview.html
- Guagliardo, S. A. J., Kracalik, I., Carter, R. J., Braden, C., Free, R., Hamal, M., Tuttle, A., McCollum, A. M., & Rao, A. K. (2024). Monkeypox virus infections after 2 preexposure doses of JYNNEOS vaccine — United States, May 2022–May 2024. *Morbidity and Mortality Weekly Report*, 73(20), 460–466.
- Hui-Anderson, A. (2022, December 1). How to treat an mpox rash. *Verywell Health*. https://www.verywellhealth.com/ monkeypox-rash-treatment-6385977
- *JYNNEOS (smallpox and monkeypox vaccine, live, non-replicating)*. JYNNEOS (Smallpox and Monkeypox Vaccine, Live, Non-replicating). (2024, March 29). https://jynneos.com/#safety
- *Mpox information for healthcare providers*. Mpox Information for Healthcare Providers | Maricopa County, AZ. (2024, August 20). https://www.maricopa.gov/5843/Healthcare-Providers
- *Mpox*. Cleveland Clinic. (2025, February 13). https://my.clevelandclinic.org/health/ diseases/22371-monkeypox
- *Mpox*. Mpox | Maricopa County, AZ. (2025, January 13). https://www.maricopa.gov/5825/Mpox

Claim your Continuing Education Credit

Scan this QR code

Claim your CE credits for physicians, nurses, CHES, MCHES, and non-Accredited Certificates of Attendance from the Arizona Alliance for Community Health Centers

Pharmacy CEs pick up your QR code at the registration desk to Claim your CEs!